NAGALAND UNIVERSITY

Regulation and Syllabus for

Bachelor of Physiotherapy (BPT)

(4 Years + 6 Months) Degree Course

2024

Regulations for the Allied Health Sciences Bachelor Programs of the Nagaland University

The Regulations & syllabus are subject to modifications by the University from time to time.

1. Eligibility for Admission:

(i) The candidate should have passed the Higher Secondary (10+2) from CBSE or State Education Board or any Govt. recognized Board with at least 50% marks for general candidates (UR) and 45% for SC/ST/OBC/NCL candidates in Physics, Chemistry, and Biology.

(ii) For B.Sc. (Health Information Management) course, candidates with Physics, Chemistry, and Mathematics in 10+2 may also be considered.

(iii) The candidate should have attained the minimum age of 17 years during the admission.

(iv) **Lateral Entry:**

Candidates who have completed a two-year diploma programme in the concerned subject from Boards recognized by Central / State Government(s) / State / Central University with at least 50% marks in aggregate for (UR) candidates and 45% marks in aggregate for SC / ST / OBC / NCL candidates shall be eligible for Lateral Entry to the second year (3rd Semester) of Bachelor Programme in Allied Health Sciences.

2. Duration of the Course:

(i) Group A: 4 years, i.e., 3 years or 6 semesters of academic studies and one year of internship (B.Sc.HIM, B.Sc.DTT, B.Sc.AOTT, BSc RTT, BSc. MRIT).
Group B: 4 and a half years, i.e., 4 years or 8 semesters of academic studies and six months of internship (BPT, BOT courses).
Group C: 4 years, i.e., 3 and a half year or 7 Semesters of academic studies and six months of internship (BMLS) during the 8th semester.

(ii) The maximum duration of the Bachelor Programme for Group A, B & C above shall be N+2 where N is the normal duration of the programme. No student shall be allowed to continue beyond the maximum duration.

3. Medium of Instruction:

The medium of instruction for all the Allied Health Sciences courses shall be English.

4. Working Days Per Semester:

Each Semester consists of 90 working days, with eight hours of work per day and 40 hours per week, totalling 720 hours per Semester.

5. Internship Hours:

One-year Internship programs will include 1440 hours of practical training and Six Months Internship will include 720 hours of practical training.

6. **Attendance**:

(i) A candidate must secure a minimum of 80% attendance in theory classes. Students who fail to meet the requirement due to illness may be eligible for a 5% condonation, provided they submit a medical certificate from a registered medical practitioner.

(ii) 100% in skills training (practical/internship) to qualify for the award of degree. In case of insufficient attendance, the candidate's internship period will be extended accordingly. There are no other exceptions to these rules under any circumstances.

7. **Submission of Log Books:**

a. At the time of practical examination, each candidate shall submit to the examiners his / her Log book duly certified by the Head of the Department as a bonafide record of the work done by the candidate.

b. The practical record shall be evaluated by the concerned Head of the Department (Internal Evaluator) and the practical record marks shall be submitted to the University 15 days prior to the commencement of the theory Examinations.

c. In respect of failed candidates, the marks awarded for record at previous examination will be carried over for the subsequent examination. The candidates shall have the option to improve his performance by submission of fresh records.

8. **Revaluation / Scrutiny of Answer Papers:**

(i) There is no provision for candidate to request for revaluation of the answer papers of failed candidates in any examination. However, the failed candidates can apply for scrutiny.

(ii) Nagaland University shall constitute a Result Moderation Committee of 3 members.

9. **Pattern of Question Paper for University Examination:**

Descriptive type Questions	=30%
Descriptive Short Notes	=30%
Short Answer questions	=20%
MCQ Type	=20%

10. **Assessment**:

(i) Assessment for theory and practical examinations: - Students must attain at least 50% marks in each theory and practical component, both in internal assessments and in the final University examinations to pass the course. The final marks will be 75% from the University examination and 25% will be from the internal assessment.

(ii) The distribution of marks between theory and practical shall be provided in the **Curriculum and Syllabi** of each course.

(iii) Assessment for internship: - During the internship, students gain clinical experience and learn to document patient care effectively. Each student must maintain a logbook and a portfolio.

Activity	Marks %	Assessor
Log book	20	Supervisor
Portfolio*	20	Supervisor
Practical	40	Examiners
Viva voce	20	Examiners

*The portfolio provides one with an opportunity to demonstrate the breadth and depth of your knowledge on certain topics

The portfolio incorporates the follow documents:

- Curriculum vitae
- Progress reports
- "Summary of Competency Achievement" demonstrating the level of competency achieved in each sub-module.
- Samples of work prepared by the intern from at least 5 of the modules of internship training guide.

A presentation delivered covering key aspects of the module

The clinical supervisor will examine the portfolio at regular (at least once in three months) intervals and provide feedback to the Intern.

(iv) Mode of Evaluation: -

Evaluation for Theory papers during Odd End Semester Examination shall be internally done by the colleges and Theory papers during Even End Semester Examinations shall be externally evaluated or as notified by the University.

11. Internship Project:

As part of the internship, students are required to choose a relevant subject and prepare an in-depth project report, which should include the objective, scope of the project, and a detailed report.

12. Advancement to the Next Semester:

Advancement to the next semester is contingent upon meeting the following conditions and clearing any backlogs as described: -

A student may not fail in more than two papers in the preceding semester to be eligible to advance to the next semester.

13. Repeat examination for failed candidates:

Failed papers in odd semesters can be repeated during the exams of the subsequent odd semester. Similarly, failed papers in even semesters exams can be repeated during the subsequent even semester exams.

14. Vacation:

Maximum of 15 days including Saturdays and Sundays

15. Re-Admission after Break of Study:

Students shall be allowed to continue after break in studies provided the maximum duration as given in Clause- 2 (ii) is not exceeded.

16. Award of the Degree:

a. Candidates who have passed all written examinations and successfully completed the compulsory internship as per the university's requirements will be awarded the degree.
b. Final Consolidated Mark sheet shall be issued by the Nagaland University to the candidate after submission of his/her Internship Completion Certificate by the College.

17. Academic Calendar:

(i) Odd semester shall be from July to December, and Even semester shall be from January to June.
(ii)The odd semester and even semester university (end) examinations shall be conducted in the months of December and June respectively.

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Bachelor of Physiotherapy (BPT)

Semester Wise Distribution of Subjects

Total Credits= 160; Total Marks=5200.

Semester	Code	Subject	Credits		Total	MARKS					Total Hours	
						Internal		Semester		Total		
			Theory	Practical		Theory	Practical	Theory	Practical		Theory	Practical
1st Semester	BPT-101	Human Anatomy-1	5	1	6	30	20	100	50	200	90	36
	BPT-102	Human Physiology-1	5	1	6	30	20	100	50	200	90	36
	BPT-103	Biochemistry	4	0	4	25	0	75	0	100	72	0
	BPT-104	Sociology	4	0	4	30	20	100	50	200	72	0
			Total		**20**					**700**	**324**	**72**
		BPT-105 Medical terminology and record keeping and Medical/Physiotherapy Law & Ethics (Internal paper)	3	-	-	50	0	-	-	50	54	0
		BPT-106 Basic computer & information science (Internal paper)	1	1	-	30	20	-	-	50	18	36
		BPT-107 English, communication & soft skills (Internal paper)	1	-	-	50	0	-	-	50	18	0
		BPT-108 Orientation to physiotherapy (Internal paper)	1	-	-	50	0	-	-	50	18	0
2nd Semester	BPT-201	Human Anatomy-2	5	1	6	30	20	100	50	200	90	36
	BPT-202	Human Physiology- 2	5	1	6	30	20	100	50	200	90	36
	BPT-203	General & Clinical Psychology	4	-	4	25	0	75	0	100	72	0
	BPT-204	Basic principles of Biomechanics	3	1	4	30	20	100	50	200	54	36
			Total		**20**					**700**	**306**	**108**
	BPT-205	Introduction to healthcare delivery system in India (Internal Paper)	2	-	-	50	0	-	-	50	36	0
	BPT-206	First Aid & CPR (Internal Paper)	1	1	-	30	20	-	-	50	18	36
		Clinical Observation	-	-	-	-	-	-	-	-	-	72
3rd Semester	BPT- 301	Pathology	4	0	4	25	0	75	0	100	72	0
	BPT-302	Microbiology	4	0	4	25	0	75	0	100	72	0
	BPT- 303	Pharmacology	3	0	3	25	0	75	0	100	54	0
	BPT- 304	Biomechanics & Kinesiology	4	1	5	30	20	100	50	200	72	36
	BPT- 305	Foundation of Exercise therapy & Soft tissue manipulation	3	1	4	30	20	100	50	200	54	36
			Total		**20**					**700**	**324**	**72**
		Clinical Observation	-	-	-	-	-	-	-	-	-	72
4th Semester	BPT-401	Exercise Therapy	5	2	7	30	20	100	50	200	90	72

	BPT-402	Biophysics	5	1	6	30	20	100	50	200	90	36
	BPT-403	Electrotherapy (LMHF & Equipment care)	5	2	7	30	20	100	50	200	90	72
			Total		**20**					**600**	**270**	**180**
	BPT-404	Introduction to quality & patient safety (Internal Paper)	1	1	-	30	20	-	-	60	18	36
		Clinical Education	-	-	-	-	-	-	-	-	-	72
5th Semester	BPT- 501	Clinical orthopedics & Traumatology	5	0	5	25	0	75	0	100	90	0
	BPT-502	General Surgery including Burns and Plastic surgery & Obstetrics & Gynecology	5	0	5	25	0	75	0	100	90	0
	BPT-503	General Medicine, Pediatrics, Geriatrics, & Psychiatry	5	0	5	25	0	75	0	100	90	0
	BPT-504	Biostatistics & Research methodology	4	1	5	25	0	75	0	100	72	36
			Total		**20**					**400**	**342**	**36**
	BPT- 505	Diagnostic imaging for physiotherapist (Internal Paper)	1	-	-	50	-	-	-	50	18	0
		Clinical Education	-	-	-	-	-	-	-	-	-	72
6th Semester	BPT-601	Physiotherapy in Orthopedics & sports	5	2	7	30	20	100	50	200	90	72
	BPT-602	Physiotherapy in Medical & Surgical conditions and Obstetrics & Gynecology	5	2	7	30	20	100	50	200	90	72
	BPT-603	Clinical Neurology & Neurosurgery	6	0	6	25	0	75	0	100	108	0
			Total		**20**					**500**	**288**	**144**
		Clinical Education	-	-	-	-	-	-	-	-	-	72
7th Semester	BPT-701	Physiotherapy in Neurology & Psychosomatic disorder	5	2	7	30	20	100	50	200	90	72
	BPT-702	Community medicine	5	2	7	30	20	100	50	200	90	72
	BPT-703	Clinical Cardiovascular & Pulmonary	5	1	6	30	20	100	50	200	90	36
			Total		**20**					**600**	**270**	**180**
		Clinical Education	-	-	-	-	-	-	-	-	-	72
8th Semester	BPT-801	Physiotherapy in Cardiovascular, pulmonary, & Intensive care	5	2	7	30	20	100	50	200	90	72
	BPT-802	Community Physiotherapy	5	2	7	30	20	100	50	200	90	72
	BPT-803	Clinical decision making & Evidence-based physiotherapy	1	1	2	30	20	100	50	200	18	36
	BPT-804	Administration & Teaching skills	1	1	2	30	20	100	50	200	18	36
	BPT-805	Research Project	1	1	2	30	20	100	50	200	18	36
			Total		**20**					**1000**	**234**	**252**
		Clinical Education	-	-	-	-	-	-	-	-	-	72

	Course Titles	Hours			Weekly class hours
		Theory	Practical	Total	
9th Semester	Internships	-	720 (minimum)	720	NA
	Total			720	

INTERNSHIP – Minimum 720 hours (Calculated based on 8 hours per day, if 90 working days in six-month span)

DETAIL SYLLABUS FOR BACHELOR IN PHYSIOTHERAPY (BPT) COURSE

SEMESTER-1: 20 CREDITS

BPT-101: HUMAN ANATOMY- 1

SUBJECT DESCRIPTION: Human anatomy is designed to provide students with the working knowledge of the structure of the human body which is essential foundation for their clinical studies.

THEORY

A. Introduction to anatomy- definition, subdivisions, anatomical positions, anatomical terms & planes. Cell, tissue, bones, joints, axis & movements of synovial joints, muscle, nerve, and Define origin, insertion, muscle work, types of muscle work, group action- agonist, antagonist, synergist, fixator, shunt and spurt muscle, levers with e.g.

B. Upper limb- Osteology, arthology, myology, neurology, angiology, axilla, scapula thoracic rhythm, cubital fossa

C. Lower Limb- Osteology, arthology, myology, neurology, angiology, femoral triangle, popliteal fossa, arch of foot.

D. Thorax & abdomen- Osteology of vertebral column, Identify and classify vertebrae – typical & atypical, Parts and features of typical vertebrae, Features of thoracic, lumbar, sacral, coccyx, Intervertebral joint – articulating surface, movements, stability, mobility, Curvatures of vertebral column, Contents of vertebral canal, Sternum – parts, features (borders, surfaces, muscle attachments), Define true, false, floating ribs, Mention parts and features of atypical rib, Type and formation of joint between rib and vertebrae, between costal cartilage, costal cartilage and sternum, between parts of sternum, Sternal angle, Intercostal space and its contents, Intercostal nerve – course and its branches, Intercostal muscle – origin, insertion, nerve supply, action, Diaphragm – origin, insertion, nerve supply, action, orifice, structures passing through Diaphragm, Movements of ribs – pump handle and bucket handle movement, Normal position, external features of heart and parts of heart, internal features of Chambers of heart, blood supply, venous supply, conductive system Normal position, parts, relation, blood supply of URT & LRT, pleura and its reflection, nerve supply, bronchopulmonary segment, mechanics of respiration.

References: a) Textbook of Anatomy Vol. 1,2,3 by Inderbir Singh

b) Textbook of Anatomy Vol. 1,2,3 by B.D. Churasia

BPT-102: HUMAN PHYSIOLOGY-1

SUBJECT DESCRIPTION: The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body.

