SCHOOL OF HEALTH SCIENCES

PROGRAMME: BACHELOR OF PHYSIOTHERAPY

SEMESTER: IV

COURSE TITLE: EXERCISE THERAPY

COURSE CODE : 06ABPTR17411 **CREDITS : THEORY : 04**
PRACTICAL : 04

Isotonic: de Lormes, Oxford, MacQueen, Circuit weight training.Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle, Isometrics Isokinetic regimens. basic neurophysiologic principles of PNF: muscular activity, diagonals patterns of movement: upper limb, lower limb procedure: components of PNF, techniques of facilitation, mobility: contract relax, hold relax, rhythmic initiation, strengthening: slow reversals, repeated contractions, timing for emphasis, rhythmic stabilization. Stability: alternating isometric, rhythmic stabilization. Skill: timing for emphasis, resisted progression. Endurance: slow reversals, agonist reversal. Definition, principles, equipment's and accessories, indications and contraindications, benefits of suspension therapy. types of suspension therapy: axial, vertical, pendular techniques of suspension therapy for upper limb, lower limb, trunk and whole body. Lying to sitting: activities on the mat/bed, movement and stability at floor level; sitting activities and gait; l limb and upper limb activities. 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. Definition of terms related to stretching; Tissue response towards immobilization and elongation, Principles of stretching exercise, Effects of stretching, Inhibition and relaxation procedures, Precautions and contraindications of stretching, Techniques of stretching. Peripheral joint mobilization. Schools of manual therapy, principles, grades, indications and contraindications, effects and uses – maitland, kaltenborn, mulligan. 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

SCHOOL OF HEALTH SCIENCES

PROGRAMME: BACHELOR OF PHYSIOTHERAPY

SEMESTER IV

COURSE TITLE: BIOPHYSICS

COURSE CODE : 06ABPTR17412 **CREDITS : 02**

Unit I:

Basic physics and static electricity. Structure of atom molecules, elements, formation of compounds, structure and properties of matter -solids, liquids and gases. Physical effects and transmission of heat. Electricity: definition and types, electromagnetic radiation and conduction of electricity. Static electricity-production of electric charge, properties of a charged body and characteristics of electric lines of forces, potential and capacitance

Unit II:
Current electricity
Potential difference, production of electric current, factors influencing the production of electric current and magnitude of current. Resistance in series and parallel, ohms law, thermal effect of an electric current and electrical energy and power. Units of electricity-farad, volt, ampere, coulomb, watt, ohms, joules. Magnetism: definition, molecular theory of magnetism, properties of magnets, magnetic lines of force and magnetic effect of an electric current. Electromagnetic induction and electro motive force, factors influencing electro motive force, types of induction and eddy currents. Electromagnetic spectrum

Unit III:
Current electricity
Transformers- construction, working, function and types. Capacitors: definition, types, construction, charging and discharging of a capacitor. Rectifying devices-thermionic valves, choke coil, semiconductors, transistors, amplifiers, transducer and oscillator circuits

Unit IV:
Effects of current electricity
Chemical effects-ions and electrolytes, ionization, production of an EMF by chemical actions. Ionization: principles, effects of various technique of medical ionization

Unit V:
Electric supply
Electrical & chemical burns, its prevention and management. First aid and initial management of electric shock, micro/ macro shocks, dangers of earth shock, precaution-safety devices, earthing, fuses. Thermal Agents-Physical principles of cold, superficial and deep heat.Electro- magnetic radiation- Physical Principles and their relevance to physiotherapy practice. Electric Currents-Physical principles and their relevance to physiotherapy practice

SCHOOL OF HEALTH SCIENCES

PROGRAMME: BACHELOR OF PHYSIOTHERAPY

SEMESTER: IV

COURSE TITLE: ELECTROTHERAPY (LF, HF & EQUIPMENT CARE)

COURSE CODE : 06ABPTR17413 **CREDITS : THEORY : 04**
PRACTICAL : 04

Topic

Unit I:

