

## **COURSES OFFERED BY THE DEPARTMENT OF PHYSIOTHERAPY**

### **FIRST YEAR FIRST SEMESTER**

#### **AH 1101 - English & Communication Skills I (Non-credit)**

Language Development and Writing (English for Academic Purposes-EAP): Parts of speech, Use of parts of speech in medical context, The main sentence structures in English, Different kinds of phrases, Developing writing skills: schemata and static description. Listening: Introduction to basic listening skills: brain storming, identifying key words, note taking: pattern notes, linear notes, practicing note taking- flow charts, tree diagrams, labeling diagrams, tables, etc. Reading: Surveying a text book, Skimming and scanning an article, Previewing an article, Identifying the main idea and the topic of a paragraph. Vocabulary: introducing dictionary skills, Phonetic symbols, Pronunciation, etc., Punctuations of sentences (using of capital letters). Speech: Greeting and introducing (self and others), Making requests, Asking for and giving permission, Offering help, Giving instructions and directions, Telephone skills. (Note: All four language skills: Reading, Writing, Listening and Speaking, are incorporated in teaching)

Assignments – 40%      End semester -60%

#### **AH 1102 - Information Technology (Non-credit)**

Fundamentals basic concept of computers, System Analysis and Design , Data Processing, Data Communication, Practical-Internet and E-mail, Web Page Development, Languages.

End semester: Theory – 50%, Practical – 50%

#### **AH 1103 - Basic Human Anatomy (Credits -02)**

Organization of the human body, embryology, cardiovascular system, lymphatic system, respiratory system, digestive system, genitor- urinary system, endocrine system, musculoskeletal system, nervous system, sensory organs.

Assignments – 25%      End semester: Theory – 50%, Practical – 25%

#### **AH 1104 – Human Physiology I (Credits – 02)**

Organization of the body for function, homeostasis, body fluids, blood, temperature regulation, growth and development, ageing, cardiovascular system, lymphatic system, respiratory system, digestive system, urinary system, reproductive system, pregnancy and lactation, endocrine system, muscular-skeletal system, nervous system, sensory organs.

Assignments – 25%      End semester: Theory – 50%, Practical – 25%

### **AH 1105 – Sociology and Anthropology (Credits – 01)**

Introduction to Sociology, health and nursing, Fundamental concepts, social groups, Culture, Social control, Social problems, Anthropology.

Continuous Assessments 25%, End semester 75%.

### **AH 1106 – Introduction to Psychology (Credits – 02)**

Introduction to psychology with an emphasis on health-related issues, major perspectives in psychology, psychology applied to nursing and health care in general, coping with stressful situations, promotion of attachment and bonding between infant and care giver.

Continuous assessments 10%, Mid semester 30%, End semester 60%.

### **AH 1108 – Basic Biochemistry (Credits – 01)**

Structure and function of cell organelles, structure and function of carbohydrates, lipids, amino acids, proteins and nucleic acids, biochemical tests for identification of carbohydrates, lipids & proteins, pH and buffers, enzyme properties and kinetics, chemistry & function of hemoglobin, chemistry and functions of vitamins, plasma protein and their functions, metabolism of carbohydrates, lipids, proteins and amino acids, integration and regulation of metabolic pathways.

Mid semester -30%, End semesters -70%

### **AH 1109 – General Microbiology (Credits – 01)**

Introduction to Microbiology; Growth and inhibition of growth of microorganisms; Growth and inhibition of growth of microorganisms; Gram positive cocci; Gram negative cocci / Gram positive bacilli; Gram negative cocco bacilli / curved rods; Mycobacterium; Anaerobic bacteria; Gram negative bacilli; Chlamydia, mycoplasma, rickettsia; Introduction to virology; DNA viruses, RNA viruses; Fungi, parasites of importance in human health.

Mid semester 20%, End semester 80%.

### **PT1101 – Human Anatomy for Physiotherapists (Credits – 03)**

*Theory:* Musculoskeletal Anatomy (including surface anatomy) - All muscles, bones and joints in detail (Upper Extremity, Lower Extremity, Trunk and Pelvis and Head/Neck), Neuro-anatomy, Basic applied anatomy.

*Practical:* Surface anatomy of Head, neck, thorax, abdomen, back, upper limb and lower limb, Joints and muscles (including surface Anatomy), Spinal cord and Brain .