THEORY

A. CELL

1. Basic concepts of cell structure, components, functions, transport across cell membrane
2. Functional morphology of the cell
3. Intercellular communication

B. SKIN

1. Structure, functions, temperature regulation
2. Physiological basis of Pyrexia and Hypothermia

C. BLOOD

1. Composition and function of blood
2. RBC-morphology, formation, normal count, functions, physiological & pathological Variation
3. WBC- morphology, formation, normal count, functions, physiological & pathological Variation
4. Blood Platelets-Morphology, normal count, formation, function, variation
5. Hemoglobin-Basic chemistry, function, fate of hemoglobin
6. Blood Clotting-Definition, clotting factor, theories of clotting
7. Blood group-ABO system, Rh System
8. Blood volume and regulation
9. Blood transfusion

D. DIGESTION

1 Structure and function of GI system

2 Mastication and Deglutition

3 Saliva – composition, function, regulation

4 Gastric secretions – composition, phases of secretion, function

5 Pancreatic secretions – composition, function, regulation

6 Bile – composition and function

7 Movements of small and large intestine

8 Digestion in mouth, stomach, intestine

9 Defecation

E. RESPIRATION

1 Structure and function of respiratory system

2 Mechanics of breathing – Muscles of respiration, Lung & Chest wall compliance, V/Q Ratio, Surfactant

3 Transport of gases- O2 & CO2, O2 dissociation curve

4 Nervous and Chemical regulation of respiration

5 Hypoxia, Cyanosis, Dyspnea

6 Acid Base Balance

7 Principles of Lung Function Test – Spiro meter, Lung volumes and capacities

8 Artificial respiration

9 Effect of exercise on respiratory system

10. Defense mechanism

F. REPRODUCTION

1 Male reproductive system

2 Female reproductive system

3 Pregnancy, function of placenta, parturition, lactation, contraception

4 Puberty and Menopause

5 Spermatogenesis and Oogenesis

6 Menstrual cycle

G. NERVOUS SYSTEM

1 General organization of nervous system

2 Structure, type and function of neuron

3 Properties of neurons

4 Synapse and synaptic transmission

5 Neurotransmitters

6 Reflex – Properties and types

7 Sensory – Receptors, sensory pathway, pain pathway, referred pain, modulation of pain, coding of sensory

information, functional organization of ascending sensory pathways; Thalamus; Sensory cortex; Perception of sensory stimuli

8 Motor – Motor cortex, Basal ganglia, Cerebellum, Cortex, Basal ganglia, Equilibrium and posture,

Localizing the level of lesion in neurological disease

9 Ascending and Descending pathway

10 Posture and Equilibrium

11 Muscle tone

12 ANS – organization, function of SNS & PSNS

13 CSF – composition, formation, circulation, function

14 LMN & UMN lesion

References: a) Textbook of Physiology by A.K. Jain

b) Textbook of Physiology by Chaudhuri Sujit K

c) Ghai's textbook of practical physiology by VP Varshney & Mona Bedi

BPT-103: BIOCHEMISTRY

SUBJECT DESCRIPTION: Biochemistry is the study of the chemical processes that drive biological systems. This course explores the basic principles of biochemistry and develops the student's appreciation and understanding of biological networks.

1. Nutrition –

a. Introduction, Importance of nutrition Calorific values, Respiratory quotient – Definition, and its significance Energy requirement of a person - Basal metabolic rate: Definition, Normal values, factor affecting BMR Special dynamic action of food.

b. Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person

c. Balanced diet

i. Recommended dietary allowances

ii. Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers

iii. Role of lipids in diet

iv. Role of proteins in diet: Quality of proteins - Biological value, net protein utilization, Nutritional aspects of proteins-essential and non- essential amino acids. Nitrogen balance

v. Nutritional disorders

vi. Nutritional disorders: Protein calorie malnutrition, kwashiorkor, marasmus, obesity

2. Carbohydrate Chemistry –

a. Definition, general classification with examples, Glycosidic bond

b. Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides.

c. Glycosaminoglycan (mucopolysaccharides), Glycolysis, & Gluconeogenesis

d. Blood glucose level and its maintenance, mechanism of action of insulin, glucagon, growth hormone, Diabetes Mellitus, biochemical basis of symptoms and complications

3. Lipid Chemistry –

a. Definition, general classification

b. Definition, classification, properties and functions of Fatty acids, Triacylglycerol, Phospholipids, Cholesterol

c. Essential fatty acids and their importance

d. Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies

4. Amino-acid Chemistry –

a. Amino acid chemistry: Definition, Classification, Peptide bonds

b. Peptides: Definition, Biologically important peptides

c. Protein chemistry: Definition, Classification, Functions of proteins,

5. Enzymes –

a. Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors effecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance of enzymes)

6. Nucleotide and Nucleic Acid Chemistry -

a. Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body.

b. Nucleic acid (DNA and RNA) chemistry: Difference between DNA and RNA, Structure of DNA (Watson and Crick model), Functions of DNA. Structure and functions of tRNA, rRNA, mRNA.

7. Vitamins -

a. Definition, classification according to solubility,

b. Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.

8. Mineral Metabolism-

a. Definition, Sources, RDA, Digestion, absorption, transport, excretion, functions, disorder of Individual minerals - Calcium, phosphate, iron, Magnesium.

9. Clinical Biochemistry -

a. Normal levels of blood and urine constituents, Relevance of blood and urine levels of Glucose, Urea, Uric acid, Creatinine, Calcium, Phosphates, pH and Bicarbonate. Liver function tests, Renal function tests.

References: a) Textbook of Biochemistry for Medical Students 6th Edition, DM Vasudevan , Sreekumari S ,Kannan Vaidyanathan.

b) Medical Biochemistry for Physiotherapy students by Harpreet Kaur & Jagmohan singh

BPT-104: SOCIOLOGY

SUBJECT DESCRIPTION - Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India will be studied.

THEORY

A. Introduction

- Definition of Sociology
- Nature and Scope of the discipline
- Importance and application of Sociology in Nursing

B. Individual & Society

- Society and Community
- Nature of Society
- Difference between Society and Community
- Process of Socialization and individualization
- Personal disorganization

C. Culture

- Nature of culture
- Evolution of culture

- Diversity and uniformity of culture
- Culture and socialization
- Transcultural society
- Influence on health and disease

D. Social groups and Processes The meaning and classification of groups Primary & Secondary Group In-group V/s. Out-group, Class Tribe, Caste Economic, Political, Religious groups, Mob, Crowd, Public and Audience Interaction & Social Processes Co-operation, Competition, Conflict Accommodation, Assimilation & Isolation

E. Population

- Society and population
- Population distribution in India-Demographic characteristics
- Malthusian theory of Populations
- Population explosion in India and its impact on health status
- Family welfare Programmes

F. Family and Marriage

- Family-Functions
- Types-Joint, Nuclear, Blended and extended family: Characteristics
- The Modern Family —Changes, Problems-Dowry etc., welfare Services
- Changes & legislations on family and marriage in India -marriage acts
- Marriage: Forms and functions of marriage,
- Marriage and family problems in India
- Family, marriage and their influence on health and health practices

G. Social Stratification

- Meaning & types of social stratification
- The Indian Caste System-origin & features
- Features of Caste in India Today
- Social Class system and status
- Social Mobility-Meaning & Types
- Race as a biological concept, criteria of racial classification
- Salient features of Primary Races-Racism
- Influence of Class, Caste and Race on health and health practices

H. Types of Communities in India (Rural, Urban and Regional)

- Features of village community& Characteristics of Indian villages-Panchayat system, social dynamics
- Community Development project & planning
- Changes in Indian Rural Life
- Availability of health facilities in rural and its impact on health and health practices
- Urban Community features
- The growth of cities: Urbanization and its impact on health and health practices
- Major Urban Problems-Urban Slums
- Region: Problems and impact on Health

I. Social Change

- Nature and process of Social Change
- Factors influencing Social change: cultural change, Cultural lag.
- Introduction to Theories of social change: Linear, Cyclical, Marxian, Functional

J. Social organization and social system

- Social organization: elements, types
- Democratic and authoritarian modes of participation
- Voluntary associations
- Social system: Definition and Types of social system
- Role and Status as structural elements of social system Inter-relationship of institutions

K. Social Control

- Nature and process of social control
- Political, Legal, Religious, Educational, Economic, Industrial and Technological systems, Norms & Values-Folkways & Mores Customs, Laws and Fashion

L. Social Problems

- Social disorganization
- Control & planning: poverty, housing, illiteracy, food supplies, prostitution, rights of women & children, vulnerable groups: Elderly, handicapped, minority groups and other marginalized groups, child labour, child abuse, delinquency and crime, substance abuse, HIV/AIDS.
- Social Welfare Programmes in India

References – a) An introduction to sociology by Vidya Bhushan and D.R. Sachdeva
b) Text book of sociology for physiotherapy students by KP Neeraja
c) Sociology for health professionals by Niraj Pandit

BPT- 105: MEDICAL TERMINOLOGY & RECORD KEEPING AND MEDICAL/PHYSIOTHERAPY LAW & ETHICS (INTERNAL PAPER)

a) Medical terminology & record keeping:

SUBJECT DESCRIPTION: This course introduces the elements of medical terminology. Emphasis is placed on building familiarity with medical words through knowledge of roots, prefixes, and suffixes. Topics include: origin, wordbuilding, abbreviations and symbols, terminology related to the human anatomy, reading medical orders and reports, and terminology specific to the student's field of study.

Orientation to medical terminology, terms related to sympathetology, causation investigations and treatmentof condition within medicine, surgery, Obstetrics and Gynecology, all specialties including terms related to biological disorders (skin and breast, Musculo-skeletal, Neurological and Psychiatric, Cerebro & Cardiovascular disorders, and Common diseases affecting each of the above system).

Define word roots, prefixes, and suffixes.

Basic medical terms in health care and physiotherapy

Reference:

a. Hand book of Medical Terminology- IR Asher
b. Medical diagnostic & procedural Terminology- Asher
c. Medical Dictionary-Oxford & IBH

b) Medical/physiotherapy law & ethics:

SUBJECT DESCRIPTION: Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. Advances in medical sciences, growing sophistication of the modern society's legal framework, increasing awareness of human rights and changing moral principles of the community at large, now result in frequent occurrences of healthcare professionals being caught in dilemmas over aspects arising from daily practice.

Medical/ Physiotherapy ethics has developed into a well based discipline which acts as a "bridge" between theoretical bioethics and the bedside. The goal is "to improve the quality of patient care by identifying, analyzing, and attempting to resolve the ethical problems that arise in practice". Doctors are bound by, not just moral obligations, but also by laws and official regulations that form the legal framework to regulate medical practice. Hence, it is now a universal consensus that legal and ethical considerations are inherent and inseparable parts of good medical practice across the whole spectrum.

a. Medical ethics - Definition - Goal - Scope
b. Code of conduct - Introduction
c. Basic principles of medical ethics – Confidentiality
d. Malpractice and negligence - Rational and irrational drug therapy
e. Autonomy and informed consent - Right of patients
f. Care of the terminally ill- euthanasia
g. Organ transplantation
h. Medico legal aspects of medical records – Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication – Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects
i. Obtaining an informed consent.
j. Biomedical ethical principles
k. Medical diagnosis versus physiotherapy diagnosis
l. Code of ethics for physiotherapists
m. Ethics documents for physiotherapists
n. Laws affecting physiotherapy practice

Reference: a) Ethical issues perspectives for the physiotherapists by Kavitha raja, Fiddy davis, Sivakumar T

b) Principles of Bio-Ethics: Tom Beauchamp & Childress

BPT-106: BASIC COMPUTER AND INFORMATION SCIENCE (INTERNAL PAPER)

SUBJECT DESCRIPTION: The students will be able to appreciate the role of computer technology. The course has focus on computer organization, computer operating system and software, and MS windows, Word processing, Excel data worksheet and PowerPoint presentation

Course Content:

- Introduction to computer – I/O devices – memories – RAM and ROM – Different kinds of ROM Networking – LAN, WAN, MAN (only basic ideas)
- MS word, MS-Excel, MS-POWERPOINT,
- Explorer and Navigator – Uploading and Download of files and images – E-mail ID creation – Sending messages – Attaching files in E-mail – Introduction to "C" language –

Practical:

- Creating a worksheet using MS-Excel with data and use of functions Using MS-Excel prepare a worksheet with text, date time and data Preparing a chart and pie diagrams using MS-Excel
- Using Internet for searching, uploading files, downloading files creating e-mail ID Using C language writing programs using functions
- Computer application of statistical data

Reference: a) Computer Fundamentals: Pearl Software

b) Fundamentals of Computers: E. Balagurusamy

BPT- 107: ENGLISH, COMMUNICATION AND SOFT SKILLS (INTERNAL PAPER)

SUBJECT DESCRIPTION: To develop the potential for language use to perform communicative functions, meeting the demands in the student's academic and professional set-ups. The subject covers the aspects of oral communication, Grammar, Reading and Writing.

A. Writing Skills

- Objectives- Difference between spoken and written form
- How words are formed into phrases and clauses
- Tenses, Abbreviations, Punctuations
- Writing Sentences

- Writing Paragraphs: The Development of a Paragraph
- Cohesion, Coherence
- Summary, essay writing, précis writing
- Formal Letters – personal, applications, bio-data,
- Official correspondence: Outgoing correspondence, replying incoming correspondence, writing circulars, notices, charge memos
- Writing Reports
- Informal letters

B. Basics of Communication:

- Process and models of communications
- Types of communications:
  o Oral communication (Verbal, telephonic, face-to-face)
  o Written Communication
  o Non-verbal communication & Body language
- Barriers to communications
- How to improve communication and spoken skills

C. Reading Skills:

- Sources of Information
- Types of readings: Skimming, Scanning, intensive / loud / silent reading, oral, extensive, map reading
- Understanding what to read- Part played by propositions
- Techniques of reading 3Q3R
- Sample passages for reading with comprehension exercises
- Tables and Graphic Organizers

Reference: a) Manipal Academy of higher education; English book for Nurse by Selva Rose, 3rd Edition

b) Oxford advanced Leaiiers Dictionary, 1996.

c) Quirk, Randolph and (Jreenbaum Sidney, 1987. A University Grammar of English, Hong Kong: Longman group (FE) Ltd.

d) Thomson A. J. and Maitüiet A. V. 1987, A 1icticl English Grammar, Delhi: Oxford University Press

BPT-108: ORIENTATION TO PHYSIOTHERAPY (INTERNAL PAPER)

a. History of physiotherapy
b. Ethical rules and guidelines for physiotherapist
c. Role of Physiotherapy in meeting Health Care
d. Needs vs Demands

SEMESTER-2: 20 CREDITS

BPT-201: HUMAN ANATOMY- 2 (Including Applied Anatomy)

SUBJECT DESCRIPTION – Anatomy of the head & neck and pelvis are studied with particular reference to topics of importance to physiotherapists. Particular attention is paid to the muscles, bones and joints of the regions.

