

Department of Physical Therapy

► General Introduction

Physical therapy provide services that restore maximum function, improve mobility, relieve pain, and prevent or limit permanent physical disabilities of patients suffering from injuries or disease.

The department of physical therapy was established in 1978 as the first junior college physical therapy program in Busan. As society develops, the number of people who need physical therapy services is increasing rapidly. Therefore, our college unification with Pusan Catholic college for more scientific physical therapy education programs in 2000. Physical therapists have to continue professional development by participating in continuing education courses. Thus, we founded post-professional graduate programs (MPT) in the department of physical therapy to meet the desire for educational advancement in 2002.

► Education Objectives

The education objectives of the department of physical therapy are to provide a high quality education to enrolled students that requires accumulation of scientific knowledge, acquisition of essential physical therapy skills and the development of professional attitudes and behaviors. Therefore, physical therapy students must learn a scientific approach to physical therapy examination, evaluate, diagnosis, and intervention for providing evidence-based physical therapy in clinical settings.

► Course Descriptions

Category	Seme-ster	Years	Code	Courses	Credit	Hours		Note
						theory	practice	
Basic Courses	1	Freshman	02250	Introduction in Physical Therapy	3	3		
			03058	General Biology and Lab.	3	2	2	
			03060	General Physics and Lab.	3	2	2	
			03059	General Chemistry and Lab.	3	2	2	
			02325	Mathematics	3	3		
Elective Courses	1	Freshman	01281	Medical English	2	2		
Basic Courses	2	Freshman	01677	Human Anatomy	3	3		
Elective Courses	2	Freshman	01321	First Aids	2	2		
			01274	Human Anatomy Laboratory	1		2	
Required Courses	1	sophomore	01676	Human Physiology	3	3		
			03061	Clinical Kinesiology and Lab. I	3	2	2	
Elective Courses	1	sophomore	03073	Administration of Physical Therapy	2	2		
			03074	Rehabilitation Engineering	3	3		
			01649	Pathology	3	3		
			03075	Clinical Medicine I	3	3		
			02118	Clinical Practice I	3		9	

Required Courses	2	sophomore	01290	Therapeutic Exercise	3	3		
			03063	Musculoskeletal Physical Therapy I	3	3		
Elective Courses	2	sophomore	03062	Clinical Kinesiology and Lab. II	3	2	2	
			01291	Therapeutic Exercise Lab.	1		2	
			01278	Neurophysiology	3	3		
			03078	Musculoskeletal Physical Therapy Practice I	1		2	
			03076	Clinical Medicine II	3	3		
			02119	Clinical Practice II	3		9	
Required Courses	1	junior	03065	Physical Therapeutic Diagnosis and Lab. I	3	2	2	
			03067	Neurological Physical Therapy I	3	3		
Elective Courses	1	junior	01303	Functional Training and Lab.	2	1	2	
			03080	Physical Therapy Research Methodology	2	2		
			03064	Musculoskeletal Physical Therapy II	3	3		
			03079	Musculoskeletal Physical Therapy Practice II	1		2	
			03081	Exercise Physiology & Prescription	3	3		
			03082	Exercise Physiology & Prescription Practice	1		2	
			03083	Neurological Physical Therapy Practice I	1		2	
			03086	Pediatric Physical Therapy and Lab.	3	2	2	
Required Courses	2	junior	03069	Therapeutic Modalities and Lab. I	3	2	2	
Elective Courses	2	junior	03066	Physical Therapeutic Diagnosis and Lab. II	3	2	2	
			03068	Neurological Physical Therapy II	3	3		
			03084	Neurological Physical Therapy Practice II	1		2	
			03085	Cardiopulmonary Physical Therapy and Lab.	3	2	2	
			03070	Therapeutic Modalities and Lab. II	3	2	2	
			03087	Medical Statistics	2	2		
			03088	Physical Therapy Research	1	1		
Required Courses	1	senior	02120	Clinical Practice III	3		9	
			02121	Clinical Practice IV	3		9	
			03071	Clinical Practice V	4		12	
			03072	Clinical Practice VI	4		12	
Elective Courses	2	senior	01315	Geriatric Physical Therapy	3	3		
			02066	Public Health Law	2	2		
			01629	Public Health	3	3		
			01296	Image Reading	2	2		

► Course Descriptions (Special Course for Bachelor Degree)