Mid semester 20%, End semester 80%.

### **PT1102 – Physiotherapy as a profession (Credits – 01)**

Introduction to Physiotherapy, Basic definitions and terms related to Physiotherapy , History of Physiotherapy, Identification the ethical and legal aspects of Physiotherapy services, Organize and provide the ways & means of moving physiotherapy forward at the local & global level, Device strategies to continue Professional Development, Describe the role of Physiotherapy in health care, Recognize & appreciate the values of Physiotherapy.

Mid semester 30%, End semester 70%.

## **FIRST YEAR SECOND SEMESTER**

### **AH 1201 – English & Communication Skills II (Non-credit)**

Language Development and Writing (English for Academic Purposes-EAP):Study of the use of verbs in detail (transitive/ intransitive, active/passive, types of verbs), Introduction to relative clauses, Laboratory report writing: present/past tense, active/passive voice, present perfect tense, modal auxiliary verbs, Dictation. Listening: Improving listening skills through subject based and general talks/mini-lectures/speeches, etc., Activities and exercises based on the above. Reading: Note making while reading, Reading comprehension-general and academic, Identifying contextual references, Rephrasing, Vocabulary development, and Individual loud reading. Prefixes and suffixes, Root words (Latin/Greek) related to medical terminology, Activities incorporated with reading lessons. Speech: Activities consolidated with parallel Grammar, Reading and Listening lessons. (Note: All four language skills: Reading, Writing, Listening and Speaking, are incorporated)

Assignments – 40%, End semester -60%

### **AH 1202 – Basic Statistics (Credits – 02)**

Description of statistics, organizing and displaying data ,summarizing data and variation, curve fitting, probability, simple regression and correlation, test of hypothesis and significance, student “t”, “F” and chi-square distributions, analysis of variance.

Assignments – 10%, Mid semester -30%, End semester -60%

### **AH 1203 – General Pathology (Credits – 02)**

Introduction to general pathology, acute inflammation, chronic inflammation, cell damage, apoptosis , necrosis , gangrene, principles of fracture healing and complications, wound healing and complications, calcifications / degenerations, hypertrophy /atrophy / hyperplasia /metaplasia /dysplasia, immunology, neoplasia, tumour markers /molecular basis of tumours, ischaemia and infarction, thrombosis /embolism /atherosclerosis /oedema/ congestion and heart failure, pigmentation, genetic basis of disease.

Mid semester -25%, End semesters -75%

**AH 1204 – Human Physiology II (Credits – 02)**

Body fluids, blood, heart and circulatory system, respiratory system, digestive system, urinary system, reproductive system, endocrine system, musculo-skeletal system, nervous system, special senses.

Mid semester -20%, End semesters -80%

**PT1201 – Biomechanics & Kinesiology I (Credits – 02)**

Introduction to Biomechanics and Kinesiology, Mechanics and mechanical principles of Force, momentum, action and reaction, friction, Angle of pull, Newton's Laws, Springs & elasticity, Posture, activities of daily living, Starting & derived positions, Therapeutic Gymnasium, Mechanics of peripheral Joints (Shoulder, Elbow, Wrist & Hand), Prehension & precision handling.

Mid semester 20%, End semester 80%.

**PT1202 – Physiotherapy skills I (Credits – 02)**

Introduction to Physiotherapy Skills, Mechanics of muscles, Types of muscles, Types of muscle contraction, Goniometry, Suspension Therapy, Walking aids and Wheel Chair, Hydrotherapy.

Mid semester 20%, End semester 80%.

**PT1203 – Electro Physical Agents in Physiotherapy I (Credits 02)**

Electricity, Static electricity, Current Electricity, Valves, transformers, types, principles, construction and working, Ionization, Magnetism, Thermionic valves, Semi-conductor devices, AC and DC Meters.

Mid semester 20%, End semester 80%.

**PT1204 – Pharmacology for Physiotherapists (Credits – 02)**

General Pharmacology (Introduction, regulation & approval, drug classes & schedules, Administration, Pharmacokinetics, Pharmacodynamics) and Systemic Pharmacology (Drugs acting on CNS, PNS, CVS, drugs influencing myocardial contractility & heart rate, Bronchodilators, Anti-microbial drugs, Endocrine Pharmacology, Immunological agents & Vaccines) .

Mid semester 20%, End semester 80%.

