

Department of **PHYSICAL THERAPY** **[PT]**

DEPARTMENT OF PHYSICAL THERAPY

Physical Therapy is a profession which develops, coordinates and utilizes the art and science of physical therapy in planning, organizing and directing programmes for the care of individuals whose ability to function is impaired or threatened by disease or injury. Physical Therapy focuses primarily on those individuals whose potential or actual impairment is related to the neuro-musculoskeletal, pulmonary and cardiovascular systems and upon methods of evaluating the function of these systems and the selection and application of appropriate therapeutic procedures to maintain, improve or restore function.

MISSION AND OBJECTIVES

Mission

The mission of the Department of Physical Therapy is to educate, train and graduate skillful, knowledgeable and committed Physical Therapists who have breadth of knowledge and competence in the various aspects of Physical Therapy, who shall adhere to professional ethics, and who can contribute successfully as Physical Therapists in the health care team. The Department also aims to contribute to the development of the Physical Therapy profession in Kuwait, both in the governmental and private sector systems, by providing consultancy and other services.

Objectives

The key objectives, therefore, are:

1. To develop, monitor, evaluate, review and maintain an undergraduate curriculum which provides:
 - An essential core of knowledge and skills

- Opportunities to develop clinical competence through laboratory practice in the faculty and hands-on experience in Ministry of Health hospitals and clinics
 - Methods of patient assessment and evaluation
 - Treatment planning
 - Socio-psychological, cultural and ethical aspects of communication and rehabilitation
 - A thorough grounding in professional ethics in Physical Therapy.
2. To foster the requisite professional attitudes and values in students, who shall adhere to professional ethics and demonstrate concern, responsibility and the ability to interact appropriately with other care providers, administrators, patients and their families.
 3. To provide students with the necessary support and guidance in terms of counselling, and feedback on academic and clinical performance.
 4. To use alternative learning modes, including:
 - Computer-assisted learning
 - Problem-based learning
 - Research projects
 - Student presentations
 5. To have well-functioning laboratories in the following areas:
 - Human Performance
 - Manual Orthopaedics
 - Paediatrics
 - Electrotherapy
 6. To develop and provide postgraduate programmes, short courses, lectures, workshops and seminars for Ministry of Health staff that meet the changing health care needs of Kuwait and keep them abreast of the state-of-the-art.
 7. To recruit well qualified and experienced teaching and support staff who will act as role models for students and keep themselves abreast with scientific advances in the field and apply the state-of-the-art in all endeavours: teaching, curriculum development and assessment, research, clinical supervision and community service.
 8. To provide consultancy services to hospitals and clinics in the public sector health care delivery system and in the private sector.

PROGRAMME REQUIREMENTS

The total number of credit hours required for graduation is 122.

The programme for the B.Sc. Degree in Physical Therapy is as follows:

1 UNIVERSITY REQUIREMENTS (19 credits)

Credit Hours

0410-115 Finite Mathematics	3
0788-181 English Language	5
0788-182 English Language	5
0788-250 English Language	3
Elective	3

2 FACULTY REQUIREMENTS (23 credits)

0490-101 Biology	3
0700-106 First Aid and Emergency Care	3
0420-110 Chemistry	3
0420-111 Chemistry Lab	1
0430-121 Physics	3
0430-125 Physics Lab	1
0711-105 Introduction to Health Informatics	3
0480-107 Statistics for Medical Sciences	3
0510-220 Psychology of Medical Care (A.H.)	3

3 PROFESSIONAL REQUIREMENTS (80 credits)

0700-155 Anatomy I	3
0530-152 Physiology I	3
0700-154 Histology	1
0713-201 Patient Care Communication	2
0713-203 Fundamental Procedures in PT	4
0713-204 Electrotherapy I	2
0713-206 Biomechanics	2
0700-210 Anatomy II	2
0713-301 Electrotherapy II	2
0530-310 Physiology II - Neuroscience	3
0713-311 Physical Therapy Procedures I (Ortho)	4
0713-312 Physical Therapy Procedures II (CVR)	4