Category	Seme-ster	Years	Code	Courses	Credit	Hours		Note
						theory	practice	
Cultural Core	1	junior	01992	Living English I	3	3		
Cultural Elective	1	junior	01841	Introduction to Information Science	3	3		
			02247	Psychology of Relationship and Adjustment	3	3		
			02248	Introduction to First Aids	3	3		
Elective Courses	1	junior	02002	Orthopedic Manual Therapy	3	3		
			02003	Medical Recording	3	3		
			02008	Physical Therapy Assessment	3	3		
			02005	Neurophysiology	3	3		
			01276	Histology	3	3		
Cultural Core	2	junior	01836	Christian Thought	3	3		
Cultural Elective	2	junior	01839	Legal Medicine	3	3		
			01837	Introduction to Biomedical Engineering	3	3		
			01840	Basic Oriental Medicine	3	3		
Elective Courses	2	junior	02006	Sports Physical Therapy	3	3		
			02007	Spinal Disorders Physical Therapy	3	3		
			02004	Biomechanics	3	3		
			01457	Research Methodology	3	3		
			01433	Health Statistics	3	3		
Elective Courses	1	senior	01319	Pain Medicine	3	3		
			01315	Geriatric Physical Therapy	3	3		
			02009	Motor Control Theory	3	3		
			02011	Image Reading	3	3		
			02017	Pathology of Nervous System	3	3		
			01658	Biochemistry	3	3		
			02016	Clinical Research of Physical Therapy	3	3		
Elective Courses	2	senior	02010	Introduction in Oriental Medicine	3	3		
			02012	Movement Analysis	3	3		
			02013	Cardiopulmonary Physical Therapy	3	3		
			02014	Exercise Prescription	3	3		
			02015	Seminar of Physical Therapy	3	3		
			02249	Industrial Physical Therapy	3	3		

▶ **02250 Introduction in Physical Therapy**

This course is the initiative of the physical therapy education and rehabilitation based on evidence-based practice. The lectures will cover basic terminology and concepts in prescribing physical therapy interventions and provide students with an overview of therapeutic interventions such as simple therapeutic exercise, stretching exercise, massage technique, range of motion exercise, assistive devices, and therapeutic modalities. In this class, students will also explore: a) roles and responsibilities as a health care provider; b) process of patient triaging / consultation / delegation; c) legal and ethical physical therapy practice perspectives; and d) current physical therapy practice issues.

▶ **03058 General Biology and Lab.**

This course provides the students with the basic knowledges on the Biomolecule characteristics and the structure, function, metabolism, heredity and origination of cell.

▶ **03060 General Physics and Lab.**

This course provides the students with the basic knowledges the concepts of modern physics in order to understand quantum mechanics, atomic, molecular, crystalline structures.

▶ **03059 General Chemistry and Lab.**

The students will understand fundamental chemical principles such as the mutual change among the materials and their composition and properties.

▶ **02325 Mathematics**

The students will learn linear algebra and calculus which are minimum subjects necessary for understanding the engineering principles.

▶ **01281 Medical English**

This subject is designed to study about medical terminology in English for the communication with an emphasis on physiological and anatomical terms in the field of physical therapy.

▶ **01677 Human Anatomy**

Human Anatomy is essential for physical therapists to make clinical decision regarding examination, evaluation, diagnosis, prognosis, and development of a plan of care for patients. This class is designed to provide students with an in-depth knowledge of muscles, bones, integumentary system, and neural/vascular systems of human body with emphasis on anatomical features relevant to current physical therapy practice.

· Learning objectives:

1. Explain the structure, composition and functions of the human organ systems.
2. Learn basic terminology and language associated with anatomy.
3. Explain how the human organ systems function and interconnect.
4. Explain how the anatomy of humans relates to that of other vertebrate animals.
5. Explain how human structures develop embryonically.
6. Learn how to study, interpret and care for anatomical specimens.
7. Learn standard procedures in an anatomy laboratory.
8. Be aware of laboratory safety concerns and how to apply safe practices in the laboratory.
9. Be able to obtain desired information about human structures, functions or pathology using common references.

► **01321 First Aids**

The goal of first aid is to save life, to prevent an injury or illness from worsening, or to help speed recovery. First aid for cardiac arrest, choking, bleeding, minor wounds, and minor soft tissue injuries are discussed in the lecture and practice.

► **01274 Human Anatomy Laboratory**

Lecture (1 unit) : hours (2 hours / week)

As a continuation of Human Anatomy, anatomical models, specimens and periodic tests will be given to students for the satisfactory review.