**PT1205 – Evidence Based Practice in Physiotherapy (Credits – 02)**

Introduction to Evidence Based Practice, Concepts of Evidence based Physiotherapy, Development of Evidence based knowledge, The Individual Professional, Professionals within a discipline, Professionals across disciplines, Evidence Based Practitioner, Finding the Evidence, Searching for the Evidence, Assessing the Evidence, Systematically reviewing the evidence, Economic evaluation of the evidence, Using the evidence, Practice guidelines, algorithms, and

clinical pathways, Communicating evidence to clients, managers and funders, Research dissemination and transfer of knowledge.

Mid semester 20%, End semester 80%.

### **PT1206 – Basic Biochemistry II (Credit – 01)**

Propagation of genetic material – DNA replication , Gene expression – Transcription and reverse transcription, Gene expression – Translation and effect of antibiotics, Post translational modifications, Haemoglobin formation and catabolism, Mechanisms of hormone action, Biochemistry of neurotransmitters, Biochemistry of water soluble vitamins, Biochemistry of fat soluble vitamins, , Biochemistry of the extra-cellular matrix , Detoxification and excretion.

Mid semester 20%, End semester 80%.

## **SECOND YEAR FIRST SEMESTER**

### **AH 2101 – English & Communication Skills III (Non-credit)**

Language Development and Writing: The four main types of sentences, Different kinds of clauses, Expansion of sentence structures, Cause-effect relationship, Comparisons, Listening: Developing listening skills through audio/video based learning, Exposure to native and non-native speakers of English (different accents), TOEFL practice tests, Reading: Practicing the reading skills (skimming, scanning, etc.) developed in AH 1101 and AH 1201 through activities such as, pre-reading (discussion through brain storming, puzzles, etc.), skimming and scanning, comprehension, vocabulary expansion related activities leading towards a final speech activity: presentation of a report, poster, etc., and Individual loud reading. Vocabulary: Vocabulary related to specific fields (law, business, politics, etc.), Fixed expressions: Everyday expressions, Idioms, Proverbs, etc., Speech: Mini-presentations based on Reading and Listening activities. Presenting reading reports.

Assignments – 40%      End semester -60%

### **AH 2102 – Basic Research Methodology (Credit – 01)**

Philosophy of science and the notion of truth, principles of evidence based practice and clinical effectiveness/efficiency, traditions, preferences and positions in applied qualitative research, narrative methodologies and their use in clinical/professional practice, quantitative reasoning and its application in clinical/professional practice, data gathering tools/approaches – qualitative and quantitative methods and analysis, practice based inquiry/participative inquiry/generating evidence based practice, case studies, ethics in research, describe the foundations used for ethical decision-making, patients' rights, need of a code of ethics for practice.

Assignments -25%      End semester-75%

### **PT 2101 – Biomechanics & Kinesiology II (Credits – 02)**

Mechanics of Peripheral joints (Temperomandibular Joint, Thorax and chest wall, Hip, Knee, Ankle, Vertebral column), Gait.

Mid semester 20%, End semester 80%.

### **PT 2102 – Physiotherapy skills II (Credits – 02)**

Manual Muscle testing, Limb length and limb girth measurement, Chest Expansion measurement, Passive/Active assisted/Active movements, Stretching, Strengthening, Mobilization and manipulation, PNF, Massaging techniques, Relaxation, Neuromuscular coordination (Frenkel's Exercises), breathing exercises.

Mid semester 20%, End semester 80%.

### **PT 2103 – Electro Physical Agents in Physiotherapy II (Credits – 03)**

Pain, Low frequency ( faradic current, galvanic current, Sinusoidal current & Diadynamic current, Ionization/Iontophoresis, Cathodal/Anodal galvanism, Micro current & Macro current, Types of Electrical stimulators, Principles of Application, Nerve muscle Physiology, TENS), Electro-diagnosis (FG test, SD curve, NCV studies, EMG, Bio-feedback ), Medium Frequency ( IFT, Russian currents, Rebox type current), Thermo & Actinotherapy (Electro- magnetic Spectrum, Short Wave Diathermy, Pulsed Electro-magnetic Energy, Micro Wave Diathermy, Ultra Sound, Infra-Red Radiation, Ultra Violet Radiation, LASER), Superficial Heating Modalities (Wax Therapy, Contrast Bath, Moist Heat, Whirl Pool bath, Cryotherapy).