Basics of electricity

Basic types of current- direct current and alternating current-its physiological and therapeutic effects. Basic components of electro therapeutic stimulation. Types of electrical stimulators-principles, construction component and working and parameters of electrical stimulation and electrode system. Principles of application- electrode tissue interface, tissue impedance, types of electrode, electrode coupling, current flow in tissues, lowering of skin resistance. Nerve muscle physiology- action potential, resting membrane potential, propagation of action potential, motor unit, synapse, accommodation, stimulation of healthy muscle, stimulation of denervated muscle, stimulation for tissue repair

Unit II:

Low frequency currents

Types of current used in therapeutics- modified direct current- faradic, galvanic current and modified alternating current-sinusoidal current, didynamic current. Faradic current-definition, modifications, techniques of application of individual muscle and group muscle stimulation, physiological & therapeutic effects of faradic current, precautions, indications & contra-indications, and dangers. Galvanic current: definition, modifications, physiological & therapeutic effects of galvanic current, indications & contra-indications, dangers, effects of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscles. High voltage pulse galvanic stimulation – parameters and its uses. Ionization / Iontophoresis- techniques of application of Iontophoresis, indications, selection of current, commonly used ions for pain, hyperhydrosis, would healing. Cathodal / Anodal galvanism. Micro current and macro current. Trans cutaneous electrical stimulation-definition, types of TENS, types of electrodes and placement of electrodes, dosage parameters, physiological & therapeutic effects, indications & contraindications. Pain-definition, theories of pain and pain gate control theory

Unit III:

Medium frequency currents

Interferential therapy-definition, principles of production, dosage parameters, electrode placement, physiological, therapeutic effects, indications, contraindications. Russian current and rebox current

Unit IV:

Electro-diagnosis

Faradic galvanic test, strength duration curve- methods of plotting, apparatus selection, characteristics of normally innervated muscle, partially denervated muscle and completely denervated muscle, Chronaxie and Rheobase. Nerve conduction velocity studies, Electromyography- construction of EMG equipment and Bio-feed back

Unit V:

Thermo and actino therapy (High frequency currents)

Short wave diathermy- definition, principle of production, types, technique of application, physiological effects, therapeutic effects, indications, contraindications, dosage parameters and dangers. Pulsed Electro Magnetic Energy-principles, production, parameters and uses of PEME.

Micro Wave Diathermy-definition, production, applicators, dosage parameters, physiological effects, therapeutic effects, indications, contraindications and dangers. Ultrasound-definition, production, dosage, parameters, physiological effects, therapeutic effects, principles of application, uses, indications, contraindications, dangers of Ultrasound. Phonophoresis: definition, methods of application, commonly used drugs. Infra red radiation-definition, wavelength and parameters, types of infra red generators, production of infra red radiation, physiological effects, therapeutic effects, treatment parameters, indications and contraindications. Ultra violet radiation- definition, types of UVR generators, Theraktin tunnel, PUVA apparatus, physiological effects, therapeutic effects, sensitizers, Filters. Test dosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications and dangers of ultra violet radiation. LASER: definition, types, principles of Production, methods of application, dosage, physiological effects and therapeutic effects and safety precautions of LASER

Unit VI:
Superficial heating modalities and cryotherap. Wax therapy-principles of application, latent heat of fusion, composition, methods of application, dosage, physiological effects, therapeutic effects, indications, contraindications and dangers. Contrast bath- methods of application, dosage, therapeutic uses, indications and contraindications. Moist heat therapy-hydro collator packs, methods of applications, dosage, therapeutic effects, indications and contraindications. Cyclotherm-principles of production, methods of application, dosage, therapeutic effects, indications and contraindications. Fluidotherapy-construction, method of application, dosage, therapeutic uses, indications and contraindications. Whirl pool bath-construction, method of application, dosage, therapeutic uses, indications and contraindications. Cryotherapy-definition, principle of application – Lewis hunting reaction, physiological effects, therapeutics effects, techniques of applications, indications, contraindications, dangers and methods of application with dosages

SCHOOL OF HEALTH SCIENCES

PROGRAMME: BACHELOR OF PHYSIOTHERAPY

SEMESTER: IV

COURSE TITLE: GENERAL AND CLINICAL PSYCHOLOGY

COURSE CODE : 06ABPTR17414 **CREDITS : 04**

Unit I:
Introduction to psychology. Introduction to psychology schools: structuralism, functionalism, behaviourism, psychoanalysis. Methods: introspection, observation, and experimental method. Branches: pure psychology and applied psychology. Psychology and physiotherapy
Unit II:
Growth and developmentLife span: different
stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age). Heredity and environment: role of heredity and environment in physical and psychological development, “Nature v/s Nurture controversy”
Unit III:
Attention and perception

Attention: types of attention, determinants of attention (subjective determinants and objective determinants). Perception: Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context) Illusion and hallucination: different types

Unit IV:

Motivation

Motivation cycle (need, drive, incentive, reward) and classification of motives.