· Learning objectives:

1. Learn how to study, interpret and care for anatomical specimens.
2. Learn standard procedures in an anatomy laboratory.
3. Be aware of laboratory safety concerns and how to apply safe practices in the laboratory.

► **01676 Human Physiology**

Lecture (3 units) : hours (3 hours / week)

This course covers the functional characteristics of nervous, musculo- skeletal, cardiovascular, and respiratory systems. A portion of the lectures includes the physiology of tissues, reflexes, muscle contraction, hemo- dynamics, micro and macro circulation, respiratory mechanics, cellular respiration, and the autonomic nervous system. Emphasis will be on understanding of the physiological basis of treatment procedures administered by physical therapist. Anatomical models and specimens will complement classroom activities. Upon completion, students will be aware of: a) integration of the organ systems to maintain constancy of the internal environment; b) regulation of homeostasis by neuronal, endocrine and local chemical messengers; c) role of the Autonomic Nervous System in regulating organ function; d) adaptive physiological responses to exercise and the role of exercise in maintaining health; e) adaptive physiological responses to stress, infectious organisms and toxins; and f) changes in bodily function through the life span.

► **03061 Clinical Kinesiology and Lab. I**

This subject provides the fundamentals of statics and dynamics applied to the human structure and efficient mechanical functioning of the body at rest and in action. The basic principles of mechanics are introduced ; the body as a lever system ; the articular system ; structure and action of skeletal muscle ; proprioception and spinal reflexes ; kinesiology of the shoulder, elbow, hand, hip, knee and ankle joints is studied. Student presentations are made on selected subjects.

Also, this subject provides the opportunity for the student to utilize the skills acquired in kinesiology by analysing each joint movement and comparing abnormal motor behavior with a normal model.

► **03073 Administration of Physical Therapy**

The knowledge and skills required for planning and implementing a physical therapy practice in multiple settings, is covered in this subject. Students are introduced to the primary legal and management issues required of physical therapy practices, including strategies to ensure safe and effective delivery of high quality services.

► **03074 Rehabilitation Engineering**

This subject deals with the study of the principles of rehabilitation engineering. Also, this class provides

the introduction to use of splinting, casting, bandaging, bracing and artificial limbs. It's also includes the indications, contraindications, prescriptions, measurements, principles of fabrication, fitting and checking out of orthopedic shoes and appliances. And it is a comprehensive coverage of the basic principles and their application in the management of disabled persons, and how to encourage disabled people to lead independent live.

▶ **01649 Pathology**

This subject provides a background knowledge on general pathology, tissue and cellular reaction to inflammation and injury, degeneration, tissue repair and process of healing and immunity. It's also provides background knowledge in the study of the relationship of host, environment and pathogene in health and disease. The subject offers a demonstration by audio-visual aids on the pathologic changes of tissue & cell and the common pathogens.

▶ **03075 Clinical Medicine I**

This subject include rehabilitation medicine, neurology, neurosurgery, and dermatology. Lectures on the causes, symptoms and treatment of various diseases which lead to physical dysfunction and disability.

▶ **02118 Clinical Practice I**

5 weeks clinical internship program. Students will have the opportunity to apply their didactic knowledge, develop professional behaviors, and practice patient/client management in the clinic setting. Students will be required to: a) demonstrate entry-level competency in professional practice; b) develop a plan of care for patient management in advanced and complex patient problem; c) demonstrate competency in overall practice management; and d) how to conduct proper emergency procedures. Formal written performance evaluations are provided by the clinical instructor at midterm and conclusion of the internship.

▶ **01290 Therapeutic Exercise**

The course is a continuation of Advanced to Therapeutic Exercise. This course enables student to identify and analyze the underlying principles of therapeutic exercises: motor training/retraining; flexibility; strengthening; breathing exercises; aerobic capacity activities; aquatic exercises; complementary techniques (Tai chi, yoga); relaxation exercises; and conditioning and reconditioning. The lectures cover many types if not all of exercise equipments, including free weights, weight training machines, elastic bands and tubes, stability balls, medicine balls, foam rollers, slide boards, trampolines, pulleys, body blades, jump ropes, and aquatic equipment. Upon completion of this course, student will be able to: a) prescribe and teach therapeutic exercise, assess joint play, and perform joint mobilization and soft tissue techniques; b) set functional goals and develop appropriate exercise programs for patients with specific pathological conditions; and c) determine appropriate exercise parameters for healthy individuals to promote physical fitness and wellness