Mid semester 20%, End semester 80%.

### **PT 2104 – Musculoskeletal Physiotherapy Theory & Practice I (Credits – 03)**

Introduction, Traumatology, Fractures and Dislocations of Upper Limb, Fracture of Spine, Fractures and Dislocations of Lower Limb, Soft Tissue Injuries, Hand Injuries, Amputations, Traumatic Spinal Cord Injuries, Deformities, Congenital Deformities, Acquired Deformities, Disease of Bones and Joints, Inflammatory and Degenerative Conditions, Syndromes, Neuromuscular Disorders, Cervical and Lumbar Pathology, Orthopaedic Surgeries, Regional Conditions.

Mid semester 20%, End semester 80%.

### **PT 2105 – Neurological Physiotherapy Theory & Practice I (Credits – 03)**

Basic Neurophysiology, Neurological Assessment, Deafness, vertigo, and imbalance, Lower cranial nerve paralysis – Aetiology, clinical features, investigations, and management of following disorders, Dysphagia, Cerebrovascular diseases, Head injury, Higher cortical, neuro psychological and neurobehavioral disorders, Movement disorders, Cerebellar and coordination disorders, Spinal cord disorders, Brain tumours and spinal tumours, Infections of brain and spinal cord, Motor neuron diseases, Multiple sclerosis, Disorders of neuromuscular junction, Muscle diseases, Polyneuropathy,

Focal peripheral neuropathy, Paediatric neurology, Toxic, metabolic and environmental disorders, Introduction, Indications and Complications of following Neurosurgeries.

Mid semester 20%, End semester 80%.

### **PT 2140 – Systemic Pathology (Credits – 02)**

Special pathology of major organ systems in Unit I as given below.

#### Unit – I : Systemic

Special pathology of major organ systems

- Respiratory tract – tuberculosis bronchitis, lobar pneumonia, bronchopneumonia, lung abscess, emphysema, pneumoconiosis, bronchiectasis, tumours.
- Cardiovascular system - Rheumatic heart disease and its complications, infective endocarditis, atherosclerosis and its complications, ischemic infarction, aneurysm
- Gastrointestinal tract – oesophageal varices, structures, peptic ulcers, bacillary dysentery, amoebic dysentery, typhoid, tuberculosis, acute pancreatitis, carcinoma of GI tract-buccal, oesophageal, gastric, intestinal
- Liver, gall bladder, pancreas – Pancreatitis, pancreatic carcinoma, hepatic A, B, non – A, non – B, fulminant, chronic liver abscess tumours, primary and secondary, cholecystitis
- Kidneys and urinary tract – acute and chronic glomerulo nephritis and pyelonephritis, calculi, acute renal failure, chronic renal failure, renal carcinoma, cystitis
- Male genital system – prostatic hyperplasia and carcinoma, cryptorchidism, testicular atrophy, infection and tumours, carcinoma penis
- Female genital system – carcinoma cervix, fibroid, carcinoma endometrium, ovarian cysts and tumours, tuberculosis of fallopian tube, tube block, ectopic gestation, vesicular mole, choriocarcinoma, expoliative cytology
- Central nervous system – Hydrocephalus, meningitis, encephalitis, vascular disorders-thrombosis, embolism, haemorrhage, strokes, paraplegia, quadriplegia, tumours-meningiomas, gliomas, metastatic tumours.
- Bone – Fractures, pathological fractures, osteoporosis, osteomyelitis, arthritis, tumours.

#### Unit – II: Clinical pathology

- Review of blood groups and their relation to transfusion of blood and its components.

The importance of patient and donor identification for safe transfusion (and) practice

The role of nurses in donor motivation with particular references to the prevention of transfusion related diseases

Review of normal blood composition. Methods of collection of blood specimens for various clinical pathology, biochemistry and microbiology tests.

Haematological tests in the assessment and monitoring of disease status – haemoglobin, white cell and platelet counts and coagulation abnormalities.

Review of CSF composition. Indication and precautions for a lumbar puncture

The laboratory tests used in CSF analysis and deviation from the normal.

Examinations of other cavity fluids – transudates and exudates.

- Review of gastric and duodenal contents:

Indications for analysis and role of nurses in this procedure – physical characteristics and composition of urine.

- Methods of collection for various tests

Alterations in diseases and interpretation

- Normal and abnormal appearance of faeces

The value of stool examination in the diagnosis of disease.