0713-313 Patho-kinesiology	3
0580-316 Clinical Medicine and Pathology	3
0713-352 Applied Neuroscience	3
0700-357 Growth and Development	2
0713-359 Clinical Education I	3
0713-360 Clinical Education II	3
0530-362 Exercise Physiology	2
0713-401 Advanced Therapeutics	3
0713-411 PT Procedures III - Neurology	4
0713-412 PT Procedures IV - Advanced Rheumatology, Rehab & Pediatrics	4
0713-414 P.T. Administration & Management	2
0713-415 Research Methods	2
0713-416 Professional Issues Relating to P.T.	2
0713-417 Directed Study	1
0712-420 Pharmacology	2
0713-421 Clinical Education III	4
0713-461 Clinical Education IV	5

PROGRAMME TIMETABLE

FIRST YEAR

Semester One	Semester Two	
Course	CH Course	CH
110/111 Chem. & Chem. Lab.	4 121/125 Phys. & Phys. Lab.	4
or 121/125 Phys. & Phys. Lab.	or 110/111 Chem. & Chem. Lab.	
115 Finite Mathematics	3 182 English Language	5
181 English Language	5 101 Biology	3
Elective	3 106 First Aid & Emergency Care	3
Total	15	Total 15

SECOND YEAR

Semester One	Semester Two
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Course	CH	Course	CH
105 Intro to Health Informatics	3	152 Physiology I	3
155 Anatomy I	3	203 Fundamental Procedures in Physical Therapy	4
154 Histology	1		
107 Stats for Med. Sciences	3	204 Electrotherapy I	2
201 Patient Care Comm.	2	206 Biomechanics	2
250 English	3	210 Anatomy II	2
		220 Psych. of Med. Care	3
Total	15	Total	16

THIRD YEAR

Semester One

Semester Two

Course	CH	Course	CH
301 Electrotherapy II	2	312 P.T. Procedures II (CVR)	4
310 Physiology II (Neuro)	3	313 Patho-kinesiology	3
311 P.T. Procedures I (Ortho)	4	352 Applied Neurosciences	3
316 Clinical Med. & Pathology	3	360 Clinical Education II	3
357 Growth and Development	2	362 Exercise Physiology	2
359 Clinical Education I	3		
Total	17	Total	15

FOURTH YEAR

Semester One

Semester Two

Course	CH	Course	CH
401 Advanced Therapeutics	3	412 P.T. Procedures IV (Advanced Rehab)	4
411 P.T. Procedures III (Neurology)	4	416 Professional Issues	2
415 Research Methods	2	417 Directed Study	1
421 Clinical Education III	4	461 Clinical Education IV	5

414 P.T. Administration & Management	2	420 Pharmacology	2
Total	15	Total	14

PHYSICAL THERAPY COURSE DESCRIPTIONS

YEAR ONE, SEMESTER ONE

0420-110 CHEMISTRY (3-0-3) (Faculty of Science)

Stoichiometry; electronic structure of atoms, periodic table; chemical bonds, introduction to chemistry of elements; chemical thermodynamics, chemical kinetics; chemical equilibria, acids and bases in aqueous solutions.

0420-111 CHEMISTRY LAB (0-3-1) (Faculty of Science)
Corequisite: 110 Chemistry

0410-115 FINITE MATHEMATICS (3-0-3) (Faculty of Science)

Algebra of sets. Simple coordinate systems and graphs. Geometric approach to linear programming. Basic ideas of simplex method. Probability and applications to medical sciences. Statistics.

0788-181 ENGLISH LANGUAGE (10-0-5)

181 English is the first of three required English Language courses offered in the Faculty. It is a reading-based, multi-skills course intended to further advance students' abilities to study content area courses in English. The macro-skills of reading, writing, listening, speaking and grammar are broken down into their component parts to give the students the opportunity to acquire fluency and accuracy in the language of the health sciences.

