



FACULTY OF

# PHYSIOTHERAPY

UNDERGRADUATE  
& GRADUATE  
PROSPECTUS







## VISION AND MISSION

The Faculty of Physiotherapy National university -Sudan Strives towards developing the highest standards of academic professional excellence in physiotherapy. The various parts of this programme aim to produce ethically responsible innovative, critically thinking professional technologists committed to meeting the health and developmental needs of all communities in the Sudan and the rest of the world, appropriately and efficiently. The programme teaches the students how to learn and continue as lifelong learners in physiotherapy.

The faculty aims to be the most respected educational institution of physiotherapy, as evidenced by high quality of premises, up-to-date administration and governance, job- and research-directed instruction, quality of graduate and their ethical, professional and scholarly contribution.

## ENTRANCE REQUIREMENTS

A student interested in joining the Faculty of Physiotherapy, has to:

- 1 - Obtain pass mark in seven subjects including: Arabic language, religious studies, English language, mathematics, physics, chemistry and biology. International Students who have not studied Arabic and religious studies may have more alternative subjects from an approved list of subjects published in the webpage of Ministry of Higher Education.
- 2 - Achieve the percentage in Sudan School Certificate announced every year (International students may have 10% less in the School Certificate scores).
- 3 - Apply electronically through the website of the Admission and Accreditation Office, Ministry of Higher Education, or apply directly in Admission Office in the National University, and pass the health examination, aptitude tests and interview at the Faculty of Physiotherapy.
- 4 - Pay the published fees: 23,000 SDG or US \$ 4,000 [international students] (2018).

## CAREER ADVICE

Students qualified with this Bachelor degree pass through a track decreed by the Health Professions Council. They are accredited as physiotherapy technicians, and may pursue postgraduate studies in the micro-specializations of the profession, or obtain master's degree or PhD to qualify for university teaching staff, in colleges of physical therapy and rehab. Diploma students study six semesters (about three years) or the equivalent of 80-90 credit hours, sharing with Bachelor-track students the two phases of university requirements and internship. The stage of theoretical study of basic therapeutic science is limited to two semesters only. Students qualified with this Diploma pass through a track decreed by the Health Professions Council, and are accredited as assistant physiotherapist. The graduate may be interested in managerial, commercial, industrial or charity career, related to one of the various specialties in the discipline.

International graduates can follow the same track if they preferred to stay in the Sudan, but may also start their registration and internship in their own countries or residence.

## FACULTY OBJECTIVES

The objectives of the Faculty of Physiotherapy National University are to:

1. Emphasize values and ethical heritage of the Sudanese Nation in its curriculum, and follow strategies that lead to strengthening these values, as an important component of the National University philosophy and message.
2. Graduate a physiotherapy professional at the technician (Dip PT) and Technologist (B.Sc PT) levels with strong community orientation and ethical components.
3. Contribute to community development through health services provided in its own health institutions and other institutions co-operating with it, through the following: (a) partnership in designing health programmed and plans, and implement whatever is feasible in utilizing the experience of specialists, (b) Contribution in continuous education through short and long term courses, to improve efficiency of health workers, and (c) Provision of essential equipments and supplies to improve quality of services, through partnership with the Ministry of Health.
4. Strengthen medical and health research in physical therapy and related profession, making use of the National University accessibility and communication privileges.
5. Strengthen medical and health research, making use of the University's accessibility and communication privileges.

## CURRICULUM OBJECTIVES [Characteristics of the physiotherapy graduate]

A graduate of the National university Physiotherapy Faculty Curriculum should be able to:

1. Adopt the strategies of the university and abide by its objectives and rules stated in its constitution.
2. Observe in his/her practice, the health professional ethics which agree with the Nation's values, beliefs and norms (as stated by Sudan Medical Council, and Sudan Allied Health