- Characteristics of normal semen

Sperm count, motility and morphology and their importance in infertility.

Suggested practicals:

Demonstration of charts and pathological specimens' relevant general and systemic pathology including exfoliative and fine needle aspiration cytology.

Urine analysis: the students to do tests for urine sugar, acetone and albumin. Dip stick method may be used.

Semen analysis demonstration

Demonstration of haemoglobin estimation, WBC, differential count and peripheral blood smears of iron deficiency and megaloblastic anaemia and leukaemia.

Demonstration of analysis and gastric and duodenal contents

Demonstration of normal and abnormal cerebrospinal fluid and other cavity fluid.

Demonstration of blood grouping and cross matching.

Mid semester 25%, End semester 75%.

## **SECOND YEAR SECOND SEMESTER**

### **AH 2201 – English & Communication Skills IV (Non-credit)**

Language Development and Writing: Development of writing skills—Transitional devices, paragraph building, process writing, reports such as nurse's reports etc., Listening: Developing listening skills through audio/video based learning, Exposure to native and non- native speakers of English (different accents), TOEFL practice tests. Reading: Reading comprehension activities leading towards a final speech activity: presentation of a report, poster, etc., and Individual loud reading. Homonyms, Synonyms, Acronyms, Homophones, Phrasal verbs, Varieties of English, Abbreviations. Speech: Presenting reports, Debates, Activities consolidated with parallel grammar, reading and listening lessons. (Note: All four language skills: Reading, Writing, Listening and Speaking are incorporated)

Assignments – 40%      End semester -60%



### **PT 2201 – Musculoskeletal Physiotherapy Theory & Practice II (Credits – 03)**

Physiotherapy assessment for Orthopaedic conditions , Fractures, Specific fractures and dislocations, Selection and application of physiotherapeutic techniques, Principles of various schools of thought in manual therapy, Degenerative and Inflammatory conditions, Infective conditions, Define, review the postural abnormalities of spinal column, Deformities, Cerebral palsy, Poliomyelitis, Leprosy, Amputations, Spinal conditions, Effects of spinal traction, Osteoporosis, Orthopaedic surgeries, Shoulder joint, Elbow and forearm, Wrist and Hand, Hip: Joint surgeries , Knee, Ankle and foot.

Mid semester 20%, End semester 80%.

### **PT 2202 – Neurological Physiotherapy Theory & Practice II (Credits – 03)**

PT assessment for Neurological/Neurosurgical conditions , Neuro-Physiological Techniques, Paediatric Neurology, Evaluation and Management of Brain and Spinal Cord Disorders, Evaluation and management of Cerebellar, Spinal Cord and Muscle Disorders, Evaluation and management of Peripheral Nerve Injuries and Disorders, Pre and post neurosurgical assessment and management Practical – based on above concepts.

Mid semester 20%, End semester 80%.

### **PT 2203 – Common Medical, Obstetrics and Gynecological condition for Physiotherapists I (Credits – 03)**

Medical conditions; Infections, Poisoning, Food and nutrition, Endocrine Diseases, Diseases of Blood, Diseases of digestive system, Diseases of Skin, ENT, Ophthalmology, Obstetrics and Gynaecology Conditions, Psychiatric disorders, Learning, perceptual disorders, Mental Retardation, Problems in Emotional Development ,Child – Parent Teacher, Childhood obesity and its complications , Down’s syndrome, Congenital Neuromuscular Disorders, Spinal Dystrophism, Polio, Spinal Muscular Atrophy, ARDS, Juvenile Arthritis, Intensive Neonatological and paediatrics surgical care.

Mid semester 20%, End semester 80%.

### **PT 2205 – Cardio respiratory and General surgical conditions for Physiotherapists I (Credits – 04)**

Reasons for Surgery, Causes, Clinical Presentation, Diagnosis and treatment of Thoracic Situations, Surgical Oncology, Disorders of the Chest Wall, Lung and Mediastinum, Disorders of the Heart, Thoracic surgeries, Diseases of the Arteries and Veins, Definition, Indication, Incision, Physiological changes and Complications following Common Operations, Burns, tendon transfer.

Mid semester 20%, End semester 80%.