A. Head & Neck- Skull (features, joints of skull bone, parts). Identify internal and external auditory meat us, foramen magnum, stylomastoid foramen and structures passing through them. Anterior and posterior triangles of neck (boundaries and contents). Muscles of the face (origin, insertion, action, nerve supply, applied anatomy). Cranial nerve (origin, course, relation, innervations). Trigeminal nerve (origin, course, relation, innervations). General features of typical cervical vertebrae, atlas, axis, seventh cervical vertebrae. Cervical plexus (formation, distribution, root values). Sternomastoid, erector spinae, scalene. Atlantoaxial joint (articular surface, muscles, movements, ligaments, blood supply, NS). Atlantooccipital joint (articular surface, muscles, movements, ligaments, blood supply, NS). Position and extent of subclavian, vertebral, carotid arteries. Components of circle of Willis and its supply, applied importance. Internal jugular and subclavian vein (position, formation, and termination). ANS. Parts of brain and its function, applied importance. Eye (parts, retina, optic pathway, nerve supply, muscles of eye). Nose (parts, boundaries of nose, nasal cavity, sinuses). Tempero mandibular joint (type, articular surfaces, ligaments, movements,

muscle responsible, nerve supply). Ear (parts, organ of corti, nerve of hearing and its applied importance)

B. Pelvis- Formation and subdivision of bony pelvis. List features of male and female bony pelvis. Type, articular surface, ligaments, movements of joints of pelvis. Abdominal cavity and layers of abdominal wall (ant & post), (O, I, NS, ACT). Rectus sheath. Inguinal canal (position, extent, formation, content). Branches and distribution of abdominal aorta and iliac arteries. Mention features of pubic symphysis and sacro iliac joint. Muscles of pelvic floor (attachment, action, nerve supply). Structures of urogenital diaphragm. Position, extent, parts, relation, blood supply, nerve supply, lymph drainage of kidney, ureter, urinary bladder, urethra. Innervations of urinary bladder**.**

References: a) Textbook of Anatomy Vol. 1,2,3 by Inderbir Singh

b) Textbook of Anatomy Vol. 1,2,3 by B.D. Churasia

c) Practical Anatomy workbook by Krishna Garg & Medha Joshi

BPT-202: HUMAN PHYSIOLOGY- 2 (Including Applied Physiology)

SUBJECT DESCRIPTION - The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body.

A. ENDOCRINE

1. General organization of endocrine glands
2. General metabolism – Carbohydrate, Fat, Protein
3. Physiological action, regulation, disorder of hormones – Adrenal, Pancreatic, Parathyroid, Thyroid.

B. SPECIAL SENSE

1 Vision – rods and cones, retina and its function, visual pathway

2 Hearing – organ of corti, auditory pathway

3 Olfaction

4 Taste – taste buds

C. MUSCLE

1 Structure of muscle – Macroscopic & Microscopic (Myofibril, Myoneural junction)

2 Properties of skeletal muscle

3 Cardiac and smooth muscle

4 Chemical process involved in muscle contraction

5 Motor unit, EMG

6 Effect of exercise on muscular system

7. Exercise metabolism – O2 dept., respiratory quotient

D.CARDIOVASCULAR

1 Structure and properties of cardiac muscle

2 Cardiac cycle, Conductive system, ECG

3 Heart sounds

4 Heart rate and regulation

5 Cardiac output and regulation

6 Blood pressure and regulation

7 Regional circulation- coronary, pulmonary, renal, cerebral

8 Effect of exercise in CVS system

9 Cardio-vascular homeostasis in health and disease

E. EXCRETION

1 Structure and function of kidney

2 Structure and function of nephron

3 Formation of urine – Filtration, Reabsorption, Secretion

4 Micturition

5 Renal function test, body fluid regulation, acid-base balance

APPLIED PHYSIOLOGY: More detailed study of the physiology and practical applications of the following selected topics with emphasis on aspects, which should help in understanding the nature and treatment of common clinical situations of interest in Physiotherapy.

1. **THE HEART AND CIRCULATION**
   Structures and properties of heart muscle, action of heart, Normal ECG, Maintenance of Blood pressure, cardiac arrest and heart failure, hypertension, edema, central and peripheral venous pressure.
2. **NERVOUS SYSTEM AND MUSCLES**
   Outline the structure and function of central nervous system, Outline the ANS, Types of nerve cells, electrical properties of nerve cells, properties of mixed nerves, Reflex action, degeneration and regeneration of nerve, control of posture, outline of

Voluntary movement, cutaneous, deep, and superficial sensation, synaptic transmission, neuromuscular junction, properties of muscles, contractile response, types of contraction.

3. **RESPIRATION**

Mechanics of respiration, breath sounds, exchange of gases, lung volumes, lung compliance, nervous and chemical control of respiration, oxygen and carbon dioxide transport, acid base balance, artificial respiration.

References: a) Textbook of Physiology by A.K. Jain

b) Textbook of Physiology by Chaudhuri Sujit K

c) Ghai's textbook of practical physiology by VP Varshney & Mona Bedi

BPT-203: GENERAL AND CLINICAL PSYCHOLOGY

SUBJECT DESCRIPTION -

Human Psychology involves the study of various behavioral patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional and language development, communication and interaction skills appropriate to various age groups.

The study of these subjects will help the student to understand their clients while assessment and while planning appropriate treatment methods

THEORY

1. Introduction to Psychology

a.Schools: Structuralism, functionalism, behaviorism, Psychoanalysis.

b.Methods: Introspection, observation, inventory and experimental method.

c.Branches: pure psychology and applied psychology

d.Psychology and physiotherapy

2. Growth and Development

a.Life span: Different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age).

b.Heredity and environment: role of heredity and environment in physical and psychological development,

"Nature v/s Nurture controversy".

3.Sensation, attention and perception

a.Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense.

b.Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants).

c.Perception: Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context).

d.Illusion and hallucination: different types.

4.Motivation

a.Motivation cycle (need, drive, incentive, reward).

b.Classification of motives.c.Abraham Maslow's theory of need hierarchy

5.Frustration and conflict

a.Frustration: sources of frustration.

b.Conflict: types of conflict.

c.Management of frustration and conflict

6.Emotions

a.Three levels of analysis of emotion (physiological level, subjective state, and overt behavior).

b.Theories of emotionc.Stress and management of stress.

7.Intelligence

a.Theories of intelligence.

b.Distribution of intelligence.

c.Assessment of intelligence

8.Thinking

a.Reasoning: deductive and inductive reasoning

b.Problem solving: rules in problem solving (algorithm and heuristic)

c.Creative thinking: steps in creative thinking, traits of creative people

9.Learning

a. Forms of learning

b. Factors effecting learning.

c.Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory.

d. Theories of motor learning

e. Skill acquistion

e.The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.

10.Personality

a.Approaches to personality: type & trait, behavioristic, psychoanalytic and humanistic approach.

b.Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques.

c.Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.

11. Social psychology

a.Leadership: Different types of leaders. Different theoretical approaches to leadership.

b.Attitude: development of attitude. Change of attitude.

12. Clinical psychology –Models of training, abnormal behavior assessment, clinical judgement, psychotherapy, self-management methods, physiotherapist patient interaction, aggression, self-imaging, stress management, assertive training, Group therapy, Body awareness, Pediatric, child and geriatric clinical psychology.

References: a) Understanding Psychology Feldman.R.H (1996) New Delhi: Tata McGraw hill

b) Psychology for physiotherapists by Thangamani Ramalingam A

BPT-204: BASIC PRINCIPLES OF BIOMECHANICS

SUBJECT DESCRIPTION: Biomechanics involves the study of basic concepts of human movement, and application of various biomechanical principles in the evaluation and treatment of disorders of musculoskeletal system. Students are taught to understand the various quantitative and qualitative methods of movement. Mechanical principles of various treatment methods are studied.

THEORY

1. Basic Concepts in Biomechanics: Kinematics and Kinetics

a.Types of Motion

b.Location of Motion

c.Direction of Motion

d.Magnitude of Motion

e.Definition of Forces

f.Force of Gravity

g.Reaction forces

h.Equilibrium

I. Objects in Motion

j.Force of friction

k.Concurrent force systems

l.Parallel force system

m.Work

n.Moment arm of force

o.Force components

p.Equilibrium of levers

2. Joint structure & function

a.Joint design

b.Materials used in human joints

c.General properties of connective tissues

d.Human joint design

e.Joint function

f.Joint motion

g.General effects of disease, injury and immobilization.

3.Muscle structure and function –

a.Mobility and stability functions of muscles

b.Elements of muscle structure

c.Muscle function

d.Effects of immobilization, injury and aging

4.Biomechanics of the Thorax and Chest wall –

a.General structure and function

b.Rib cage and the muscles associated with the rib cage

c.Ventilatory motions: its coordination and integration

d.Developmental aspects of structure and function

e.Changes in normal structure and function relation to pregnancy, scoliosis and COPD

5.The TemporomandibularJoint-

a.General features, structure, function and dysfunction

References: a) Basics of Biomechanics by Ajay bahl, Sharad Ranga, Rajnish Sharma

b) Basic Biomechanics of the musculoskeletal system by Margareta Nordin & Victor H Frankel

c) Joint structure & function, a comprehensive analysis- Pamela K. Levangie & Cynthia C Norkin

d) Clinical Kinesiology for Physical Therapist Assistants- Lynn Lippert

BPT-205: INTRODUCTION TO NATIONAL HEALTHCARE DELIVERY SYSTEM IN INDIA (INTERNAL PAPER)

SUBJECT DESCRIPTION: The course provides the students a basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world. Topics to be covered under the subject are as follows.

1. Introduction to healthcare delivery system

a. Healthcare delivery system in India at primary, secondary and tertiary care

b. Community participation in healthcare delivery system

c. Health system in developed countries.

d. Private Sector

e. National Health Mission

f. National Health Policy

g. Issues in Health Care Delivery System in India

2. National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme.

3. Introduction to AYUSH system of medicine

a. Introduction to Ayurveda.

b. Naturopathy

c. Unani

d. Siddha

e. Homeopathy

f. Need for integration of various system of medicine

4. Health scenario of India- past, present and future

5. Epidemiology

e. Principles of Epidemiology

f. Natural History of disease

g. Methods of Epidemiological studies

h. Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.

BPT- 206: FIRST AID & CPR (INTERNAL PAPER)

SUBJECT DESCRIPTION: This subject will help the students to equip with the knowledge, understanding & practical skills to manage the patients with emergency care.

1. Examination of vital signs
2. First aid in cardiac arrest & respiratory failure
3. First aid in burns & electric shock
4. First aid in drowning
5. First aid in spinal cord injury
6. First aid in hypovolemic shock
7. First aid in poisoning
8. First aid in RTA
9. Tools used in first aid
10. Indication, assessment & technique of CPR

References: a) First aid in emergency- St. John ambulance association

b) First aid & management of general injuries & common ailments- Gupta & Gupta

SEMESTER-3: 20 CREDITS

BPT- 301: PATHOLOGY

SUBJECT DESCRIPTION: Pathology involves the study of causes and mechanisms of diseases. The knowledge and understanding of Pathology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.

A. Introduction

1. General pathology – cell injury, causes
2. Reversible injury – Types, morphology, swelling, hyaline, fatty change
3. Irreversible injury – Types of necrosis, apoptosis, calcification, dystrophic, Metastasis
4. Concepts of disease

B. Inflammation and repair

1. Acute inflammation – causes, features, examples
2. Inflammatory cell and mediators
3. Chronic inflammation – causes, features, examples
4. wound healing
5. Regeneration and repair.

C. Circulatory disturbance

1. Edema
2. Chronic venous congestion
3. Thrombosis
4. Embolism
5. Infarction
6. Gangrene
7. Shock

D. Growth disturbance

1. Atrophy

2. Neoplasia – benign & malignant

E. Specific pathology

1. CVS – atherosclerosis, IHD, MI, HT, CCF, RHD, peripheral vascular diseases.

2. RS – COPD, Bronchiectasis, pneumonia – lobar, Broncho, viral, acquired, TB – prim & sec, Atelectasis, asthma, ca of lung

3. Skin – leprosy, psoriasis, dermatomyositis, scleroderma

4. NS – CNS tumors (brief outline), CVA, meningitis, encephalitis, coma, Parkinsonism, myasthenia gravis, polyneuritis, peripheral neuropathy, polio

5. Bone and joint – osteoarthritis, osteomyelitis, septic arthritis, spondylosis, osteomalacia, GOUT, ankylosing spondylitis, Bone tumors (brief)- osteosarcoma, Ewing sarcoma, giant cell tumors

6. Muscle – Volkmann's ischemic contracture, myopathies.

F. Transfusion and hematology- Blood bank: screening of donors, collection of blood sample, blood grouping, component making, storage, mandatory tests and disposal of positive blood.

References: a) Text book of pathology: Harsh mohan

b) Text book of pathology: Robbins

BPT-302: MICROBIOLOGY

SUBJECT DESCRIPTION: Microbiology involves the study of common organisms causing diseases including nosocomial infections and precautionary measures to protect one from acquiring infections. The knowledge and understanding of Microbiology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.

A. Introduction

B. Classification, Shape and arrangement

C. Disinfection and antiseptic

D. Sterilization and asepsis

E. Allergy & hypersensitivity

F. Immunology – Definition, antigen, antibody reaction, autoimmunity, natural and Acquired immunity

G. Infection – Definition, source of infection, portal of entry, spread of infection, type.

H. Bacteriology– Infection caused by

1. Gram Positive bacteria – clostridium tetani & coryne bacterium diphtheria
2. Gram negative bacteria – klebsiella, pseudomonas, salmonella, v.cholera
3. Mycobacterium – M.tuberculosis, M.leprae, atypical mycobacteria

I. Outline the bacteria causing the following diseases

1. RTI
2. Meningitis
3. Enteric infection
4. Anaerobic infection
5. UTI
6. Leprosy, TB
7. STD
8. Wound infection
9. Hospital acquired infection

J. Viruses – Definition, size, shape, structure, classification, cultivation, diagnosis of Viral infection.

K. Outline the virus causing the following diseases

1. HIV
2. Hepatitis
3. Polio
4. Measles
5. Rubella
6. Herpes.

References: a) Text book of Medical Microbiology by Ananthanarayana and Jayaram Paniker

BPT-303: PHARMACOLOGY

SUBJECT DESCRIPTION - This course introduces the student to basic pharmacology of common drugs used, their importance in the overall treatment including Physiotherapy. The student after completing the course will be able to understand the general principles of drug action and the handling of drugs by the body. The student will be aware of the contribution of both drug and physiotherapy factors in the outcome of treatment

A. General Pharmacology –

1. Introduction, Definitions, Classification of drugs, Sources of drugs, Routes of drug administration, Distribution of drugs, Metabolism and Excretion of drugs Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, Adverse effects.

B. Autonomic Nervous system –

1. General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System

2. Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

C. Cardiovascular Pharmacology –

1. Drugs used in the treatment of heart failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators

2. Antiarrhythmic Drugs

3. Drugs used in the treatment of vascular disease and tissue ischemia: Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotics, Anticoagulants and Thrombolytics Ischemic Heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers, Cerebral Ischemia Peripheral Vascular Disease.