YEAR ONE, SEMESTER TWO

0430-121 PHYSICS (3-0-3)

(Faculty of Science)

Methods of physics, elementary mathematics, motion and particle dynamics, mechanics of extended objects, conservation of energy, kinetic theory of gases. Liquids, vibrations and waves, ear and hearing, electricity and conduction in solids, ions and ionic conduction

0430-125 PHYSICS LAB (Faculty of Science) **(0-3-1)** **Corequisite: 121 Physics**
0788-182 ENGLISH LANGUAGE (10-0-5)

182 English continues to expand on the content of the five basic language learning skills of the previous courses. Students read and listen to materials of a scientific/medical nature, discuss the topics with their classmates to broaden their comprehension, and then write about the topics they have discussed to show they are able to communicate comprehensibly. Grammar instruction is explicit and includes the grammar of science and medicine.

Prerequisite: 181 English

0490-101 BIOLOGY (2-3-3)

(Faculty of Science)

Cellular basis of life: differences in size and complexity of cells as illustrated by viruses, bacteria, protozoa and various types of metazoan cells. Structure and metabolic activities of a generalized eukaryotic cell. Chemical composition and functions of the cell membrane; role of mitochondria, structure of GER and SER and their relation to the Golgi apparatus; structure of the nuclear membrane. Central role or enzymes in cells. Structure of DNA and RNA. Genetic code and protein synthesis. Mitosis and meiosis. Mendelian genetics and inherited diseases. Interactions between eukaryotic cells and bacteria and viruses. Cell mediated immunity. Organization of cells into tissues.

0700-106 FIRST AID AND EMERGENCY CARE (2-2-3)

This course is designed to provide students with basic knowledge of first aid and the skills needed to provide early interventions and care in the event of a health emergency. It enables students to plan an assessment for each casualty, using a methodological two-stage system, first to check and treat life-threatening conditions (primary survey), then to call for help. An overall view of the basic fundamentals of first aid is presented with an emphasis on decision making in emergency situations.

Prerequisite: 180 English Language

YEAR TWO, SEMESTER ONE

0711-105 INTRODUCTION TO HEALTH INFORMATICS (2-2-3)

This course is designed to introduce the students to the fundamentals of information technology and systems from the perspective of health informatics. It provides the students with a wide spectrum of computer-related concepts and skills to ensure that they are capable of employing appropriate technologies and tools to manage health information as it relates to their respective discipline. The course covers a variety of topics including: computer concepts, computer technology and information systems, statistical software, communication technology, database design and management, and clinical, business, and specialty clinical systems applications.

Delivery methods employed for this course combine didactic theory supplemented by lab sessions that will provide hands-on applications of learned theory.

0700-155 ANATOMY I (2-3-3)

This course provides an introduction to human morphology at the cell, tissue, and organ system levels of organization. The course is taught through theoretical lectures and practical demonstrations. The course provides a foundation for 210 Anatomy.

Prerequisite: 181 English Language

0700-154 HISTOLOGY (1-0-1)

A lecture course on the structure of cells and basic tissues.

Prerequisite: 181 English Language

0480-107 STATISTICS FOR MEDICAL SCIENCES (3-1-3)

(Faculty of Science)

Relevance and principles of Biostatistics with application in Medicine and Biology. Descriptive statistics, sampling and sampling distributions. Estimation of parameters, probability and probability distribution, with emphasis on the normal. Tests of hypotheses for one or two means and one or two proportions. Measures of association between two continuous variables (correlation and regression) and two discrete variables (chi-square). Non-parametric tests commonly used in medicine.