▶ **03063 Musculoskeletal Physical Therapy I**

This comprehensive course will address injuries and dysfunctions of the spine and upper and lower extremities. This course will include lectures, real and simulated patient cases, in addition to group discussions that focus on clinically relevant examination and management techniques. Upon completion, students will be able to: a) understand the etiology and pathology of common musculoskeletal problems and medical and surgical interventions; b) demonstrate competence in examination, evaluation, diagnosis, prognosis and treatment planning for spine and upper and lower extremity dysfunctions; c) conduct proper emergency procedures when such are needed; and d) present available evidence for practice with the musculoskeletal patient population.

► **03062 Clinical Kinesiology and Lab. II**

Clinical kinesiology is a science of human movement and understanding human kinesiology is significantly important for physical therapists to assess and treat patients with neuromusculoskeletal problems. In this course students will learn the basic principles of the ergonomics and body mechanic and efficient mechanical motions at rest and in action by studying human body as a lever system; articular system - joint type / structure / integrity / mobility; motor function - structures and actions of skeletal muscles; kinesiology of shoulder, elbow, hand, hip, knee and ankle joints. During the laboratory session, students will have opportunities to develop the ability to analyze body posture and movements and to compare abnormal motor behavior with a normal model.

► **01291 Therapeutic Exercise Lab.**

This course enables student to learn and practice technical skills in applying, planning and progressing an exercise program with patients requiring rehabilitation or restoration of function due to illness, injury, or disability in an acute, sub-acute, or chronic condition. The course will provide students with lectures, demonstration of techniques, group discussions and interactive experiences. Student will be given the opportunity to: a) prescribe and teach therapeutic exercise, assess joint play, and perform joint mobilization and soft tissue techniques; b) set functional goals and develop appropriate exercise programs for patients with specific pathological conditions; and c) determine appropriate exercise parameters for healthy individuals to promote physical fitness and wellness.

► **01278 Neurophysiology**

This subject provides the student with knowledge of the functioning of the nervous system. It is closely connected with neurobiology, neurology, higher nervous activity, and brain sciences. Emphasis is on understanding of the neurophysiological basis of treatment procedures administered by the physical therapist.

► **03078 Musculoskeletal Physical Therapy Practice I**

As a practical course of Musculoskeletal Physical Therapy I, this subject continues to develop the knowledge and skills necessary to musculoskeletal physical therapy of people with musculoskeletal system problems.

► **03076 Clinical Medicine II**

This subject include orthopedic surgery, pain medicine, internal medicine and oriental medicine. Lectures on the causes, symptoms and treatment of various diseases which lead to physical dysfunction and disability.

► **02119 Clinical Practice II**

5 weeks clinical internship program. Students will have the opportunity to apply their didactic knowledge, develop professional behaviors, and practice patient/client management in the clinic setting. Students will be required to: a) demonstrate entry-level competency in professional practice; b) develop a plan of care for patient management in advanced and complex patient problem; c) demonstrate competency in overall practice management; and d) how to conduct proper emergency procedures. Formal written performance evaluations are provided by the clinical instructor at midterm and conclusion of the internship.

► **03065 Physical Therapeutic Diagnosis and Lab. I**

This subject focused on a physical therapist's examination and evaluation of patients across the lifespan using a hypothesis driven process, including interview skills, basic system screens, and documentation of the examination and evaluation findings.

► **03067 Neurological Physical Therapy I**

This subject provides the physical therapy examination, evaluation, diagnosis, prognosis and intervention for individuals across the lifespan with movement problems stemming from dysfunction of the central and peripheral nervous systems.

► **01303 Functional Training and Lab.**

The aim of this class is to develop knowledge and skill essential to proper patient / therapist body mechanics, transfer techniques, wheel chair design and use, patient positioning and draping and use of ambulatory assistive devices. Sufficient opportunities will be provided to be acquainted with the use of devices including adaptive, orthotic, protective, supportive, and prosthetic devices and equipment for ADL and IADL in laboratory sessions. Students will be required to: a) assess home, work and environmental barriers; b) demonstrate skills in instructing and guiding patients; c) determine basic management and functional training of patients with a variety of impairment levels; and d) conduct proper emergency procedures.