D. Neuropharmacology –

1. Sedative-Hypnotic Drugs: Barbiturates, Benzodiazepines

2. Antianxiety Drugs: Benzodiazepines, Other Anxiolytics

3. Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium

4. Antipsychotic drugs

E. Disorders of Movement -

1. Drugs used in Treatment of Parkinson ’s disease

2. Antiepileptic Drugs

3. Spasticity and Skeletal Muscle Relaxants

F. Inflammatory/Immune Diseases -

1. Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactins with NSAIDs

2. Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids

3. Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout

4. Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythematous, Scleroderma, Demyelinating Disease

5. Respiratory Pharmacology: Obstructive Airway Diseases, Drugs used in Treatment of Obstructive Airway Diseases, Allergic Rhinitis

G. Digestion and Metabolism -

1. Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea Drugs Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic

H. Geriatrics -

1. Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, Postural hypotension

References: a) Undergraduate Pharmacology for students of Pharmacy & Allied health sciences by K Mukhopadhyay

b) Pharmacology for Physiotherapist by KV Ramesh & K Ashok Shenoy

c) Pharmacology for Physiotherapy students by Padmaja Udaykumar

BPT-304: BIOMECHANICS & KINESIOLOGY

SUBJECT DESCRIPTION - Biomechanics involves the study of basic concepts of human movement, and application of various biomechanical principles in the evaluation and treatment of disorders of musculoskeletal system. Students are taught to understand the various quantitative and qualitative methods of movement. Mechanical principles of various treatment methods are studied. Study of posture and gait are also included.

1. Biomechanics of the vertebral column –

a. General structure and function

b.Regional structure and function –Cervical region, thoracic region, lumbar region, sacral region

c.Muscles of the vertebral column

d.General effects of injury and aging

2. Biomechanics of the peripheral joints –

a.The shoulder complex: Structure and components of the shoulder complex and their integrated function
b.The elbow complex: Structure and function of the elbow joint –humeroulnar and humeroradial articulations, superior and inferior radioulnar joints; mobility and stability of the elbow complex; the effects of immobilization and injury.

c.The wrist and hand complex: Structural components and functions of the wrist complex; structure of the hand complex; functional position of the wrist and hand.

d.The hip complex: structure and function of the hip joint; hip joint pathology-arthrosis, fracture, bony abnormalities of the femur

e.The knee complex: structure and function of the knee joint –tibio femoral joint and patellofemoral joint; effects of injury and disease.

f.The ankle and foot complex.: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function –Pes Planus and Pes Cavus

3. Analysis of Posture and Gait –Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture analysis of posture, effects of posture on age, pregnancy, occupation and recreation; general features of gait, gait initiation, kinematics and kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running, effects of age, gender, assistive devices, disease, muscle weakness, paralysis, asymmetries of the lower extremities, injuries and malalignments in gait; Movement Analysis : ADL activities like sitting –to standing, lifting, various grips , pinches.

4. Task analysis- Movement Analysis: ADL activities like sitting –to standing, lifting, various grips, pinches.

References: a) Joint structure & function, a comprehensive analysis- Pamela K. Levangie & Cynthia C Norkin

b) Clinical Kinesiology for Physical Therapist Assistants- Lynn Lippert

BPT-305: FOUNDATION OF EXERCISE THERAPY AND SOFT TISSUE MANIPULATION

EXERCISE THERAPY

SUBJECT DESCRIPTION: In this course, the students will learn the principles and effects of exercise as a therapeutic modality and will learn the techniques in the restoration of physical function.

1. **Introduction to Exercise Therapy -**The aims of Exercise Therapy, the techniques of Exercise Therapy, Approach to patient's problems, Assessment of patient's condition –Measurements of Vital parameters, Starting Positions –Fundamental positions & derived Positions, Planning of Treatment

2. **Methods of Testing**

a.Functional tests

b.Measurement of Joint range: ROM-Definition, Normal ROM for all peripheral joints & spine, Goniometer-parts, types, principles, uses, Limitations of goniometry, Techniques for measurement of ROM for all peripheral joints

c.Tests for neuromuscular efficiency

i. Manual Muscle Testing: Introduction to MMT, Principles & Aims, Indications & Limitations, Techniques of MMT for group & individual: Techniques of MMT for upper limb / Techniques of MMT for lower limb / Techniques of MMT for spine.

ii. Anthropometric Measurements: Muscle girth –biceps, triceps, forearm, quadriceps, calf

iii.Static power Test

iv.Dynamic power Test

v.Endurance test

vi.Speed test

d.Tests for Co-ordination

e.Tests for sensation

f.Pulmonary Function tests

g.Measurement of Limb Length: true limb length, apparent limb length, segmental limb length

h.Measurement of the angle of Pelvic Inclination

3. Relaxation

a.Definitions: Muscle Tone, Postural tone, Voluntary Movement, Degrees of relaxation, Pathological tension in muscle, Stress mechanics, types of stresses, Effects of stress on the body mechanism, Indications of relaxation, Methods & techniques of relaxation-Principles & uses: General, Local, Jacobson's,Mitchel's, additional methods.

4. Passive Movements

a.Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses , Techniques of giving passive movements.

5. Active Movements

a.Definition of strength, power & work, endurance, muscle actions.

b.Physiology of muscle performance: structure of skeletal muscle, chemical & mechanical events during contraction &relaxation, muscle fiber type, motor unit, force gradation.

c.Causes of decreased muscle performance

d.Physiologic adaptation to training: Strength & Power, Endurance.

e.Types of active movements

6. Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses

7. Active Assisted Exercise: principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses Resisted Exercise: Definition, principles, indications, contraindications, precautions & techniques, effects and uses

8. Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.

THERAPEUTIC SOFT TISSUE MANIPULATION

SUBJECT DESCRIPTION: The students will be able to understand the concepts, different types and application of soft tissue technique on patients during clinical practice.

1.History and Classification of Soft tissue technique

2.Principles, Indications and Contraindications

3.Techniques of soft tissue manipulations

4.Physiological and Therapeutic Uses of soft tissue manipulations

PRACTICALS:

1.Different test methods

2.Demonstrate relaxation techniques.

3.Demonstrate to apply the technique of passive movements

4.Demonstrate various techniques of Active movements

5.Demonstrate massage technique application according to body parts.

References: a) Therapeutic exercise by Carolyn Kisner

b) Principles of exercise therapy by M.Dena Gardiner

c) Physical Rehabilitation by o'Sullivan

d) Muscle Testing by Daniels & Worthingham's

e) Practical Exercise therapy by Hollis Margaret

SEMESTER-4: 20 CREDITS

BPT-401: EXERCISE THERAPY

SUBJECT DESCRIPTION: After the course on exercise therapy student will be able to understand the different types of exercise for the benefit of patient in different situations and conditions both in health and disease or disorder.

1. Specific exercise regimens

a.Isotonic: de Lormes, Oxford, MacQueen, Circiut weight training

b.Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle

c.Isometrics Isokinetic regimens

2. Proprioceptive Neuromuscular Facilitation

a.Definitions & goals

b.Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patterns of movement: upper limb, lower limb

c.Procedure: components of PNF

d.Techniques of facilitation

e.Mobility: Contract relax, Hold relax, Rhythmic initiation

f.Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmic stabilization Stability: Alternating isometric, rhythmic stabilization

g.Skill: timing for emphasis, resisted progression Endurance: slow reversals, agonist reversal

3. Suspension Therapy

a.Definition, principles, equipments & accessories, Indications & contraindications, Benefits of suspension therapy

b.Types of suspension therapy: axial, vertical, pendular Techniques of suspension therapy for upper limb Techniques of suspension therapy for lower limb

4. Functional Re-education

a.Lying to sitting: Activities on the Mat/Bed, Movement and stability at floor level; Sitting activities and gait; Lower limb and Upper limb activities.

5. Aerobic Exercise

a.Definition and key terms; Physiological response to aerobic exercise, Examination and evaluation of aerobic capacity –Exercise Testing, Determinants of an Exercise Program, The Exercise Program, Normal and abnormal response to acute aerobic exercise, Physiological changes that occur with training, Application of Principles of an Aerobic conditioning program for patients –types and phases of aerobic training.

6. Stretching

a.Definition of terms related to stretching; Tissue response towards immobilization and elongation, Determinants of stretching exercise, Effects of stretching, Inhibition and relaxation procedures, Precautions and contraindications of stretching, Techniques of stretching.

7. Manual Therapy & Peripheral Joint Mobilization

a.Schools of Manual Therapy, Principles, Grades, Indications and Contraindications, Effects and Uses – Maitland, Kaltenborn, Mulligan

b.Biomechanical basis for mobilization, Effects of joint mobilsation, Indications and contraindications, Grades of mobilization, Principles of mobilization, Techniques of mobilization for upper limb, lower limb, Precautions.

8. Balance-Definition

a.Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output

b.Components of balance (sensory, musculoskeletal, biomechanical)

c.Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications, Types Balanceretraining.

9.Co-ordination Exercise

a.Anatomy & Physiology of cerebellum with its pathways Definitions: Co-ordination, Inco-ordination

b.Causes for Inco-ordination, Test for co-ordination: equilibrium test, non-equilibrium test Principles of co-ordination exercise.

c.Frenkel's Exercise: uses of Frenkel's exercise, technique of Frenkel's exercise, progression, home exercise.

10. Posture

a.Definition, Active and Inactive Postures, Postural Mechanism, Patterns of Posture, Principles of re-

education: corrective methods and techniques, Patient education.

11. Walking Aids

a.Types: Crutches, Canes, Frames; Principles and training with walking aids

12.Basics in Manual Therapy & Applications with Clinical reasoning

a.Examination of joint integrity

i.Contractile tissues

ii.Non contractile tissues

b.Mobility -assessment of accessory movement & End feel

c.Assessment of articular & extra-articular soft tissue status

i.Myofascial assessment

ii. Acute & Chronic muscle hold

iii.Tightness

iv.Pain-original & referred

d.Basic principles, Indications & Contra-Indications of mobilization skills for joints & soft tissues.

i.Maitland

ii.Mulligan

iii.Mckenzie

iv.Muscle Energy Technique

v.Myofascial stretching

vi.Cyriax

vii.Neuro Dynamic Testing

13. Hydrotherapy

a.Definitions, Goals and Indications, Precautions and Contraindications, Properties of water, Use of special equipment, techniques, Effects and uses, merits and demerits

14. Individual and Group Exercises

a.Advantages and Disadvantages, Organization of Group exercises, Recreational Activities and Sports

PRACTICALS: The students of exercise therapy are to be trained in Practical Laboratory work for all the topics discussed in theory. The student must be able to evaluate and apply judiciously the different methods of exercise therapy techniques on the patients. They must be able to-

1. Demonstrate the technique of measuring using goniometry
2. Demonstrate muscle strength using the principles and technique of MMT
3. Demonstrate the techniques for muscle strengthening based on MMT grading 4

4. Demonstrate the PNF techniques
5. Demonstrate exercises for training co-ordination –Frenkel's exercise
6. Demonstrate the techniques of massage manipulations
7. Demonstrate techniques for functional re-education
8. Assess and train for using walking aids
9. Demonstrate mobilization of individual joint regions
10. Demonstrate to use the technique of suspension therapy for mobilizing and strengthening joints and muscles
11. Demonstrate the techniques for muscle stretching
12. Assess and evaluate posture and gait
13. Demonstrate techniques of strengthening muscles using resisted exercises
14. Demonstrate techniques for measuring limb length and body circumference.

References: a) Therapeutic exercise by Carolyn Kisner

b) Principles of exercise therapy by M.Dena Gardiner

c) Physical Rehabilitation by o'Sullivan

d) Muscle Testing by Daniels & Worthingham's

e) Practical Exercise therapy by Hollis Margaret

BPT-402: BIOPHYSICS

SUBJECT DESCRIPTION - To understand the concept and basic principles to know electrotherapy equipment's is given under this topic. The student will be taught about physics related to electrotherapy and application on human body tissues.

1. Physical principles

a. Structure and properties of matter -solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity.

b. Structure of atom, molecules, elements and compound

c. Electricity: Definition and types. Therapeutic uses. Basic physics of construction. Working

d. Importance of currents in treatment.

e. Static Electricity: Production of electric charge. Characteristic of a charged body.

f. Characteristics of lines of forces. Potential energy and factors on which it depends. Potential difference and EMF.

g. Current Electricity: Units of Electricity: farad, Volt, Ampere, Coulomb, Watt

h. Condensers: Definition, principle, Types- construction and working, capacity & uses.

i. Magnetism: Definition. Properties of magnets. Electromagnetic induction. Transmission by contact. Magnetic field and magnetic forces. Magnetic effects of an electric field.

j. Conductors, Insulators, Potential difference, Resistance and intensity

k. Ohm's law and its application to DC and AC currents. Fuse: construction, working and application.

l. Transmission of electrical energy through solids, liquids, gases and vacuum.

m. Rectifying Devices-Thermionic valves, Semiconductors, Transistors, Amplifiers, transducer and Oscillator circuits.

n. Display devices and indicators-analogue and digital.

o. Transformer: Definition, Types, Principle, Construction, Eddy current, working uses

p. Chokes: Principle, Construction and working, Uses

2. Effects of Current Electricity

a. Chemical effects-lons and electrolytes, lonisation, Production of an EMF by chemical actions.

b. Ionization: Principles, effects of various technique of medical ionization.

c. Electromagnetic Induction.

d. Electromagnetic spectrum.

3. Electrical Supply

a. Brief outline of main supply of electric current

b. Dangers-short circuit, electric shocks: Micro/ Macro shocks

c. Precaution-safety devices, earthing, fuses etc.

d. First aid and initial management of electric shock

e. Burns: electrical & chemical burns, prevention and management

4. Various agents

a. Thermal agents: Physical Principles of cold, Superficial and deep heat.

b. Ultrasound: Physical Principles of Sound

c. Electro- magnetic Radiation: Physical Principles and their Relevance to Physiotherapy Practice

d. Electric Currents: Physical Principles and their Relevance to Physiotherapy Practice.

5. Section II – Therapeutic Electricity

References: a) Biophysics & therapeutic electricity Vol.1 by Subin Solomon & Pravin Aaron

BPT-403: ELECTROTHERAPY (LMHF & EQUIPMENT CARE)

SUBJECT DESCRIPTION: In this course the student will learn the Principles, Techniques, Effects, Indication, Contra-Indication and the dosage parameter for various indications of electro therapeutic modalities in the restoration of physical function. The objective of this course is that after 240hrs of lectures, demonstration, practical and clinics the student will be able to list the indications, contra indications, dosages of electro therapy modalities, demonstrates the different techniques, and describe their effects on various conditions.