Prerequisite: 115 Finite Mathematics

0713-201 PATIENT CARE COMMUNICATION (1-2-2)

A weekly lecture, seminar cum practical exposure designed for the development of skills in observation of movement, good communication and interpersonal relationships and adequate record keeping. Opportunity is provided for observations only, of movements of patients, patient care and treatment in selected physical therapy departments.

Prerequisite: 106 First Aid and Emergency Care 0788-250 ENGLISH LANGUAGE (6-0-3)

Language and study skills are perfected using authentic health sciences journal articles relevant to the students' majors. Report writing style, abstract writing, bibliography and referencing techniques are taught.

Prerequisite: 182 English Language

YEAR TWO, SEMESTER TWO

0530-152 PHYSIOLOGY I (2-2-3)

(Faculty of Medicine)

The course provides a basic understanding of the physiology of the cell, body fluids, nerves, muscles, blood, functions of the cardiovascular system, respiratory system, renal system, gastrointestinal system, endocrine system and reproductive system. Emphasis is placed on the interactions of the systems.

Prerequisites: 155 Anatomy I

0713-203 FUNDAMENTAL PROCEDURES IN P.T. (2-6-4)

This course provides a basic understanding of the physical and physiological principles underlying the basic techniques of physical therapy procedures including manipulative and exercise therapy as well as functional activities and skills basic to patient physical management.

Prerequisite: 201 Patient Care Communication Corequisites: 210 Anatomy II, 152 Physiology

0713-204 ELECTROTHERAPY I (1-3-2)

This course provides the physical and physiological principles underlying the use of thermal and electrical modalities and their practical application for therapeutic purposes.

**Prerequisites: 201 Patient Care Communication,
121/125 Physics and Physics Lab.**

Corequisite: 203 Fundamental Procedures

0713-206 BIOMECHANICS (1-3-2)

This course provides the study and application of biomechanical principles of motion to human movement.

Prerequisite: 201 Patient Care Communication Corequisites: 203

Fundamental Proc., 204 Electrotherapy I

0700-210 ANATOMY II (1-3-2)

A study in depth of the locomotor system and the peripheral nerves. The structure of the vertebral column, the respiratory system and the heart and diaphragm. General structure of the abdominal wall and abdominal viscera. The mechanics of respiration and the joints of the cranium. The blood vessels and lymphatics of the upper and lower limbs. The skull and facial muscles are also studied.

Prerequisite: 155 Anatomy

0510-220 PSYCHOLOGY OF MEDICAL CARE A.H. (2-2-3)

(Faculty of Medicine)

The first part of the course provides an overview of Psychology as the basic science concerned with individual human behaviour and mental processes. Empirical studies and theoretical models of basic processes such as learning, memory and perception are introduced. Factors that motivate behaviour are considered, as well as contemporary models that describe and seek to explain the major dimensions of temperament and personality variation.

The second part of the course draws on the material taught in the first part to clarify issues relating to patients' compliance and satisfaction with the medical care they receive. Psychological factors which influence the behaviour and expectations of health professionals and the efficacy of the care they provide are also considered.

The special needs of certain patients are highlighted. This includes reference to children, the aged, the dying, the physically handicapped and mentally retarded. Current theories linking stress and illness, methods for reducing stress, and research into pain and pain management are presented. The relationship between sociodemographic variables and health will also be considered.

Prerequisite: 182 English Language

YEAR THREE, SEMESTER ONE

0713-301 ELECTROTHERAPY II (1-3-2)

This course provides physical principles and procedures governing the use of low and high frequency modalities in physical therapy treatments. **Prerequisite: All Year Two courses**

Corequisites: 311 Physical Therapy Procedures I (Orthopaedic), 316 Clinical Medicine and Pathology

0530-310 PHYSIOLOGY II - NEUROSCIENCE (2-2-3)

(Faculty of Medicine)

This course will provide an understanding of the structure and function of the neuron, synapses, receptors and skeletal muscle, followed by the basic organization and functioning of the nervous system. Throughout the course a correlation will be developed between the structure, function and applied aspects of the nervous system.