► **03080 Physical Therapy Research Methodology**

This subject is an in depth analysis of research design, statistics, and critical appraisal of research literature. This subject is designed to introduce students to the basic and advanced concepts, techniques, and technologies used in the scientific inquiry of applied clinical research. Topics to be investigated include the research process and the scientific method, measurement theory, indices of validity and reliability, hypothesis construction and testing, constructing a clinical question, sampling, data collection and coding schemes, experimental design, a hierarchy of evidence, survey research, and guides for critical appraisal of research.

► **03064 Musculoskeletal Physical Therapy II**

Continuation of Musculoskeletal Physical Therapy I. This subject includes introduction to principles of orthopedic medicine, the general concepts of selective tissue evaluation, joint mobilization, and manipulation. The class goes on to cover the etiology, pathology, specific evaluation treatment prognosis, and prevention of common musculoskeletal problems of the temporomandibular joint (TMJ), spine, and extremities. Emphasis will be placed upon patients education, manual therapy techniques, and active rehabilitation of the spine and extremities based on the teachings of Cyriax, Maitland, Kalternborn and McKeznie etc.

► **03079 Musculoskeletal Physical Therapy Practice II**

As a practical course of Musculoskeletal Physical Therapy II, this subject continues to develop the knowledge and skills necessary to orthopedic manual physical therapy of people with musculoskeletal system problems.

► **03081 Exercise Physiology & Prescription**

This subject provides the student with knowledge of the physiological principles for understanding the response of the human body to exercise. The pulmonary, cardiovascular, musculoskeletal, neuromuscular, and metabolic responses to exercise and their implications in physical therapy intervention are explored. Energy delivery, utilization, and regulation of the major physiological systems during rest and exercise are discussed. Also, normal and abnormal responses to exercise, and the effects of exercise training on body composition, deconditioning, and health status are explored.

► **03082 Exercise Physiology & Prescription Practice**

As a practical course of Exercise Physiology & Prescription, this subject continues to develop the knowledge and skills necessary to exercise loading test, electrocardiography, and exercise prescription.

► **03083 Neurological Physical Therapy Practice I**

As a practical course of Neurological Physical Therapy I, this subject continues to develop the knowledge and skills necessary to neurological physical therapy.

► **03086 Pediatric Physical Therapy and Lab.**

This subject is to review and analyze the normal and abnormal developmental changes over the course of the maturation process with emphasis on selected medical conditions in pediatrics. Current Vojta, NDT, motor control and motor learning theories are applied to therapeutic intervention strategies for the pediatric population.

► **03069 Therapeutic Modalities and Lab. I**

The aim of this course is to enable students to select, apply, and evaluate the use, limitation, indication, and contraindication of therapeutic modalities. Students will learn the basic principles of physics and physiological effects of modalities utilizing thermal, electromagnetic and acoustic energy (hot packs, cold packs, paraffin, infrared, ultraviolet, hydrotherapy, diathermy, NMES, FES, TENS, EMS, ultrasound) and mechanical principles of spinal traction, compression therapy, standing tables and other therapeutic devices. In the later part of the course the management of acute surgical wounds, burns, and chronic wounds, including vascular, pressure, and neuropathic ulcers will be covered. Upon completion, students will: a) comprehend pain type and mechanism and the physiological effects of modalities on the nervous, vascular and musculoskeletal systems; b) become competent in applying electrical, thermal, and mechanical modalities; c) become competent in applying dressing and topical agents, electrotherapeutic modalities, wound debridement and care, and emergency management; and d) become competent with sterile techniques and basic bandaging skills.

► **03066 Physical Therapeutic Diagnosis and Lab. II**

Continuation of Physical Therapeutic Diagnosis and Lab I. This subject is continues to develop the knowledge and skills necessary to consider and identify the broad spectrum of conditions and pathologies represented by various disease in the field of physical therapy.

► **03068 Neurological Physical Therapy II**

As a practical course of Neurological Physical Therapy, this class helps students to develop the knowledge and skills necessary for neurological physical therapy by demonstration from certified physical therapists, hands-on practice and real case studies. Students will be exposed to the up-to-date concept and technique including those of motor control, Bobath, Vojta and PNF (proprioceptive neuromuscular facilitation).

► **03084 Neurological Physical Therapy Practice II**

As a practical course of Neurological Physical Therapy II, this subject continues to develop the knowledge and skills necessary to PNF, NDT, Vojta, motor control and motor learning approach.