Abraham Maslow's theory of need hierarchy

Unit V:

Frustration and conflict

Frustration: sources of frustration. Conflict: types of conflict. Management of frustration and conflict

Unit VI:

Emotions

Three levels of analysis of emotion (physiological level, subjective state, and overt behaviour), theories of emotion. Stress and management of stress

Unit VII:

Thinking

Reasoning: deductive and inductive reasoning. Creative thinking: steps in creative thinking, traits of creative people

Unit VIII:

Learning

Factors effecting learning. Theories of learning: trial and error learning, classical conditioning, operant conditioning, insight learning, social learning theory. 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

Unit IX:

Personality

Approaches to personality: Sigmund Freud concept of Personality, type & trait, behaviouristic, psychoanalytic and humanistic approach. Personality assessment: observation, questionnaire, interview, and projective techniques. Defence mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out

Unit X:

Social and clinical psychology

Leadership: different types of leaders. Attitude: development of attitude. change of attitude. Models of training, abnormal behaviour assessment, clinical judgment, psychotherapy, self-management methods, physiotherapist patient interaction, aggression, self-imaging, stress management, assertive training, group therapy, body awareness, pediatric and geriatric disorders

SCHOOL OF HEALTH SCIENCES

GENERIC ELECTIVE

SEMESTER: IV

COURSE TITLE: SPORTS FITNESS

COURSE CODE : 06AGEEL17441 **CREDITS : 04**

Unit I:

Fitness training in sports. Fitness training equipments, protective equipment's used in sports. Importance of fitness in performance of sports. Types of fitness training. Considerations of age and gender in fitness training. DOMS, contra-indications to physical training. Emergency care and athletic first aid.

Unit II:

Sports nutrition.

Nutrition and managing nutritional issues, planning of diet. Nutrition for performance, carbohydrate loading. Pre game meals, post-game meals, during meals, on-season and off-season meals.

Unit III:

Sports psychology

Definition of sports psychology and role of sports psychology in performance. Mental health – concept, meaning and importance in sports. Controlling and training of emotions and its importance. Contribution of sports to emotional health. Dynamics of human behavior – instincts, drives, needs, attention, interest & motivation. Stress and performance, environmental influence on performance, motivation and performance, audience stresses, mental coping strategies, leadership and its influence on sports

Unit IV:

Ergogenic aids and sports.

Ergogenic Aids for performance and conditioning. Adverse effects of ergogenic aids. Medico-legal cases of sports.

SCHOOL OF HEALTH SCIENCES

PROGRAMME: BACHELORS OF PHYSIOTHERAPY

SEMESTER: IV

COURSE TITLE: MEDICAL TERMINOLOGY AND RECORD KEEPING (SKILL ENHANCEMENT COURSE)

COURSE CODE : 06ASEC017431 **CREDITS : 02**

Unit I:

Introduction to Medical Terminology. Definition and origin of medical terms. Components of medical terms. Prefixes and suffixes, roots and combining forms for building medical terms

Unit II:

Basic medical terms. Basic medical terms used in health care and physiotherapy. Interpretation of basic medical abbreviations and symbols

Unit III:

Medical Terms used in various system of our body

Anatomical and pathology terms, surgical terms, abbreviations, terms for diagnostic and therapeutic procedures used in: Musculoskeletal system. Respiratory system. Cardiovascular system. Nervous system. Reproductive system. Integumentary system

Unit IV:

Introduction to medical records. History of development of medical records. Characteristics of quality medical records

Unit V:

Interpretation and record management. Interpret medical records/reports. Data entry and management on electronic health record system. Organizational aspects of medical record department. Medico-Legal aspects of the medical records