SECTION 1. A -LOW FREQUENCY CURRENTS

1. Basic types of current

a.Direct Current: types, physiological & therapeutic effects.

b.Alternating Current

2. Types of Current used in Therapeutics

a.Modified D.C

i.Faradic Current

ii.Galvanic Current

b.Modified A.C

i.Sinusoidal Current

ii.Diadynamic Current.

3. Faradic Current: Definition, Modifications, Techniques of Application of Individual, Muscle and Group Muscle stimulation, Physiological & Therapeutic effects of Faradic Current, Precautions, Indications & Contra-Indications, Dangers.

4. Galvanic Current: Definition, Modifications, Physiological & Therapeutic effects of Galvanic Current, Indications & Contra-Indications, Dangers, Effect of interrupted galvanic current on normally innervated **and denervated muscles and partially denervated muscles.**

5. Sinusoidal Current & Diadynamic Current in Brief.

6. **HVPGS–**Parameters & its uses
7. **Ionization / Iontophoresis:** Techniques of Application of Iontophoresis, Indications, Selectionof Current, commonly used Ions (Drugs) for pain, hyperhydrosis, would healing.
8. **Cathodal / Anodal galvanism.**
9. **Micro Current & Macro Current**
10. **Types of Electrical Stimulators**

a.NMES-Construction component.

b.Neuro muscular diagnostic stimulator-construction component.

c.Components and working Principles

11. **Principles of Application:** Electrode tissue interface, Tissue Impedance, Types of Electrode, Size & Placement of Electrode –Water bath, Unipolar, Bi-polar, Electrode coupling, Current flow in tissues, Lowering of Skin Resistance.
12. **Nerve Muscle Physiology:** Action Potential, Resting membrane potential, Propagation of Action Potential, Motor unit, synapse, Accommodation, Stimulation of Healthy Muscle, Stimulation of Denervated Muscle, and Stimulation for Tissue Repair.
13. **TENS:** Define TENS, Types of TENS, Conventional TENS, Acupuncture TENS, Burst TENS, Brief & Intense TENS, Modulated TENS. Types of Electrodes & Placement of Electrodes, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.
14. **Pain:** Define Pain, Theories of Pain (Outline only), Pain Gate Control theory in detail.

SECTION 1. B -ELECTRO-DIAGNOSIS

1. **FG Test**
2. **SD Curve:** Methods of Plotting SD Curve, Apparatus selection, Characters of Normally Innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervated Muscle, Chronaxie & Rheobase.
3. **Nerve conduction velocity studies**
4. **EMG: Construction of EMG equipment.**
5. **Bio-feedback.**

SECTION 1. C -MEDIUM FREQUENCY

1. **Interferential Therapy:** Define IFT,Principle of Production of IFT, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications.

2.Russian Current

3.Rebox type Current

SECTION II -THERMO & ACTINOTHERAPY (HIGH FREQUENCY CURRENTS)

1.Electro Magnetic Spectrum.

2.SWD: Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus,
Physiological & Therapeutic effects, Indications & Contraindications, Dangers, Dosage parameters.

3.Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME.

4.Micro Wave Diathermy: Define Microwave, Wave length & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD.

5. Ultrasound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continuous& Pulsed mode, Intensity, US Fields: Near field, far field, half value distance, Attenuation, Coupling Media, Thermal effects, Non-thermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound. Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses. Dosages of US.

6.IRR: Define IRR,wavelength & parameters, Types of IR generators, Production of IR, Physiological & Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication.

7.UVR: Define UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVA apparatus. Physiological & Therapeutic effects. Sensitizers & Filters. Test dosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications. Dangers. Dosages for different therapeutic effects, Distance in UVR lamp

8.LASER: Define LASER. Types of LASER. Principles of Production. Production of LASER by various methods. Methods of application of LASER. Dosage of LASER. Physiological & Therapeutic effects of LASER. Safety precautions of LASER. Classifications of LASER. Energy density & power density

SECTION III –SUPERFICIAL HEATING MODALITIES

1.Wax Therapy: Principle of Wax Therapy application –latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers.

2.Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.

3.Moist Heat Therapy: Hydro collator packs –in brief, Methods of applications, Therapeutic uses, Indications & Contraindications.

4.Cyclotherm: Principles of production, Therapeutic uses, Indications & Contraindications.

5.Fluidotherapy: Construction, Method of application, Therapeutic uses, Indications & Contraindications.

6.Whirl Pool Bath: Construction, Method of Application, Therapeutic Uses, Indications & Contraindications.

7.Cryotherapy: Define-Cryotherapy, Principle-Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages.

PRACTICALS: The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions-

1. Demonstrate the technique for patient evaluation –receiving the patient and positioning the patient for treatment using electrotherapy.
2. Collection of materials required for treatment using electrotherapy modalities and testing of the apparatus.
3. Demonstrate placement of electrodes for various electrotherapy modalities
4. Electrical stimulation for the muscles supplied by the peripheral nerves
5. Faradism under Pressure for UL and LL
6. Plotting of SD curve with chronaxie and rheobase
7. Demonstrate FG test
8. Application of Ultrasound for different regions-various methods of application
9. Demonstrate treatment techniques using SWD, IRR and Microwave diathermy
10. Demonstrate the technique of UVR exposure for various conditions –calculation of test dose 11. Demonstrate treatment method using IFT for various regions
12. Calculation of dosage and technique of application of LASER
13. Technique of treatment and application of Hydrocollator packs, cryotherapy, contrast bath, wax therapy
14. Demonstrate the treatment method using whirl pool bath
15. Winding up procedure after any electrotherapy treatment method.

EQUIPMENT CARE:

1. Checking of equipment's

2.Arrangement of exercise therapy and electro therapy equipment.

3.Calibration of equipment

4.Purchase, billing, document of equipment.

5.Safety handling of equipment's.

6.Research lab equipment maintenance.

7.Stock register, movement register maintenance

References: a) Claytons Electrotherapy theory & practice by Forster & Palastanga

b) Electrotherapy Explained by Low & Reed

c) Physical agents in rehabilitation an evidence based approach to practice by Michelle H. Cameron

d) Electrotherapy simplified by Basanta kumar nanda

e) Textbook of Electrotherapy by Jagmohan Singh

BPT- 404: INTRODUCTION TO QUALITY & PATIENT SAFETY (INCLUDING EMERGENCY CARE, BLS, BIOMEDICAL WASTE MANAGEMENT, INFECTION PREVENTION & CONTROL ETC) (INTERNAL PAPER)

1. Quality assurance and management - The objective of the course is to help students understand the basic concepts of quality in health Care and develop skills to implement sustainable quality assurance program in the health system.

a. Concepts of Quality of Care

b. Quality Improvement Approaches

c. Standards and Norms

d. Quality Improvement Tools

e. Introduction to NABH guidelines

2. Basics of emergency care and life support skills - Basic life support (BLS) is the foundation for saving lives following cardiac arrest. Fundamental aspects of BLS include immediate recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early cardiopulmonary resuscitation (CPR), and rapid defibrillation with an automated external defibrillator (AED). Initial recognition and response to heart attack and stroke are also considered part of BLS. The student is also expected to learn

about basic emergency care including first aid and triage. Topics to be covered under the subject are as follows:

a. Vital signs and primary assessment

b. Basic emergency care – first aid and triage

c. Ventilations including use of bag-valve-masks (BVMs)

d. Choking, rescue breathing methods

e. One- and Two-rescuer CPR

f. Using an AED (Automated external defibrillator).

g. Managing an emergency including moving a patient

At the end of this topic, focus should be to teach the students to perform the maneuvers in simulation lab and to test their skills with focus on airways management and chest compressions. At the end of the foundation course, each student should be able to perform and execute/operate on the above mentioned modalities.

3. Bio medical waste management and environment safety- The aim of this section will be to help prevent harm to workers, property, the environment and the general public. Topics to be covered under the subject are as follows:

a. Definition of Biomedical Waste

b. Waste minimization

c. BMW – Segregation, collection, transportation, treatment and disposal (including color coding)

d. Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste

e. BMW Management & methods of disinfection

f. Modern technology for handling BMW

g. Use of Personal protective equipment (PPE)

h. Monitoring & controlling of cross infection (Protective devices)

4. Infection prevention and control - The objective of this section will be to provide a broad understanding of the core subject areas of infection prevention and control and to equip AHPs with the fundamental skills required to reduce the incidence of hospital acquired infections and improve health outcomes. Concepts taught should include–

a. Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)],

b. Prevention & control of common healthcare associated infections,

c. Components of an effective infection control program, and

d. Guidelines (NABH and JCI) for Hospital Infection Control

6. Disaster preparedness and management- The objective of this section will be to provide knowledge on the principles of on-site disaster management. Concepts to be taught should include-

a. Fundamentals of emergency management,

b. Psychological impact management,

c. Resource management,

d. Preparedness and risk reduction

e. Key response functions (including public health, logistics and governance, recovery, rehabilitation and reconstruction), information management, incident command and institutional mechanisms.

SEMESTER-5: 20 CREDITS

BPT- 501: CLINICAL ORTHOPEDICS & TRAUMATOLOGY

SUBJECT DESCRIPTION - This subject follows the basic science subjects to provide the knowledge about Orthopedic conditions the therapist would encounter in their practice. The objective of this course is that after completion of the lectures and discussion the student will be able to demonstrate an understanding of orthopedic conditions causing disability, list the etiology, clinical features and methods of investigations and management.

A. INTRODUCTION TO ORTHOPAEDICS

1 Introduction to orthopedic terminology

2 Clinical examination

3 Common investigations

4 Principles of management

B. PRINCIPLES OF OPERATIVE TREATMENT

1 Indications

2 Contraindications

3 Outline principles of: arthrodesis, Arthroplasty, Osteotomy, Bone grafting, Tendon transfers.

C. SOFT TISSUE LESIONS

1 Sprains and Muscle strains

2 Capsulitis

3 Bursitis

4 Tenosynovitis

5 Fasciitis

6 Tendonitis

D. FRACTURES AND DISLOCATIONS

1 Types of fractures including patterns, open and closed fractures – dislocations.

2 Difference between dislocation and subluxation

3 General and local signs & symptoms of fractures, dislocations

4 Principles of management of fracture, dislocations

5 Prevention and treatment of complication – VIC, sudecks atrophy, carpal tunnel syndrome, myositis ossificans, shoulder-hand syndrome

6 Fracture healing

E. UPPER LIMB FRACTURES

1 Enumerate major long bone fracture and joint injuries

2 Briefly describe their clinical features, principles of management, complications.

F. LOWER LIMB FRACTURES

1 Enumerate major long bone fracture and joint injuries

2 Briefly describe their clinical features, principles of management, complications.

G. SPINAL FRACTURES

Outline the mechanism, clinical features, principles of management, complications.

H. DISLOCATIONS

Outline the mechanism, clinical features, principles of management and complications of recurrent dislocation of the shoulder and patella.

I. AMPUTATIONS

1. Classify amputations, list indication of surgery

2. Principles of amputation

3. Principles of management

4. Complications and management

J. BONE AND JOINT INFECTIONS

Outline the etiology, clinical features, management, complications – septic arthritis, osteomyelitis,

tuberculosis – including spinal TB.

K. BONE AND JOINT TUMORS

Classify and outline the clinical features, management and complications of the following: Benign and malignant bone tumor, osteoma, osteosarcoma, osteoclastoma, Ewing sarcoma, multiple myeloma.

L.CHRONIC ARTHRITIS

Outline the pathology, clinical features, mechanism of deformities, management and Complications of – RA, OA, AS.

M. LOW BACK PAIN

Definition, causes of low back ache, clinical findings, assessment, management

N. SPINAL DEFORMITIES

Classify spinal deformities and outline the salient clinical features, management And complication

O. POLIOMYELITIS

1. Describe the pathology, clinical features, pathology, prevention, management,
2. Residual problems of polio, treatment of residual paralysis,
3. Principles of muscle transfers

P. CONGENITAL DEFORMITIES

Outline the clinical features and management of CTEV, CDH, Flat foot, vertical talus, limb deficiency – radial club hand, femoral, tibial, fibular deficiency, meningomyelocele, arthrogryposis multiplex congenital, osteogenesis imperfecta.

Q. PERIPHERAL NERVE INJURIES

Outline the clinical features, management, and reconstructive surgery of

1. Radial, median and ulnar nerve lesions
2. Sciatic and lateral popliteal nerve lesions
3. Brachial plexus injuries including Erbs palsy, Klumpke palsy, crutch palsy.

R. HAND INJURIES

Outline the clinical features, management and complications of tendon, bone, and joint Injury.

S. LEPROSY

Outline clinical features, management and complications of neuritis, muscle paralysis, Tropic ulcer of hand and feet deformities.

References: a) Outline of Fractures by John Crawford Adams

b) Outline of Orthopedics by John Crawford Adams

c) Text book of Orthopedics by Maheswari & Mhaskar

d) Text book of Orthopedics by John Ebnezar & Rakesh John

e) Manipal manual of Orthopedics by Vivek Pandey

BPT- 502: GENERAL SURGERY INCLUDING BURNS & PLASTIC SURGERY, OBSTETRICS & GYNECOLOGY

GENERAL SURGERY INCLUDING BURNS & PLASTIC SURGERY

SUBJECT DESCRIPTION: This subject follows the basic science subjects to provide the knowledge about relevant aspects of general surgery. The student will have a general understanding of the surgical conditions the therapist would encounter in their practice. The objective of this course is that after the lectures and discussion the student will be able to list the indications for surgery, etiology, clinical features and surgical methods for various conditions.

1. **Fluid, Electrolyte and Acid-Base disturbances –** Diagnosis and management; Nutrition in the surgical patient; Wound healing –basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, Scars –types and treatment. Hemostasis – components, hemostatic disorders, factors affecting bleeding during surgery. Transfusion therapy in surgery –blood components, complications of transfusion; Surgical Infections; General Post –Operative Complications and its management.
2. **Reasons for Surgery**- Types of anaesthesia and its effects on the patient; Types of Incisons; Clips Ligatures and Sutures; General Thoracic Procedures –Radiologic Diagnostic procedures, Endoscopy –types, Biopsy –uses and types. Overview and Drainage systems and tubes used in Surgery.
3. **Causes Clinical Presentation, Diagnosis and treatment of the following Thoracic Trauma situations –** Airway obstruction, Pnuemothorax, Hemothorax, Cardiac Tamponade, Tracheobronchial disruption, Aortic disruption, Diaphragmatic disruption, Esophageal disruption, Cardiac and Pulmonary Contusions.
4. **Thoracic surgeries–**Thoracotomy –Definition, Types of Incisions with emphasis to the site of insision, muscles cut and complications. Lung surgeries: Pnumonectomy, Lobectomy, segmentectomy –Indications,

Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries –An overview of the Cardio-Pulmonary Bypass Machine –Extracardiac Operations, Closed Heart surgery, Open Heart surgery. Transplant Surgery –Heart, Lung and Kidney – Indications, Physiological changes and Complications.