► **03085 Cardiopulmonary Physical Therapy and Lab.**

This subject is designed to provide a basic knowledge about cardiopulmonary diseases and principles of the

physical therapy of related disorders and injuries. It has the ultimate purpose of making students raise skills of physical therapy through the direct assessment and treatment of patients in clinical settings.

▶ **03070 Therapeutic Modalities and Lab. II**

Continuation of Therapeutic Modalities and Lab. I. This subject is a study about the characteristics of hydro- and photo-therapy and its physiological and general effect, classification, procedure and treatment techniques.

▶ **03087 Medical Statistics**

This subject is designed to provide basic theories of statistics, making it possible for students to deal with and process statistics about medicine and health, especially in relation to disease, disaster and hospitalization.

▶ **03088 Physical Therapy Research (P/F)**

Students design and conduct a research, and write a thesis based on the principles of research methodology.

▶ **02120 Clinical Practice III**

135 hours clinical internship program.

▶ **02121 Clinical Practice IV**

135 hours clinical internship program.

▶ **03071 Clinical Practice V**

180 hours clinical internship program.

▶ **03072 Clinical Practice VI**

180 hours clinical internship program.

▶ **01315 Geriatric Physical Therapy**

This subject is designed to help understand and evaluate the normal process of aging and related health problems and learn how to prevent, treat and manage geriatric and degenerative diseases, ultimately seeking the improvement of the older people's life quality.

▶ **02066 Public Health Law**

This subject is designed for the students to understand legal problems related to public health and treatment of patients. Lectures approach general concepts from a critical view so that the students may better evaluate current medical legislation.

▶ **01629 Public Health**

This course provides students with an overview of contemporary issues in public health in South Korea. The course emphasizes environmental and behavioral determinants of health that play a critical role in health status, but many are preventable. Students will be able to recognize the major biological, chemical, and physical hazards in our environment and develop an awareness of the theoretical and practical applications of behavioral health issues as they relate to differing subsets of the population.

▶ **01296 Image Reading**

The major object of this course is to become familiar with several of the more common imaging techniques and develop an appreciation for the importance of biomedical imaging in the diagnosis and treatment of human disorders. This course includes the principles, procedures and interpretation of diagnostic imaging techniques with emphasis on plain film radiography, myelograms, CT scans, magnetic resonance imaging and others. Student will learn a systematic method of analyzing and integrating imaging findings into physical therapy diagnostic processes.

Special Course for Bachelor Degree

▶ **01992 Living English I**

This subject is designed to help students better understand cultures whose first language is English and raise skills of communication in the foreign language by making them memorizing English words, idioms and sentences.

▶ **01841 Introduction to Information Science**

In this rapidly changing society, a variety of computation devices are being used to effectively process and manage a great deal of information. Thus this subject is designed to make students raise skills of information processing using computers and other devices and learn programming languages and tools for making the processing more systematic and effective.

▶ **02247 Psychology of Relationship and Adjustment**

An introductory course to the study of human behavior, scanning briefly the stage of human development and focusing on perception, learning, thinking, motivation, individuality and personality. It also touches at each stage in life ; differential effects of wholesome and inadequate development to personality adjustment.

▶ **02248 Introduction to First Aids**

The goal of first aid is to save life, to prevent an injury or illness from worsening, or to help speed recovery. First aid for cardiac arrest, choking, bleeding, minor wounds, and minor soft tissue injuries are discussed in the lecture and practice.

▶ **02002 Orthopedic Manual Therapy**

This class is an introduction to principles of orthopedic medicine, the general concepts of selective tissue evaluation, joint mobilization, and manipulation. The lectures cover etiology, specific evaluation, treatment, prognosis, and prevention of common musculoskeletal problems in temporomandibular joint (TMJ), spine, and extremities. Emphasis will be placed upon patient education, manual therapy techniques, and active rehabilitation of the spine and extremities based on the principles and techniques of Cyriax, Maitland, Kalternborn, McKeznie and other erudite scholars.

▶ **02003 Medical Recording**

This subject provides the student with knowledge of the problem oriented medical recording and the SOAP charting.

▶ **02008 Physical Therapy Assessment**

As a practical course of Physical Therapy Assessment, this class promotes students to develop the knowledge and skills crucial for physical therapy assessment. Lecture topics will include screening for musculoskeletal, neuromuscular, integumentary systems, test of joint mobility / stability, demonstration of special tests, ROM, and manual muscle testing, balance and gait examination, application of outcome measures and devices such as a goniometer and use of other device for anthropometric measurements (weight, height, circumference, skinfolds and etc.). Periodic practical tests will be performed throughout the course.