Professionals Council), and maintain good and

3. Honest relations with his/her patients, their families, his/her colleagues across all sectors involved in health.
4. Designing the treatment plan and manage cases of physical disability and pay attention to other health problems prevalent at the level of the individual, family or society, with special emphasis on the nutritional and environmental problems common in developing countries, and plays an active role in health promotion.
5. Integrate basic, community, clinical and physical sciences in solving the individual physical problems
6. Use scientific knowledge to design the therapeutic plan and management of problems managed through physiotherapy, according to known methods of problem solving and integration, and explains the scientific structural (anatomical), functional (physiological, biochemical), morbid (microbiological, pathological), and therapeutic (physical) background related to the problems.
7. Manage relevant emergencies, and decide and act properly on cases needing referrals to specialized centres or personnel
8. Accepts to work in all settings according to needs, and act to improve health
9. Service delivery systems both quantitatively and qualitatively.
10. Encourage community participation and act in recruiting various sectors in defining health and health-related problems, planning and providing suitable solutions, recognizing the community beliefs, ethics, and traditional practices.
11. Adhere to "health team" approach, acting as an efficient member, and ensuring both effectiveness and homogeneity among the members.
12. Administer a physiotherapy and physical fitness "unit" or "centre" efficiently according to scientific, medical, statistical, economic and legal bases.
13. Continue to consider elements of efficiency, costing and economic implications in his/her diagnostic and therapeutic choices.
14. Acquire the skills of teaching, learning and communication efficiently to carry out his/her duties in health education and in winning the confidence of patients and their families and societies.
15. Acquire the skills of self-education (self-directed learning), and contribute to availing opportunities for planning and implementing continuous education activities to upgrade his/her own abilities and those of his/her colleagues in the health team.
16. Carry health or health-related research, alone or with a health team, using scientific methods known in such activities.
17. Use computer in word processing, statistics and graphics to achieve success in other objectives of his/her career, and skills of computer-assisted presentation.
19. Acquire postgraduate qualification in the discipline of his/her choice, reorganizing the needs of the society for certain specialties, particularly general practice,

**TIMETABLE****Semester 1 [24 CHs- 16 weeks]:**

	Title	Code	Weeks	Units			CH
				Th	Tut	Prac	
1	Orientation		-	-	-	-	-
2	Physics for Medical Equipment & Investigation	ME-PHYS-115	Long.	2	-	-	2
3	English Language -1	ME-ENG-113	Long.	2	1	-	3
4	Computer Science -1	ME-COMP-116	Long.	2	1	-	2
5	Medical terminology 1	PT-TERM-125	Long.	2	-	-	2
6	Cell biology	PT-CELL-110	Long.	2	-	1	3
7	General chemistry	PT-CHEM-111	Long.	2	-	-	2
8	Basic biochemistry	ME-BIOC-118	Long.	2	-	-	2
9	Genetics & Molecular Biology	ME-GET-119	Long.	2	2	2	2
10	Human Body Structure and Function	PT-NAT-126	Long.	3	1	2	6
Total			16	19	3	5	24

Examination of longitudinal courses (+re-sits) 1w weeks

Courses or examinations for late comers and failures

**Semester 2 [24 CHs- 16 weeks]**

	Title	Code	Weeks	Units			CH
				Th	Tut	Prac	
1	Biochemistry (Metabolism )	PT-BIO-121	Long.	2	-	-	2
2	English Language -2	ME-ENG-123	Long.	3	-	-	3
3	Behavioral Science	ME-BEHAV-129	7	2	-	-	2
4	Introduction to Medicine & Medical Education	ME-EDU -114	5	2	-	-	2
5	Introduction to Medical Ethics	ME-ETHIC-313	4	2	-	-	2
6	Computer Science -2	ME-COMP-124	Long.	1	-	1	2
7	Physiotherapy Service In Hospital & Community .	PT-SERV-127	Long.	2	-	1	3
8	Musculoskeletal System	PT-MSK-128	Long.	3	1	2	6
9	Biostatistics	ME-STAT-117	Long.	1	1	-	2
Total			16	18	2	4	24

Examination of longitudinal courses (+re-sits) 2 week

SUMMAR 1: Medical records and data collection (ME-SUM-131) 2 CHs

Elective (E-132): A 1000 -word report on "Internet Sources of Health Sciences" 1CH