### **PT 2206 – Physiotherapy in Community Based Rehabilitation (Credits – 02)**

Rehabilitation, Community, Introduction to Community Based Rehabilitation, Principles of Community Based Rehabilitation, Planning and Management of CBR programmes, Disability, Disability evaluation, Role of Government in CBR, Role of social work in CBR, Role of

Voluntary organizations in CBR, National/District Level Rehabilitation Programmes, Role of Physiotherapy in CBR, Screening and rehabilitation of pediatric disorders in the community, Extension of services and mobile units, Vocational Training in Rehabilitation, Geriatrics, Industrial Health and Ergonomics.

Mid semester 20%, End semester 80%.

### **THIRD YEAR FIRST SEMESTER**

#### **AH 3101 – English and Communication skills V (Non-Credits)**

Scientific writing: What is a scientific paper, Different types of sources of literature, Keeping a card index, Project proposals, The parts of a scientific paper – IMRAD, Titles, Headings and numbering, Abstract, Reference styles, Contents page, Page numbering, Tables, Figures, Appendices, Acknowledgements, Scientific English.

Continuous Assessment 40%, End semester 60%.

#### **PT 3101 – Common Medical Obstetrics and Gynecological conditions for Physiotherapists II (Credits – 02 )**

Physiotherapy in pathological changes; inflammation and oedema, physiotherapy in deficiency diseases, physiotherapy in common diseases of Skin, physiotherapy in Obstetrics and Gynecological Conditions, physiotherapy in Psychiatric disorders, Neonatal and Pediatric Physiotherapy.

Mid semester 20%, End semester 80%.

#### **PT 3102 – Cardio respiratory and General surgical conditions for Physiotherapist II (Credits – 03)**

Evaluation, principles and techniques of physiotherapy management in cardiac and respiratory conditions, Management of wound ulcers, cardiac and Pulmonary Rehabilitation, pre and post-operative physiotherapy management for cardiothoracic, abdominal and vascular surgeries, role of a physiotherapist in ICU, physiotherapy assessment and management of burns, Physiotherapy intervention in the management of Medical, Surgical Oncology.

Mid semester 20%, End semester 80%.

#### **PT3103 – Introduction to Applied Exercises Sciences (Credits – 02)**

Fitness for life, Warming up, Stretching and cooling down, Basic energy metabolism, cardio-respiratory response to exercise, interactions between energy systems and exercise, Woman and exercise, Cardio-respiratory endurance, Adaptation of muscles to exercise, Muscle development, Exercise in extreme environments, Cardio-respiratory adaptations to exercise, Exercise and coronary heart disease, diabetics and obesity, Exercise prescription for cardio-respiratory fitness, Aerobic dance, Exercises for children, youth, older adults, woman, Training for physical performance, Exercise/nutrition prescription for weight management, muscle strength/endurance/flexibility, Nutrition for , Body composition, Fitness walking, Swimming.

Mid semester 20%, End semester 80%.

**PT3104 – Physiotherapy in Sports (Credits – 03)**

Injuries common to several fields in sports, prevention & management of injuries, identify the problems of players in their sports, rehabilitate the players for the sports event that they are participating, coordinate & work with the players, coaches & others of the team, prevent injuries by improving fitness & diet, prepare the players psychologically to the sports event.

Mid semester 20%, End semester 80%.

**PT 3105 – Clinical Practice in common Medical, Obstetrics and Gynecological conditions for Physiotherapists (Credits – 02)**

Skills in problem identification, Goal setting & clinical reasoning that assist to treat patients with medical, obstetrics and gynecological conditions, rehabilitate the patient accordingly, document findings correctly & precisely.

Mid semester 20%, End semester 80%.

**PT 3106 – Clinical Practice in Neurology Neurosurgery (Credits – 03)**

Physical and Psychological problems due to neurological problems, interventions accordingly to the needs of individual, Evaluation and modification of intervention accordingly, recording, referring and making reports, Communication skills with clients/family members/other health care providers.

Mid semester 20%, End semester 80%.

**THIRD YEAR SECOND SEMESTER****PT 3201 – Clinical Practice in Cardio respiratory and Surgical conditions (Credits 05 )**

Problem identification, setting goals and clinical reasoning accordingly to cardiovascular and pulmonary disorders, Pre and post-operative management, cardiac rehabilitation and pulmonary rehabilitation programs.

Mid semester 20%, End semester 80%.