5. **Diseases of the Arteries and Veins-** Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases: Arteriosclerosis, Atherosclerosis, Aneurysm, Buerger's disease, Raynaud's Disease, Thrombophlebitis, Deep Vein Thrombosis, Pulmonary Embolism, Varicose Veins.

6. **Definition Indication, Incision, Physiological changes and Complications following Common operations**- Thyroidectomy, Adrenalectomy, Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Hernioraphy, Appendectomy, Mastectomy, Neprectomy, Prostectomy.

7. **Surgical Oncology** –Cancer –definition, types, clinical manifestations of cancer, Staging of Cancer, surgical procedures involved in the management of cancer.

8. **Burns and Plastic Surgery-**

Burn- Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features and Management.

Skin Grafts –Types, Grafting Procedures, Survival of Skin Graft; Flaps –Types and uses of Flaps.

References: a) Bailey & Love's short textbook of surgery

b) Manipal manual of Surgery by K Rajgopal Shenoy

c) A manual on clinical surgery by S Das

OBSTETRICS & GYNECOLOGY:

1. Hormonal disorders of females- Obesity and female hormones

2. Pregnancy

a. Diagnosis of pregnancy

b. Abortion

c. Physiological changes during pregnancy

d. Importance of antenatal care exercise

e. High risk pregnancy, prenatal common complications – investigation and management

f. Musculoskeletal disorders during pregnancy

g. Multiple child birth

h. Normal labor

3. Child birth complications, investigation and management

4. Normal puerperium, lactation and importance of post-natal exercises

5. Family planning.

6. Medical termination of pregnancy

7. Infection of female genital tract including sexually transmitted diseases, low backache

8. Prolapse of uterus and vagina

9. Principle of common gynecological operations & procedures – hysterectomy, D&C, D&E, pep smear

10. Menopause: Its effect on emotions and musculoskeletal system

11. Urogenital dysfunction – pre and post-natal condition

12. Sterility: Pathophysiology, investigations, management, Malnutrition and deficiencies in females.

13. Surgical procedures involving child birth.

a. Definition, Indications and Management of the following surgical procedures – pelvic repair, caesarian section, Hysterosalphyngography, Dilatation and Curettage, Laparoscopy, Colposcopy.

14. Incontinence – Types, Causes, Assessment and Management

References: a) Textbook of Obstetrics & Gynecology by D.C Dutta's

BPT-503: GENERAL MEDICINE, PEDIATRICS, GERIATRICS, AND PSYCHIATRY

SUBJECT DESCRIPTION - This subject follows the basic science subjects to provide the knowledge about relevant aspects of general medicine, pediatric, geriatric, & psychiatry. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that after the discussion, the student will be able to list the etiology, pathology, clinical features and treatment methods for various conditions.

General Medicine:

1. **Infection:** Effects of Infection on the body –Pathology –source and spread of infection –vaccinations – generalized infections –rashes and infection –food poisoning and gastroenteritis –sexually transmitted diseases –HIV infections and Aids.
2. **Poisoning:** Clinical features –general management –common agents in poisoning –pharmaceutical agents –drugs of misuse –chemical pesticides –Envenomation.

3.Food and Nutrition: Assessment–Nutritional and Energy requirements; Deficiency diseases –clinical features and treatment; Protein –Energy Malnutrition: Clinical features and treatment; Obesity and its related disorders: Causes –Complications –benefits of weight loss –management of Obesity –diet, exercise and medications.

4.Endocrine diseases: Common presenting symptoms of Endocrine disease –common classical disease presentations, clinical features and its management; Diabetes Mellitus: Etiology and pathogenesis of diabetes –clinical manifestations of the disease –management of the disease –Complications of diabetes.

5.Diseases of the Blood: Examinations of blood disorders –Clinical manifestations of blood disease; Anemia –signs and symptoms –types and management; Hemophilia -Cause –clinical features severity of disease –management –complications due to repeated hemorrhages –complications due to therapy.

6.Diseases of the Digestive system: Clinical manifestations of gastrointestinal disease –Etiology, clinical features, diagnosis, complications and treatment of the following conditions: RefluxOesophagitis, Achlasia Cardia, Carcinoma of Oesophagus, GI bleeding,Peptic Ulcer disease, Carcinoma of Stomach, Pancreatitis, Malabsorption Syndrome,

Ulcerative Colitis, Peritonitis, Infections of Alimentary Tract; Clinical manifestations of liver diseases - Aetiology, clinical features, diagnosis, complications and treatment of the following conditions : Viral Hepatitis, Wilson's Disease, Alpha1-antitrypsin deficiency, Tumorsof the Liver, Gall stones, Cholycystitis.

7.Diseases of the Skin: Examination and clinical manifestations of skin diseases; Causes, clinical features and management of the following skin conditions: Leprosy, Psoriasis, Pigmentary Anomalies, Vasomotor disorders, Dermatitis, Coccal and Fungal Parasitic and Viral infections.

8. Renal disease: Acute and Chronic renal failure and Urinary tract infection - common clinical conditions complicated by UTI.

References: a) Davidson's Principles and Practice of Medicine

b) Manipal manual of clinical Medicine by BA Shastry

c) Harrison's Principles of Internal Medicine

d) Manual of practical medicine by R Alagappan

Pediatrics:

Problems and management of LBW infants, Perinatal problems and management, Congenital abnormalities and management, Respiratory conditions of childhood, Cerebral Palsy –causes, complications, clinical manifestations, treatment ; Spina Bifida –management and treatment, Epilepsies –types, diagnosis and

treatment; Recognizing developmental delay, common causes of delay ; Orthopedic and Neuromuscular disorders in childhood, clinical features and management ; Sensory disorders –problems resulting from loss of vision and hearing ; Learning and behavioral problems – Autism, Specific learning disability, Intellectual disability; Malnutrition, rickets, & vitamin D deficiency.

References: a) Manipal manual of clinical Pediatrics by Kafeel Ahmed Khan

b) Essential of Pediatrics OP Ghai

Geriatrics: Physiology of Aging /degenerative Changes-Musculoskeletal /Neuromotor /cardio – respiratory-/Metabolic, Endocrine, Cognitive, Immune systems. Role of Physio Therapy in Hospital based care, Half-way homes, Residential homes, Meals on wheels etc. Home for the aged, Institution based Geriatric Rehabilitation. Few conditions: - Alzheimer's disease, Dementia, Parkinson's Disease, Incontinence, Iatrogenic drug reactions etc. Ethics of Geriatric Rehabilitation

References: a) Textbook of Geriatric medicine by Pratap Sanchetee

Psychiatric Disorders:

- Classifications, Causes, Clinical manifestations and treatment methods used in Psychiatry. Modalities of psychiatric treatment, Psychiatric illness and physiotherapy, Brief description of Etio-pathogenesis, manifestations, and management of
- Psychiatric illnesses -. Anxiety neurosis, Depression, Obsessive compulsive neurosis, Psychosis, Maniac-depressive psychosis, Post-traumatic stress disorder, Psychosomatic reactions: Stress and Health, theories of Stress –Illness. Etio-pathogenesis, manifestations, and management of psychiatric illness.

a.Drug dependence and alcoholism

b.Somatoform and Dissociate Disorders –conversion reactions, Somatization,Dissociate Amnesia, and Dissociate Fugue

c.Personality disorders

d.Child psychiatry -manifestations, and management of childhood disorders -attention deficit syndrome and behavioral disorders.

e.Geriatric psychiatry

References: a) Textbook of Psychiatry by Neeraj Ahuj

BPT-504: BIOSTATISTICS AND RESEARCH METHODOLOGY

SUBJECT DESCRIPTION - The objective of this module is to help the students understand the basic principles of statistics & methods applied to analyze from the data collection to draw the inferences from the research findings.

BIOSTATISTICS

1. Definition of Statistics and Biostatistics
2. Types of data, rates and ratio
3. Methods of collection of data-primary and secondary data
4. Frequency Distribution: Measures of Central Tendency – Arithmetic Mean, Median and Mode for un-grouped and grouped data, Measures of Dispersion (Mean deviation, standard deviation, Range)
5. Presentation of data: Bar diagram, Pie Diagram, Histogram, Frequency polygon, Frequency curve, and Line diagram.
6. Measures of Variation: Range, Inter Quartiles, Mean Deviation, Standard Deviation Co-efficient of Variation
7. Probability: Definitions of Classical Probability (Priori) and Frequency, Probability (Posteriori), Addition and Multiplicative Theorems of Probability
8. Probability Distribution: Binomial distribution, Poisson distribution and Normal distribution
9. Sampling- Definition: Population and simple Sampling, Simple Random Sampling, Stratified Random Sampling, Systematic Random Sampling and Cluster Sampling
10. Correlation and Regression: Scatter Diagram, Linear Correlation and Linear Regression Equation
11. Test of Significance – Procedure Test of Significance for large samples and for small samples Chi-square Test – Testing for association Misuse of Chi-square Test

References: a) Introduction to Biostatistics and Research Methods P.S.S. Sundar Rao & J. Richard

b) Principles & practice of Biostatistics by Belavendra Antonisamy, Premkumar & Christopher

c) Methods in Biostatistics by BK Mahajan

d) Research methodology & Biostatistics by Suresh K Sharma

RESEARCH METHODOLOGY

Research in medicine and healthcare

1. Clinical research and clinical trials
2. Research models
3. Research process
4. Testing of hypothesis
5. Selecting an instrument
6. Gathering data
7. Analyzing the data
8. Presenting results
9. Publishing research
10. Search techniques
11. Research's relationship with the professional body of knowledge

References: a) An introduction to Biostatistics & research methods by P.S.S Sunder Rao J Richard

b) Research methodology & Biostatistics by Suresh K Sharma

c) Research Methodology by C.R. Kothari

BPT-505: DIAGNOSTIC IMAGING FOR PHYSIOTHERAPIST (INTERNAL PAPER)

SUBJECT DESCRIPTION- This course covers the study of common diagnostic and therapeutic imaging tests. At the end of the course students will be aware of the indications and implications of commonly used diagnostic imaging tests as they pertain to patient's management. The course will cover that how X-Ray, CT, MRI, Ultrasound and Other Medical Images are created and how they help the health professionals to save lives.

1. IMAGE INTERPRETATION

a. History

b. A New Kind of Ray

c. How a Medical Image Helps

d. What Imaging Studies Reveal

e. Radiography (x-rays)

f. Fluoroscopy

g. Computed Tomography (CT)

h. Magnetic Resonance Imaging (MRI)

i. Ultrasound

j. Endoscopy.

2. RADIOGRAPHY AND MAMMOGRAPHY

a. Equipment components

b. Procedures for Radiography & Mammography

c. Benefits versus Risks and Costs

d. Indications and contraindications.

3. FLUOROSCOPY

a. What is Fluoroscopy?

b. Equipment used for fluoroscopy

c. Indications and Contra indications

d. How it helps in diagnosis

e. The Findings in Fluoroscopy

f. Benefits versus Risks and Costs.

4. COMPUTED TOMOGRAPHY (CT)

a. What is Computed Tomography?

b. Equipment used for Computed Tomography

c. Indications and Contra indications

d. How it helps in diagnosis

e. The Findings in Computed Tomography

f. Benefits versus Risks and Costs.

5. MAGNETIC RESONANCE IMAGING (MRI)

a. What is MRI?

b. Equipment used for MRI

c. Indications and Contra indications

d. How it helps in diagnosis

e. The Findings in MRI

f. Benefits versus Risks and Costs

g. Functional MRI.

6. ULTRASOUND

a. What is Ultrasound?

b. Equipment used for Ultrasound

c. Indications and Contra indications

d. How it helps in diagnosis

e. The Findings in Ultrasound

f. Benefits versus Risks and Costs.

7. ENDOSCOPY

a. What is Endoscopy?

b. Equipment used for Endoscopy

c. Indications and Contra indications

d. How it helps in diagnosis

e. The Findings in Endoscopy

f. Benefits versus Risks and Costs.

8. NUCLEAR MEDICINE

a. What is Nuclear Medicine?

b. Equipment used for Nuclear Medicine

c. Indications and Contra indications

d. How it helps in diagnosis.

e. Benefits versus Risks and Costs.

References: a) Diagnostic imaging for physiotherapists by James swain and Kenneth W. bush

b) Fundamentals of musculoskeletal imaging by Lynn N. Mckinnis

SEMESTER-6: 20 CREDITS

BPT-601: PHYSIOTHERAPY IN ORTHOPEDICS & SPORTS

SUBJECT DESCRIPTION -The subject serves to integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify disabilities due to musculoskeletal dysfunction, plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function.

A. ASSESSMENT OF JOINTS & SPINE

1 Subjective- History

2 Objective examination

3 Observation

Built, Tropical changes, Posture, attitude of the limb and deformity, Gait, Externalappliances

4 Palpation

Temperature, Texture, Tenderness, edema & Swelling, joint crepitation, pulse

5 Examination

Musculoskeleta

l examination

Tone-

Spasticity &

Rigidity

Motor examination-ROM, Joint play & End feel, Muscle power, Reflexes, Limb length,Muscle girth

Sensory Examination-Superficial & deep sensation, Pain assessment-onset, location,pattern, quality, rating, aggravating & relieving factors, type of pain

6 Respiratory-chest expansion

7 Higher Function-Level of consciousness, mental status, communication8 Functional assessment

9 Special test

B. FRACTURE AND DISLOCATION

1. Define fracture. Review the types, signs and symptoms,

principles of immobilization andhealing of fracture.

2. Describe the PT assessment of a patient with a fracture during the immobilization and post immobilization period.
3. List the aims of PT management in a patient with a fracture.
4. Describe the methods of mobilization of a patient after healing of a fracture.
5. Review the mechanism of injury, clinical features, treatment and complications anddescribe the PT management and home programme for the following injuries:
6. Fracture clavicle, upper 1/3 rd of humerus
7. Fracture head of radius, olecranon process, shaft of radius and ulna, colles
8. Fracture scaphoid, bennets and potts fracture, dupuytrens contracture, calcaneumand metatarsal- march
9. Spinal fracture
10. Dislocation of
    a. Hip(congenital), traumatic posterior and central
    b. Shoulder (anterior and recurrent)
    c. Patella
11. Joint replacement – Knee and Hip (Total and Partial)

C. REGIONAL CONDITIONS

PT assessment, problems, means, conservative and surgical management, rehabilitation for thefollowing conditions

1. Cervical and lumbar spondylosis
2. Spondylolisthesis
3. TB spine
4. Postural deformities of spine – kyphosis, lordosis, scoliosis.
5. Ankylosing spondylitis
6. Intervertebral disc prolapse (PIVD)
7. Periarthritis shoulder
8. Amputation
9. Poliomyelitis
10. Osteoarthritis
11. Rheumatoid arthritis

12. Leprosy

13. Cerebral palsy

14. Burns

15. Sports Physiotherapy: Physical fitness. Stages of soft tissue healing. Treatment guidelines for soft tissueinjuries- Acute, Sub acute and chronic stages. Repair of soft tissues- rupture of muscle, tendon and Ligamentous tears. Soft tissue injuries- prevention and rehabilitation of, Lateral ligament sprain of ankle. Rotator cuff injuries. Collateral and Cruciate injuries of knee. Meniscal injuries of knee. Supraspinatus and Bicipital tendonitis. Pre patellar and Sub-acromial bursitis. Tennis and Golfer'selbow. Hamstring strains, Quadriceps contusion, TA rupture. Dequervain's tenosynovitis. Trigger and Mallet finger. Plantar fasciitis. Wrist sprains.