▶ **02005 Neurophysiology**

This subject provides the student with knowledge of the functioning of the nervous system. It is closely connected with neurobiology, neurology, higher nervous activity, and brain sciences. Emphasis is on understanding of the neurophysiological basis of treatment procedures administered by the physical therapist.

▶ **01276 Histology**

This subject covers tissue structure and major function of the cells and tissues of the body. Topics in this course include: structure and function of the cells and tissues of the body, tissue diversity, histology of major organs, basic cellular anatomy, developmental biology, cell structure, function, cell diversity and cell communication. The course also presents the basic science of tissue biomechanics, and the response of muscle, bone, joints, and soft tissue to disease and injury. The normal repair process and the effects of physical therapist's interventions including rest, stress, stretch, resistance, immobilization and work is discussed. Complications and benefits of interventions, the effects of nutrition, aging, exercise and immobility are discussed.

▶ **01836 Christian Thought**

This subject is designed to find the way to coexistence between human and God, clarify the true meaning of human existence and help understand major religions of the world. With the overview of key Christian factors, <Truth, Love, Service>, which are also ideas of this university's foundation, the study describes that such ideas could contribute to establishing better ways of thinking and values of the present generation who will lead the future world.

▶ **01839 Legal Medicine**

This subject is introduction to forensic science and forensic medicine.

▶ **01837 Introduction to Biomedical Engineering**

The aim is to educate intellection and scientific Biomedical engineering research by overall understanding Biomedical engineering conception and Biomedical engineering area.

▶ **01840 Basic Oriental Medicine**

The object of this course is to provide students with the foundations in Oriental medical treatment and the concept of oriental medical thought about the treatment of diseases fundamentally handled only by western medicine.

▶ **02006 Sports Physical Therapy**

Sports physical therapy includes first aid, prevention, diagnosis and treatment of injuries and massage from the casual player to sports persons who need a higher level of mobility and performance. Lectures on the basic physiology of exercise, psychology, mechanism of injury, prevention, treatment and practice in sports

medicine.

► **02007 Spinal Disorders Physical Therapy**

This course encompasses the theoretical and practical foundations of clinical practice for spinal disorders with emphasis on differential diagnosis of musculoskeletal dysfunctions. It introduces biomechanics, kinesiology, and specific terminology of spinal movement to students. Students will be provided with a variety of hands-on tests in an effort to determine which structure in spine is involved. Physical therapy interventions to be learned include all hands-on skills, but are not limited to soft tissue mobilization, myofascial release, mobilization of spinal segments, manipulation techniques. Students will be given the opportunity to: a) develop skill in orthopedic examination, evaluation and treatment planning principles regarding spinal disorders; b) develop skill in evaluation and treatment of the cervical, temporomandibular, thoracic, lumbar and sacroiliac joints; c) integrate musculoskeletal pathophysiology of spinal bones, joints, and muscles including surgical procedures and immobilization with examination and evaluation procedures and treatment planning; d) learn to conduct proper emergency procedures related with spinal disorders; and e) integrate orthopedic principles with anatomy of the pelvic floor, male and female reproductive systems, and common pelvic dysfunctions.

► **02004 Biomechanics**

Biomechanics is the analysis of the mechanics of living organisms and concerned with the internal and external forces acting on the human body and the effects produced by these forces. This subject is designed to analyze motion at each joint of the body and further physical motions in daily life in terms of musculoskeletal anatomy and musclonervous biology.

► **01457 Research Methodology**

This subject is an in depth analysis of research design, statistics, and critical appraisal of research literature. This subject is designed to introduce students to the basic and advanced concepts, techniques, and technologies used in the scientific inquiry of applied clinical research. Topics to be investigated include the research process and the scientific method, measurement theory, indices of validity and reliability, hypothesis construction and testing, constructing a clinical question, sampling, data collection and coding schemes, experimental design, a hierarchy of evidence, survey research, and guides for critical appraisal of research.

► **01433 Health Statistics**

This subject is designed to provide basic theories of statistics, making it possible for students to deal with and process statistics about medicine and health, especially in relation to disease, disaster and hospitalization.

► **01319 Pain Medicine**

Pain Medicine is concerned with the study of pain, prevention of pain, and the evaluation, treatment, and rehabilitation of persons in pain. Lectures are given on areas of the mechanism of pain, theory of the pain and treatment in physical therapy and more.