**PT 3202 – Clinical Practice in Musculoskeletal Physiotherapy (Credits – 05)**

Physical and Psychological problems due to musculoskeletal problems, interventions accordingly to the needs of individual, Evaluation and modification of intervention accordingly, recording, referring and making reports, Communication skills with clients/family members/other health care providers, how to rehabilitate an amputated patient, professional behavior and professional ethics.

Mid semester 20%, End semester 80%.

### **PT 3203 – Clinical Practice in Rehabilitation and Community role (Credits – 02)**

Problem identification, setting goals and implementation of physiotherapy intervention, Identification of psychological and economical impact on clients to direct them for other services that are available, Implementation of client specific group exercise programs, Effective communication skills with other professionals to provide a quality care for the client.

Mid semester 20%, End semester 80%.

### **PT 3204 – Clinical Practice in Intensive Care Unit (Credits – 03)**

Assess & manage patients in ICU set-up and work collaboratively with the health care team.

Mid semester 20%, End semester 80%.

## **FOURTH YEAR FIRST SEMESTER**

### **AH 4103 – Proposal Formulation and Presentation (Credits – 02)**

Frequency measuring techniques in health and medicine, Introduction to research methods in health and medical sciences, Descriptive studies, Observational analytical studies. Experimental study designs, Introduction to errors in health / medical research, Validity of results of a research, Reliability of results of a research, Causation in clinical and epidemiological research, Data collection Techniques, Tutorials.

End semester 100%.

### **AH 4105 – Applied Statistics (Credits – 02)**

Additive and non-additive ANOVA models, Mean separation, incidence data and proportions, odds and odds ratios, models for proportions, non-parametric methods for two-sample case; independent sample and paired observations, non-parametric methods for data from designed experiments.

Assignments – 25% Midsemester -25% End semester -50%

### **PT 4101 – Teaching in Physiotherapy (Credits – 02)**

Philosophy & psychological concepts related with teaching, domains of learning objectives & assessment procedures, methods of teaching according to the target groups, resources & environment, teach & evaluate in clinical & class room environment.

Mid semester 25%, End semester 75%.

### **PT 4102 – Research Project in Physiotherapy (Credits – 04)**

Feasible research proposal formulating a research question or testable hypothesis, study & analyse the data that has been collected, presentation of the study & analysed data in written document, a dissertation, article to be published in a journal.

Project proposal 5%, Proposal presentation and defense 10%, Dissertation evaluation 10%, Final presentation 20%, Viva 50%, Supervisor evaluation 5%

### **PT4103 – Physiotherapy in Burns (Credits 03 )**

Co-relate the anatomy, physiology & pathology with burns, manage the patients with burns in the stages of acute, chronic & rehabilitation, pre & post-surgical physiotherapy management, importance of nutrition in the process of healing of wounds.

Mid semester 20%, End semester 80%.

### **AH 4104 Human Resource Management (Credits-02)**

Introduction to management, History of HRM, Definitions and principles of HRM, Introduction to SHRM, Recruitment and selection, Training & development, Performance management, Reward management, Employee relations, Industrial Law, HRM relating to performance in health sector, Use of IT in HRM, Roles and responsibilities for HR & HR outsourcing, Group assignment on HR practices of an organization

Assignment-30% End semester -70%

## **FOURTH YEAR SECOND SEMESTER**

### **PT 4201 – Advanced Clinical Practice in Paediatric Physiotherapy (Credits – 04)**

Apply the theoretical and practical knowledge gained, Specialized training in paediatrics units as a physiotherapist.

Continuous Assessment 20%, End semester 80%.

### **PT 4202 – Advance Clinical Practice in Musculoskeletal Physiotherapy (Credits – 04)**

Apply the theoretical and practical knowledge gained, Specialized training in Orthopaedic and Rheumatological units as a physiotherapist.

Continuous Assessment 20%, End semester 80%.

### **PT 4203 Advance Clinical Practice in Neurological Physiotherapy (Credits – 04)**

Apply the theoretical and practical knowledge gained, Specialized training in Neurology/Neurosurgery units as a physiotherapist.

Continuous Assessment 20%, End semester 80%.

**PT 4204 – Advance Clinical Practice in Cardio respiratory, Surgical Conditions and Intensive Care Unit (Credits – 04)**

Apply the theoretical and practical knowledge gained. Specialized training in Cardiothoracic, surgical and intensive care units as a physiotherapist.

Continuous Assessment 20%, End semester 80%.