Prerequisites: 152 Physiology I, 210 Anatomy II

0713-311 P.T. PROCEDURES I (ORTHO) (2-6-4)

This course provides a basic understanding of orthopaedic conditions, fractures and soft tissue injuries for which physical therapy may be indicated. Demonstration and practice on the evaluative procedures and fundamental treatment procedures used in these conditions. Also included is a study of physical evaluation and treatment of orthopaedic pediatric conditions **Prerequisites: All Year Two courses**

0580-316 CLINICAL MEDICINE AND PATHOLOGY (3-0-3)

The study of disease processes affecting the human body in relation to etiology, organ system involvement, pathological changes in the structure and function of the tissues and organs, specific physical signs and symptoms, diagnostic procedures, common complications, preferred treatment, forecast outcome of specific disease processes and pertinent public health aspects of specific disease processes.

Prerequisite: 152 Physiology I

0700-357 GROWTH AND DEVELOPMENT (2-0-2)

This course describes spermatogenesis, oogenesis, fertilization, implantation, embryogenesis and embryonic and fetal growth; it outlines major (genetic and environmental) causes of congenital malformations. It also describes the development of major organ systems and indicates possible congenital anomalies. Special emphasis is placed on the development of muscular, skeletal and nervous systems. Changes at birth, post-natal growth (infancy, childhood and adolescent stages), physical and functional maturity, factors that regulate normal growth, and disorders of growth and age changes in the muscular, skeletal and nervous systems are also described.

Prerequisites: 210 Anatomy II, 152 Physiology I

0713-359 CLINICAL EDUCATION I (0-12-3)

Practical application of clinical procedure to the management of patients with orthopaedic conditions, under direct supervision in physical therapy departments and in orthopaedic wards.

Prerequisites: All Year Two courses Corequisite: 311 P. T. Procedures I

YEAR THREE, SEMESTER TWO

0713-312 P. T. PROCEDURES II (CVR) (2-6-4)

Consideration is given to the role of the physical therapist as a member of the health team in the medical and surgical assessment and the treatment and care of patients with diseases affecting the heart blood vessels, lungs and bronchial tree. The obstetric and gynecological conditions amiable to physical therapy are included.

Prerequisites: All Year Three, Semester One courses

0713-313 PATHO-KINESIOLOGY (1-6-3)

Biomechanical, kinematic and kinetic aspects of normal and pathological motion. Analysis of human motion applied to the major joints of the human body, posture and gait, with special emphasis on application in therapeutic conditions.

Prerequisites: All Year Three, Semester One courses

0713-352 APPLIED NEUROSCIENCE (2-2-3)

Laboratory studies and clinical observations of the functions of the central, peripheral and autonomic nervous systems and the consequence of their dysfunction and their implications during pain, flaccidity, spasticity, rigidity, athetosis, in coordination and possible recovery.

Prerequisites: All Year Three, Semester One courses Corequisite: 313 Patho-kinesiology

0713-360 CLINICAL EDUCATION II (0-12-3)

Directed experience in physical therapy evaluation and treatment with increasing responsibilities for patient care in a variety of clinical settings dealing with medical and surgical management of cardio-vascular respiratory conditions, including participation in ICU and CCU. Clinical experience in the management of obstetric and gynaecological problems is also provided. **Prerequisites: All Year Three, Semester One courses**

Corequisites: 312 P. T. Procedures II, 352 Applied Neuroscience

0530-362 EXERCISE PHYSIOLOGY (2-0-2)

(Faculty of Medicine)

The exercise physiology course brings out the physiological adjustments of major body organs (cardiorespiratory, musculoskeletal, etc.) to different types of exercise and correlates them to different age groups, sexes, athletes and non-athletes.