PRACTICALS: Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

References:

a) Cash textbook of Orthopedics & Rheumatology for Physiotherapists Patricia A.Downie

b) Essential of Orthopedics & applied physiotherapy by Jayant joshi & Prakash kotwal

c) Essential of Orthopedics for Physiotherapy by John Ebnezar & Rakesh John

d) Orthopedic Physical Assessment by David J Magee

e) Clinical Orthopedic rehabilitation by S Brent Brotzman

f) Dutton’s Orthopedic examination, evaluation, & intervention

g) Orthopedic physical therapy by Robert Donatelli

BPT-602: PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS AND OBSTETRICS & GYNECOLOGY

SUBJECT DESCRIPTION: At the end of the course the candidate will be able to:

1. Acquire knowledge of rationales of basic investigative approaches in the medical system and surgical intervention, regimes in general surgeries (special emphasis on abdominal surgeries)

2. Execute effective physiotherapeutic measures (with appropriate clinical reasoning) and exercise, conditioning in general medical and surgical conditions.

3. Select strategies for cure, care and prevention, adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work and in community.

4. Acquire the knowledge of evaluation and physiotherapeutic treatment for obstetric and gynecological conditions.

THEORY

1. **Physiotherapy in OG –**

- Anatomy of abdominal wall and pelvic organ support structure
- Physiology of Continence
- Physiological basis of exercise prescription in puberty, pregnancy, purpeurium & menopause
- Red flags for rehabilitation during pregnancy
- Antenatal exercise program and Role of Physiotherapy on common complications during pregnancy
- Physiotherapy during labour and caesarian section
- Short & Long term complications in post-natal stage. Role of Physiotherapy
- Physiotherapy purperium & post-natal stage
- Urogenital dysfunction – Prolapse & incontinence; Physiotherapy in conservative & post-surgical management
- Diastasis Recti – Management

2. Geriatrics – handling of old patients and their problems.

3. Complication common to all operations

4. Abdominal incisions.

5. Physiotherapy in pre and post-operative stages.

6. Operations on upper G.I.T.- oesophagus, stomach, duodenum

7. Operations on large and small intestine – Appendisectomy, cholecystectomy, partial colectomy, ileostomy, hernia and herniotomy, hernioraphy, hernioplasty.

8. Burns and its treatment – physiotherapy in burns, skin grafts, and reconstructive surgeries.

9. Management of wound ulcers- Care of ulcers and wounds - Care of surgical scars- U.V. R and other electro therapeutics for healing of wounds, prevention of Hyper-Granulated Scars Keloids, Electrotherapeutics measures for relief of pain during mobilization of scars tissues.

10. Physiotherapy intervention in the management of Medical, Surgical and Radiation Oncology Cases.

11. Physiotherapy for Peripheral Vascular Diseases- Definition, Physiology, Conditions of PVD, evaluation-arterial, venous, lymphatic, Doppler, Treatment-Buergers exercise, cold laser, electrical stimulation, Intermittent compression.

References: a) Cash's Text book of General Medicine and Surgical conditions for Physiotherapists

b) Principles of physiotherapy in General medical & surgical conditions by A Thangamani Ramalingam

c) Textbook of physiotherapy in surgical conditions by Pushpal K Mitra

BPT- 603: CLINICAL NEUROLOGY & NEUROSURGERY

SUBJECT DESCRIPTION: This subject follows the basic science subjects to provide the knowledge about relevant aspects of neurology & neurosurgery. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that after the lectures and discussion the student will be able to list the etiology, pathology, clinical features and treatment methods for various neurological conditions.

A. CARDINAL FEATURES OF NEUROLOGICAL ILLNESS

B. ASSESSMENT

1 Basic history taking to determine whether the brain, spinal cord, peripheral nerve is involved

2 Assessment of higher mental function – orientation, memory, attention, speech, language

3 Assessment of cranial nerves

4 Assessment of motor power

5 Assessment of sensory function – touch, pain, temperature, position

6 Assessment of tone – spasticity, rigidity, and hypotonia.

7 Assessment of cerebellar function

8 Assessment of higher cortical function – apraxia

9 Assessment of gait abnormalities

C. CLINICAL FEATURES AND MANAGEMENT

1. Congenital childhood disorders

Cerebral palsy

Hydrocephalus

Spina bifida

2. Cerebrovascular accidents

Definition, etiology, classification – thrombotic, embolic, hemorrhagic

Clinical findings, management.

3. Trauma

Head injury

Spinal cord injury

4. Diseases of the spinal cord

Craniocerebral junction anomalies

Syringomyelia

Spinal archnoiditis

5. Brain tumors and Spinal tumors: Classification, clinical features, investigations, medical and surgical management.

6. Demyelinating diseases

Guillain – barre syndrome

Acute disseminated encephalomyelitis

Transverse myelitis

Multiple sclerosis

7. Degenerative disorders

Parkinson disease

Dementia

8. Infections

Pyogenic meningitis sequelae

Tuberculous infection of CNS

Poliomyelitis

Tabes dorsalis

HIV infection Encephalitis

9. Disease of the muscle

Myopathies

Muscular dystrophy

Spinal muscular atrophy

10. Peripheral nerve disorders

Peripheral nerve injuries

Entrapment neuropathies

Peripheral neuropathies

11. Miscellaneous

Disorders of ANS

Epilepsy

Myasthenia gravis

Motor neuron disease

Alzheimer disease

12. Neurosurgery- Introduction, Indications and Complications of following: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, coiling of aneurysm, Clipping of aneurysm, and Neural implantation.

References:

a) Davidson's Principles and Practice of Medicine

b) Textbook of Neurology by Arabinda Mukherjee

c) Neurology & Neurosurgery illustrated by Kenneth W Lindsay, Ian bone, Geraint Fuller

d) Handbook of Neurological examination by Navneet kumar

e) Clinical Neurology made easy by HV Srinivas

SEMESTER- 7: 20 CREDITS

BPT-701: PHYSIOTHERAPY IN NEUROLOGY & PSYCHOSOMATIC DISORDER

SUBJECT DESCRIPTION - The subject serves to integrate the knowledge gained by the students in neurology and neurosurgery with skills to apply these in clinical situations of dysfunction and neurological pathology. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify disabilities due to neurological dysfunction, plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore neurological function.

A. NEUROANATOMY

1 Basic anatomy of brain and spinal cord

2 Blood supply of brain and spinal cord

3 Pyramidal & extra pyramidal system

4 Relationship of spinal nerve to the spinal cord segments

5 Tract of the spinal cord

6 Brachial, lumbar and sacral plexuses

7 Cranial nerves.

8 Neuron & synapse

B. NEUROPHYSIOLOGY

Neurophysiologic basis of tone, disorder of tone, posture, bladder control, musclecontraction, movement, and pain.

C. PRINCIPLES OF ASSESSMENT

1 Evaluation and functional physiotherapy assessment with appropriate reasoning forplanning and implementation of treatment technique.

2 History taking

3 Assessment of higher function

4 Assessment of cranial nerves

5 Assessment of sensation – pain, temperature and dorsal column

6 Assessment of motor system – muscle power, joint mobility, balance, co-ordination7 Assessment of tone

7 Assessment of reflexes – superficial and deep

8 Assessment of gait

9 Assessment of posture

10 Assessment of limb length

11 Assessment of functional abilities

D. PRINCIPLES OF TREATMENT

1 Principles and theories of motor control and learning

2 Application of transfer and functional re-education exercise, postural exercise and gait training

3 Functional training in bladder dysfunction.

4 Principles of co-ordination and balance exercise

5 Understand and application of neuro therapeutic skills like PNF, NDT, Carr & Shepherd, Brunstrom, Rood approach

6 Knowing principle in using tools of therapeutic gym such as vestibular ball, tilt board,bolsters.

7 Principles of use of ambulatory aids in neurological conditions- spastic UMN lesion,LMN lesion, cerebellar dysfunction,

8 Principles of use of splints and braces in spastic UMN lesion and in flaccid LMN lesion in both UL & LL.

9 Review the management of chronic pain in neurological condition with respect to the type of pain, treatment modalities available, and selection criteria for eachmodality.

10 Treatment of altered tone – hyper tonicity and hypo tonicity

11 Sensory reeducations – hypersensitivity, hyposensitivity, anesthesia.

12 Motor re-education – strengthening exercises, co-ordination exercise, joint mobilizationexercise, use of PNF technique.

13 Treatment to improve function – free exercise, activities of daily living, mat exercise, Mobilization exercise.

E. PHYSIOTHERAPY MANAGEMENT OF NEUROLOGICALCONDITIONS IN ADULT

1. Stroke
2. Monoplegia
3. Brain tumor
4. Spinal cord tumor
5. Parkinsonism

6. Cerebellar lesion
7. Motor neuron disease
8. Disorder of the spinal cord – paraplegia, quadriplegia, syringomyelia, transverse myelitis,Spinal dyspharism
9. Head injury
10. Peripheral nerve injury
11. Guillian bare syndrome
12. 7th cranial nerve palsy
13. Low back pain syndrome
14. Brachial neuralgia
15. Demyelination of the nervous system – multiple sclerosis
16. Disorder of the neuromuscular junction – myasthenia gravis
17. Viral meningitis
18. Tabes dorsalis

F. PHYSIOTHEAPY MANAGEMENT OF NEUROLOGICAL CONDITIONS IN CHILDREN

1. Cerebral palsy
2. Developmental delay
3. Spina bifida
4. Muscular dystrophy
5. Poliomyelitis
6. Hydrocephalus
7. Brachial plexus injury – erb palsy, klumkes palsy.

PRACTICAL: Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions

References: a) Cash textbook of Neurology for Physiotherapists Patricia A.Downie

b) Neurological Rehabilitation by D Umphred

c) Physical Rehabilitation Susan B O'Sullivan & Thomas j. Schmitz

d) Physical management for neurological conditions by Sheila Lennon

e) Physiotherapy in neurological conditions by Gowrishankar Potturi

f) Textbook of Neuro-Physiotherapy by Dr. Shalu Jain

g) Neurological examination for Physiotherapists by Chaitali shah

h) Physiotherapy in Neuro-conditions by Glady Samuel Raj

BPT-702: COMMUNITY MEDICINE

SUBJECT DESCRIPTION - This subject follows the basic science subjects to provide the knowledge about conditions the therapist would encounter in their practice in the community. The objective of this course is that after the lectures and discussion the student will be able to demonstrate and understanding of various aspects of health and disease, list the methods of health administration, health education and disease preventive measures.

A. Outline the natural history of diseases and the influence of social, economic and culturalaspects of health and diseases.

B. Outline the various measures of prevention and methods of intervention especially fordiseases with disability.

C. Outline the natural care delivery system and the public health administration system at central and state government level- primary health care, school health, health team atdistrict hospitals and PHC, voluntary and international agencies in health care.

D. Outline selective national health schemes.

E. Define occupational health and list methods of prevention of occupational hazards.

F. Outline the Employees State Insurance scheme and its benefit

G. Describe the social security measures for protection from occupational hazards,Accidents, diseases and workman compensation act.

H. Define community based rehabilitation, institution based rehabilitation. Describe the advantages and disadvantages of institution based and community based Rehabilitation.

I. Describe the following communicable diseases with reference to water reservoir,Mode of transmission, route of entry and levels of prevention

1. Poliomyelitis
2. Meningitis
3. Encephalitis
4. Tuberculosis
5. Filariasis

6. Leprosy
7. Tetanus
8. Measles

J. Describe the epidemiology of Rheumatic heart disease, cancer, chronicDegenerative disease, cerebrovascular accident

K. Outline the influence of nutritional factors such as protein energy malnutrition, Anemia, vitamin deficiency and minerals on disability, nutritional programmes,Balanced diet, nutritional requirement and source, food adulteration.

L. List the principles of health education, methods of communication and role of Health education in rehabilitation service-AV aids, planning a health educationProgramme.

M. Define the role of community leaders and health professional in health education.

N. Outline the role of international health agencies in rehabilitation of the disabled.

Practical: Community orientation & clinical visit-

1. The community orientation and clinical visit will include visit to the entire chain of healthcare delivery system -Sub center, PHC, CHC, SDH, DH and Medical college, private hospitals, dispensaries and clinics.

2. The student will also be briefed regarding governance at village level including interaction and group discussion with village panchayat and front line health workers.

3.Clinical visit to their respective professional department within the hospital.

References: a) Textbook of community medicine by Sunder Lal, Adarsh & Pankaj

b) Textbook of preventive & social medicine by Dr. JE Park

BPT-703: CLINICAL CARDIOVASCULAR & PULMONARY

SUBJECT DESCRIPTION: This subject follows the basic science subjects to provide the knowledge about relevant aspects of cardiovascular & pulmonary conditions. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that after the lectures and discussion the student will be able to list the etiology, pathology, clinical features and treatment methods for various cardiovascular & pulmonary conditions.

A. CARDIO VASCULAR SYSTEM

a. Define, etiology, pathogenesis, clinical features, complications, conservative and surgical management of the following conditions-

i.Ischemic heart disease
ii.Myocardial infarction
iii.Heart failure
iv.Cardiac arrest
v.Rheumatic fever
vi.Hypertension
vii.Infective endocarditis
viii.Myocarditis & cardiomyopathy

c. Cardiovascular Disease : Examination of the Cardiovascular System Investigations : ECG, Exercise Stress Testing, Radiology ; Clinical manifestations of Cardiovascular disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases and disorders of the heart : Pericarditis, Myocarditis, Endocarditis, Rheumatic Fever –resulting in valve disorders, Ischemic Heart Disease, Coronary Artery Disease, Congenital disorders of the Heart, Cardiac Arrest ; Examination and Investigations of diseases of arteries and veins ; Hypertension : Definition, causes, classification, types, assessment, investigations and management.

d. Disorders of the Heart –Definition, Clinical features, diagnosis and choice of management for the following disorders : Congenital Heart diseases –Acyanotic congenital heart disease & Cyanotic congenital heart disease : Patent Ductus Arteriosus, Coarctation of Aorta,Atrial Septal Defect, Ventricular Septal Defect, Tetraology of Fallot, Transposition of Great Vessels ; Acquired Heart Disease –Mitral Stenosis & Insufficiency, Aortic Stenosis and Insufficiency, Ischemic Heart Disease –Coronary Artery Disease, Cardiac tumors.