► **01315 Geriatric Physical Therapy**

This course introduces the issues the elderly encounter in the areas of health care policy and socio-cultural

expectations and our role to help them in community / occupational environment and reintegrate to society. Topics include the common pathologies and impairments that are associated with the population over 65 in the context of normal and usual aging of the cardiopulmonary, musculoskeletal, neuromuscular and integumentary systems, metabolic systems and the procedure of documentation and reimbursement in current healthcare system. Discussions will include the benefits of exercise in prevention of and rehabilitation from functional limitations; medical records, home assessment, housing options and community resources; communication and education with the elderly in self-care, home exercise program and using assistive / protective / supportive device in ADL and IADL; special attention to eyes, teeth, limbs and examination and evaluation of common metabolic problems and complications such as diabetes; and the issues surrounding elder abuse. Students will also critique many of the functional assessment tools used with this population.

▶ **02009 Motor Control Theory**

This subject is designed to make understood motor control theories that can be applied to therapies whose aim is at restoring the physical function and motor skills of patients with central nerve disorders.

▶ **02011 Image Reading**

This subject is a progression from a basic understanding of plain film, CT scans, and MRI principles to a systematic analysis of the spine and extremities. The student will learn a systematic method of analyzing and integrating imaging findings into the physical therapy diagnostic process. In addition, the utility of imaging in physical therapy practice will be emphasized.

▶ **02017 Pathology of Nervous System**

This subject is designed to make understood etiological and morphological characteristics of central or peripheral nervous system and ultimately provide a pathological understanding of various types of nervous systems.

▶ **01658 Biochemistry**

This subject covers chemical processes and transformations in living organisms. It deals with the structure and function of cellular components, such as proteins, carbohydrates, lipids, nucleic acids, and other biomolecules.

▶ **02016 Clinical Research of Physical Therapy**

This subject is designed to provide newest physical therapy theories and make a literature review on clinical topics. It also seeks to make understood research methods in which data are obtained through tests and then analyzed and processed to draw results.

▶ **02010 Introduction to Oriental Medicine**

This subject is designed to make understood concept of oriental medicine and oriental pain control methods.

▶ **02012 Movement Analysis**

This course will cover the basis for understanding normal human movement. Emphasis is on the understanding of the kinematics and kinetics of human movement in two and three dimension, posture analysis, range of motion, normal muscle function, joint structure and integrity, muscle activity and exercise physiology. In addition, students will explore the interaction between the systems that produce normal movement and begin to consider

how movement is affected by pathological conditions. Students are required to: a) integrate principles of anatomy, physics and physiology to investigate and normal and abnormal movement of the spine and extremities; b) understand elementary principles of biomechanics, joint kinematics, and muscle functions; c) apply principal concepts for each body segment; and d) analyze tasks that combine the basic and complex concepts; and e) learn problem solving skills for complete analysis in gait, assisted locomotion and body balance.

► **02013 Cardiopulmonary Physical Therapy**

The intended purpose of this course is to provide students with knowledge of anatomy, physiology, exercise physiology, aerobic capacity and etiology of cardiopulmonary system as these relate to the interventions of cardiovascular and pulmonary dysfunctions. Its context mainly focuses on the essential components of a comprehensive cardiovascular and pulmonary assessment in ventilation, respiration and circulation and the appropriate monitoring ability to assess potential responses to exercise prescribed. Students will be required to: a) demonstrate knowledge of the etiology and pathology of selected cardiovascular and pulmonary disorders; b) demonstrate knowledge and skill in the physical therapy management such as manual and assistive airway clearance techniques; and c) conduct proper cardiovascular emergency procedures.

► **02014 Exercise Prescription**

This subject is designed to make understood exercise physiology and biomechanics and provide methods of better exercise prescription.

► **02015 Seminar of Physical Therapy**

This subject is designed to make students learn new methods and developmental directions of physical therapy through presentations and discussions. In the seminar, local and foreign studies and materials about various theories and skills of physical therapy are used.

► **02249 Industrial Physical Therapy**

Industrial physical therapy is the branch of physical therapy concerned with the maintenance of health and the prevention and treatment of diseases and accidental injuries in working populations in the workplace. This subject is designed to make students learn methods of physical therapy for the highest degree of physical, mental, and social well-being of workers in all occupations by preventing departures from health, by controlling risks, and by adapting work to people, and people to their jobs.