Prerequisite: 310 Physiology II - Neuroscience Corequisites: 313 Patho-kinesiology, 312 P. T. Procedures II

YEAR FOUR, SEMESTER ONE

0713-401 ADVANCED THERAPEUTICS (2-3-3)

Physical, physiological and biomechanical principles underlying such specialized techniques in physical therapy as spinal joint mobilizations and proprioceptive neuro-muscular facilitation. The acquisition of practical skills in the above in laboratory and clinical settings.

Prerequisites: All Year Three, Semester Two courses Corequisite: 411 P. T. Procedures III

0713-411 P.T. PROCEDURES III (NEUROLOGY) (2-6-4)

A study of the common problems associated with neurological conditions amiable to physical therapy and a survey of the neurophysiological approaches to the assessment and treatment of selected neurological conditions. Included here also is the study of the management of burns patients, patients with multiple injuries, and an overview of gerontology sufficient to provide an understanding of the principles of management of geriatric patients in Kuwait in the home and in institutionalized settings.

Prerequisites: All Year Three, Semester Two courses

0713-414 P.T. ADMINISTRATION & MANAGEMENT (2-0-2)

A presentation of elements of the managerial process, and the analysis of problems involving planning, developing, organizing and administering physical therapy services.

Prerequisites: All Year Three, Semester Two courses

Corequisites: 411 P.T. Procedures III, 421 Clinical Education III

0713-415 RESEARCH METHODS (2-0-2)

Principles of scientific method of investigations and their application to physical therapy in laboratory and clinical settings including research proposal, design, data collection, analysis and presentation.

Prerequisites: All Year Three, Semester Two courses

0713-421 CLINICAL EDUCATION III (0-16-4)

Supervised clinical experience in evaluation, treatment and rehabilitation of common pediatric, geriatric and adult neurological conditions encountered by physical therapists.

Prerequisites: All Year Three, Semester Two courses Corequisite: 411 P. T. Procedures III (Neurology)

YEAR FOUR, SEMESTER TWO**0713-412 PHYSICAL THERAPY PROCEDURES IV (2-6-4) (Advanced Rehabilitation)**

Physical therapy applied to the care of paediatric, geriatric and rheumatic patients in the home and in institutions. The major emphasis is on the physical and psychological aspects of rehabilitation, with practical skills in their management in the home and institutional settings.

Prerequisites: All Year Four, Semester One courses Corequisite: 461 Clinical Education IV

0713-416 PROFESSIONAL ISSUES (1-2-2)

A series of lectures, clinical visits and discussions on selected legal, political, social and clinical topics of current importance or concern in the practice of physical therapy and health care delivery in general. Emphasis is upon student participation culminating in an in-depth final paper and presentation by each student on his/her area of interest.

Prerequisites: All Year Four, Semester One courses

0713-417 DIRECTED STUDY (0-2-1)

A clinical or practical experience, initiated by the student and guided by the teacher, to develop the student's competence in their interest area. This will be more or less a contract learning process in the identified area between the teacher and the student to establish the minimum level of performance. **Prerequisites: All Year Four, Semester One courses**

Corequisites: 412 P. T. Procedures IV, 461 Clinical Education IV

0713-461 CLINICAL EDUCATION IV (0-20-5)

Directed clinical experience in the evaluation and treatment of common rheumatic, pediatric, geriatric and burns conditions treated by physical therapy, with greater emphasis in this placement on total integration of previously acquired assessment and therapeutic skills and knowledge.

Prerequisites: All Year Four, Semester One courses Corequisite: 412 Physical Therapy Procedures IV

0712-420 PHARMACOLOGY (2-0-2)

The course focuses on pharmacokinetics and pharmacodynamics and their relation to physical performance in the process of clinical decision making in the evaluation of physical performance and the designing of a rehabilitation program. It introduces the basic concepts of tissue reactions to drugs (absorption, metabolism and excretion); drug formulations and administration; major drug classifications: drug administration in paediatrics, pregnancy and the elderly.

Prerequisites: All Year Four, Semester One courses