B. RESPIRATORY SYSTEM

a. Respiratory Disease : Examination of the Respiratory System –Investigations : Chest Radiographs, Pulmonary Function Testing, Arterial Blood Gas Analysis ; Clinical manifestations of Lung disease ; Patterns of lung disease –Chronic Obstructive Lung Disease and Restrictive Lung Disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following lung diseases : Chronic Bronchitis, Emphysema, Asthma, Bronchiectasis, Cystic Fibrosis, Upper Respiratory Tract Infections, Pneumonia, Tuberculosis, Fungal Diseases, Interstitial Lung Diseases, Diseases of the pleura, diaphragm and chest wall; Respiratory failure –Definition, types, causes, clinical features, diagnosis and management.

b. Chest wall Disorders: Definition, Clinical features, diagnosis and choice of management for the following disorders –chest wall deformities, chest wall tumors, Spontaneous Pneumothorax, Pleural Effusion, Empyema Thoracis, Lung abscess, Bronchiectasis, Tuberculosis, Bronchogenic Carcinoma, Bronchial Adenomas, Metastatic tumors of the Lung, tracheal Stenosis, Congenital tracheamalacia, Neoplasms of the trachea, Lesions of the Mediastinum. Carcinoma of the female breast

References: a) Davidson's Principles and Practice of Medicine

b) Harrison's Principles of Internal Medicine

c) Perloff's clinical recognition of Congenital Heart Disease

d) Hutchinson's clinical methods an integrated approach to clinical practice

e) Macleod's clinical examination

SEMESTER-8: 20 CREDITS

BPT-801: PHYSIOTHERAPY IN CARDIOVASCULAR, PULMONARY, & INTENSIVE CARE

SUBJECT DESCRIPTION: The subject is designed to provide knowledge in assessing and planning physiotherapy interventions for various General, Medical and Surgical conditions. The student must be able to reassess the patient as necessary, to monitor the patient in regard to treatment, to monitor the patient's vital signs, student must know emergency drugs indication and contra-indication, care in intensive care unit (ICU) and to provide appropriate interventions to the patient.

THEORY-

1. Bedside assessment of the Patient- Adult & Pediatric.

2. Investigations and tests –Exercise tolerance Testing –Cardiac & Pulmonary, Radiographs, PFT, ABG, ECG, Hematological and Biochemical Tests.

3. Physiotherapy techniques to increase lung volume –controlled mobilization, positioning, breathing exercises, Neurophysiological Facilitation of Respiration, Mechanical aids -Incentive Spirometry, CPAP, IPPB.

4.Physiotherapy techniques to decrease the work of breathing –Measures to optimize the balance between energy supply and demand, positioning, breathing re-education –Breathing control techniques, mechanical aids –IPPB, CPAP, BiPAP.

5.Physiotherapy techniques to clear secretions –Hydration, Humidification & Nebulization, Mobilization and Breathing exercises, Postural Drainage, Manual techniques –Percussion, Vibration and Shaking, Rib Springing, ACBT, Autogenic Drainage, Mechanical Aids –PEP, Flutter, IPPB, Facilitation of Cough and Huff, Nasopharyngeal Suctioning.

6. Neonatal and Pediatric Physiotherapy –Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders, Emergencies in the neonatal unit.

7. Physiotherapy in Obstructive & Restrictive lung conditions.

8. Pulmonary Rehabilitation.

9. Physiotherapy following Lung surgeries

10. Respiratory failure –Oxygen Therapy and Mechanical Ventilation.

11. Introduction to ICU: ICU monitoring –Apparatus, Airways and Tubes used in the ICU -Physiotherapy in the ICU –Common conditions in the ICU –Tetanus, Head Injury, Lung Disease, Pulmonary Oedema,

Multiple Organ Failure, Neuromuscular Disease, Smoke Inhalation, Poisoning, Aspiration, Near Drowning, ARDS, Shock; Dealing with an Emergency Situation in the ICU.

12. Physiotherapy management following cardiac surgeries.

13. Cardiac Rehabilitation.

14. Home program and education of family members in patient care.

PRACTICAL: Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions

References: a) Cash textbook of chest, Heart & Vascular Disorders for Physiotherapists Patricia A. Downie

b) The Brompton Guide to chest physiotherapy

c) Chest Physiotherapy in Intensive Care Unit by Mackenzi

d) Physical Rehabilitation Susan B O'Sullivan & Thomas j. Schmitz

e) Techniques in cardio-pulmonary physiotherapy by Subin Solomen & Pravin aaron

f) Essentials of Cardiopulmonary Physical therapy by Ellen Hillegass

g) Cardio respiratory physiotherapy Adults & Pediatrics by Eleanor Main & Linda Denehy

BPT- 802: COMMUNITY PHYSIOTHERAPY

SUBJECT DESCRIPTION - The subject serves to integrate the knowledge gained by the students in community medicine and other areas with skills to apply these in clinical situations of health and disease and its prevention. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify rehabilitation methods to prevent disabilities and dysfunctions due to various disease conditions and plan and set treatment goals and apply the skills gained in rehabilitating and restoring functions.

1. Rehabilitation: Definition, Types.

2. Community: Definition of Community, Multiplicity of Communities, The Community based approach, Community Entry strategies, CBR and Community development, Community initiated versus community oriented programme, Community participation and mobilization.

3. Introduction to Community Based Rehabilitation: Definition, Historical review, Concept of CBR, need for CBR, Difference between Institution based and Community based Rehabilitation, Objectives of CBR, Scope of CBR, Members of CBR team, Models of CBR.

4. Principles of Community based Rehabilitation. W.H.O.`s policies-about rural health care-concept of primary /tertiary health centers-district hospitals etc.-Role of P.T.-Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist /P.&O./vocational guide in C.B.R. of physically handicapped person, Agencies involved in rehabilitation of physical handicapped - Legislation for physically handicapped. Concept of multipurpose health worker. Role of family members in the rehabilitation of a physically handicapped.

5. Planning and management of CBR Programmes, CBR Programmed planning and management, Ownership and Governance, Decentralization and CBR, Management of CBR, Programmed sustainability, Communication and Coordination, Community participation, mobilization and awareness, CBR programme influence on promoting and developing public policies.

6. Disability: Definition of Impairment, Handicap and Disability, Difference between impairment, handicap and disability, Causes of disability, Types of disability, Prevention of disability, Disability in developed countries, Disability in developing countries. Disability Surveys: Demography. Screening: Early detection of disabilities and developmental disorders, Prevention of disabilities- Types and levels.

7. Disability Evaluation: Introduction, What, Why and How to evaluate, Quantitative versus Qualitative data, Uses of evaluation findings.

8. Role of Government in CBR: Laws, Policies, Programmes, Human Rights Policy, Present rehabilitation services, Legal aspects of rehabilitation.

9. Role of Social work in CBR: Definition of social work, Methods of social work, History of social work, Role of social worker in rehabilitation.

10. Role of voluntary Organizations in CBR: Charitable Organizations, Voluntary health agencies – National level and International NGO's, Multilateral and Bilateral agencies. International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World bank, USAID, SIDA, DANIDA, Rockfeller, Ford foundation, CARE, RED CROSS.

11. National District Level Rehabilitation Programme: Primary rehabilitation unit, Regional training center, District rehabilitation center, Primary Health center, Village rehabilitation worker, Anganwadi worker

12. Role of Physiotherapy in CBR: Screening for disabilities, prescribing exercise programme, Prescribing and devising low cost locally available assisstive aids, Modifications physical and architectural barriers for disabled, Disability prevention, Strategies to improve ADL, Rehabilitation programmes for various neuro-musculoskeletal and cardiothoracic disabilities.

13. Screening and rehabilitation of paediatric disorders in the community: Early detection of high risk babies, Maternal nutrition and education, Rehabilitation of Cerebral Palsy, Polio, Downs Syndrome, Muscular Dystrophies etc., Prevention and rehabilitation of mental retardation and Behavioural disorders, Immunization programmes, Early intervention in high risk babies, Genetic counselling.

14. Extension services and mobile units: Introduction, Need, Camp approach.

15. Vocational training in rehabilitation: Introduction, Need, Vocational evaluation, Vocational rehabilitation services.

16.Occupational health – Legislations in occupational health. Principles of ergonomics; anthropometric measurements in occupational settings; evaluation of work and task analysis like manual material handling, Job profile analysis of occupational settings leading to work-related musculoskeletal disorders. Basic toxicology

PRACTICALS: This will consist of Field visits to urban and rural PHC's., Visits to regional rehabilitation training center, Regular mobile camps, Disability surveys in villages, Disability screening, Demonstration of Evaluation and Physiotherapy prescription techniques for musculoskeletal, neuromuscular, cardio-respiratory, Paediatric, gynecological and geriatric problems in community, Demonstration of evaluation and prescription techniques for ambulatory and assistive devices, Fabrication of low cost assistive devices with locally available materials.

References:

a) Textbook of community medicine & community rehabilitation by T Bhaskar rao

b) Essential of community based rehabilitation by Satya Bhusan Nagar

c) Physiotherapy in community health & rehabilitation by Waqar Naqvi

d) Community based rehabilitation of persons with disabilities by S Pruthvish

e) Essential of community physiotherapy & ethics by Prof Dr Rajendra Rajput

f) Textbook of prevention practice & community physiotherapy by Dr Bharati Vijay Bellare

BPT-803: CLINICAL DECISION MAKING AND EVIDENCE BASED PHYSIOTHERAPY PRACTICE

1. Introduction to Evidence Based Practice: Definitions, Evidence Based Practice,

2. Concepts of Evidence based Physiotherapy: Awareness, Consultation, Judgement, and Creativity

3. Development of Evidence based knowledge, The Individual Professional, Professionals within a discipline, and Professionals across disciplines

4. Evidence Based Practitioner: The Reflective Practitioner, The E Model, Using the E Model

5. Finding the Evidence: Measuring outcomes in Evidence Based Practice, Measuring Health Outcomes, Measuring clinical outcomes, Inferential statistics and Causation

6. Searching for the Evidence: Asking Questions, identifying different sources of evidence, Electronic Bibliographic databases and World Wide Web, Conducting a literature search. Step by-step search for evidence

7. Assessing the Evidence: Evaluating the evidence; Levels of evidence in research using quantitative methods, Levels of evidence classification system, Outcome Measurement, Biostatistics, the critical review of research using qualitative methods

8. Systematically reviewing the evidence: Stages of systematic reviews, Meta-analysis, The Cochrane collaboration

9. Economic evaluation of the evidence: Types of economic evaluation, conducting economic evaluation, critically reviewing economic evaluation, locating economic evaluation in the literature

10. Using the evidence: Building evidence in practice; Critically Appraised Topics (CATs), CAT format, Using CATs, Drawbacks of CATs

11. Practice guidelines, algorithms, and clinical pathways: Recent trends in health care, Clinical Practice Guidelines (CPG), Algorithms, Clinical pathways, Legal implications in clinical pathways and CPG, Comparison of CPGs, Algorithms and Clinical Pathways

12. Communicating evidence to clients, managers and funders: Effectively communicating evidence, Evidence based communication in the face of uncertainty; Evidence based communication opportunities in everyday practice

13. Research dissemination and transfer of knowledge: Models of research transfer, Concrete research transfer strategies, Evidence based policy

BPT-804: ADMINISTRATION & TEACHING SKILLS

1. Introduction:

a. Branches of administration, Nature and scope of administration, how to be an effective administrator, Planning hospital administration as part of a balanced health care program.

b. Principles of hospital administration and its applications to physiotherapy.

c. Planning and organization: Planning cycle, Principles of organizational charts, Resource and quality management, planning change -innovation

d. Financial issues including budget and income generation

e. Hospital administration: Organization, Staffing, Information, Communication, Coordination, cost of services, Monitoring and evaluation.

f. Organization of physiotherapy department: Planning, Space, Manpower, Other basic resources.

g. Organizing meetings, committees, and negotiations

h. Personnel management: Personnel performance appraisal system, Quality care delivery from the staff.

2. Aims of physiotherapy education

a. Concepts of teaching and learning

b. Curriculum development

c. Principles and methods of academic and clinical teaching

d. Measurement and evaluation

e. Guidance and counseling

f. Faculty development program

g. Administration in clinical setting

h. Use of A-V aids in teaching

i. Taxonomy of education- Bloom's taxonomy

BPT-805: RESEARCH PROJECT

RESEARCH PROJECT- The project may be a case study or of recent technique or literature reviews and etc. to make the student to have research mind and to facilitate for higher studies.

CLINICAL EDUCATION

Students will be posted in rotation in the following areas/wards. The students will be clinically trained to provide physiotherapy care for the patients under supervision. They will be trained on bed side approach, patient assessment, performing special tests, identifying indications for treatment, ruling out contraindications, decision on treatment parameters, dosage and use relevant outcome measures under supervision. Evidence based practice will be part of training.

1. **Physiotherapy OPD**
2. **Neurology, Neurosurgery & Neuro ICU**
3. **Community-PHC**
4. **Orthopedics**
5. **General Medicine & MICU**
6. **General Surgery & SICU**
7. **Pediatric & NICU**
7. **Developmental Pediatrics**
8. **OBG**
9. **Geriatric – Old Age Homes**
10. **Industrial Visits -Ergonomics**

SEMESTER-9: INTERNSHIP

INTERNSHIP (6-months): The internship time period provides the students the opportunity to continue to develop confidence and increased skill in simulation and treatment delivery. Students will demonstrate competence in beginning, intermediate, and advanced procedures in both areas. Students will participate in advanced and specialized treatment procedures. The student will complete the clinical training by practicing all the skills learned in classroom and clinical instruction. The students are expected to work for minimum 8 hours per day.

1. Initial Assessment Documentation: Clinical staff must document the following information:

a. Initial assessment documented based on SOAP format.

b. Subjective examination (symptomatic)

c. Objective examination (measureable, observable)

d. Action/Analysis (interpretation of current condition/intervention provided)

e. Plan of action

f. Written or verbal feedback to the client or other relevant carers

g. Discharge plan documented

h. Agreement to treatment plan by patient or "person responsible"

2. Progress Documentation: Progress documentation may include the following information:

a. Any individual intervention should be documented in SOAP format (including response to intervention/s using outcome measures)

b. Oral consent obtained and documented when there is a significant change in treatment/ treatment options/ status of patient's health.

c. Written consent obtained for designated invasive procedures

d. Change in status or events that may affect discharge plans/goals

e. Documented consultation with key clinical team members

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