#### FIRST YEAR PROGRAMME EVALUATION

### Semester 3 [20 CHs- 18 weeks]

	Title	Code	Weeks	Units			C H
				Th	Tut	Prac	
1	Cardiovascular and respiratory system	PT-CVRS-213	5	3	-	2	5
2	Nervous system and special senses	PT-NEURO-218	5	3	-	2	5
3	Clinical and sport massage	PT-MASS-223	Long.	1	-	1	2
4	Physical education principle	PT-PEPR-227	Long.	1	-	1	2
5	Medical terminology-2	PT-TERM-217	Long.	2	-	-	2
6	kinesiology and Biomechanics	PT-KINS-224	Long.	1	1	-	2
7	Professional skills-1	PT-SKILL-211	Long.	1	-	1	2
			16	13	-	7	20

Examination of longitudinal courses (+re-sits) 1 week

### Semester 4 [18 CHs- 18 weeks]

	Title	Code	Weeks	Units			CH
				Th	Tut	Prac.	
1	Principle of disease	ME-DIS-212	5	4	1	-	5
2	Posture and posture education	PT-POST-228	8	2	-	-	2
3	Professional skills-2	PT-SKILL-221	Long.	1	-	1	2
4	Gymnastics	PT-GYM-316	Long.	1	-	1	2
5	Ergonomics	PT-ERGO-226	Long.	2	-	-	2
6	Therapeutic exercise	PT-EXER-225	Long.	2	-	1	3
7	Biochemistry and phy sology of exercise	PT-BIOCHEM-222	Long.	2	-	-	2
			16	16	1	3	18

Examination of longitudinal courses (+re-sits) 2 week

SUMMAR 2: Research methodology and scientific writing (ME-SUM231) 2 CHs

Elective (E232): Draw a map of health services in one Mu'tamadiya 1 CH

#### SECOND YEAR PROGRAMME EVALUATION

**Semester 5 [16 CHs- 18 weeks]**

	Title	Code	Weeks	Units			CH
				Th	Tut	Prac	
1	Community medicine and public health	PT-COM-312	2	2	-	-	2
2	Professional skills-3	PT-SKILL-311	Long.	1	-	1	2
3	Sport injuries and therapy	PT-SPORT-314	Long.	1	-	1	2
4	Orthopedic physiotherapy	PT-ORTHO-326	Long.	2	-	2	4
5	Rehabilitation	PT-REHAB-317	Long.	1	-	1	2
6	Electrotherapy and PT equipment	PT-EQUIP-315	Long.	2	1	1	4
			16	9	1	6	16

Examination of longitudinal courses (+re-sits) 1 weeks

Repeat courses or examinations for late comers and failures.

**Semester 6 [19 CHs- 18 weeks]:**

	Title	Code	Weeks	Units			CH
				Th	Tut	Prac	
1	Physiotherapy for intensive care patient	PT-ICU-324	Long.	1	-	1	2
2	Neurological physiotherapy	PT-NEURO-322	Long.	2	-	2	4
3	Pediatrics physiotherapy	PT-PED-323	Long.	2	-	2	4
4	Basic pharmacology	PT-PHARMA-318	Long.	2	1	-	3
5	Physiotherapy in cardiorespiratory clinic	PT-CVRS-325	Long.	2	-	2	4
6	Geriatrics care	PT-GER-321	Long.	2	-	-	2
			18	11	1	7	19

Examination of longitudinal courses (+re-sits) 2 weeks

**Semester 7 [20 CHs- 18 weeks]:**

	Title	Code	Weeks	Units			CH
				Th	Tut	Prac	
1	Hydrotherapy and SPA training	PT-HYDRO-415	Long.	2	-	1	2
2	Research Methodology	PT-RESE-418	2	2	-	-	2
3	Ophthalmology and PT training*	PT-OPTAL-413	2	1	-	1	2
4	Health Economics and Hospital Management #	PT-HM-411	2	2	-	-	2
5	Prosthetics and orthotics	PT-ORTH-417	4	2	-	2	4
6	Physiotherapy and imaging	PT-RAD-416	2	2	-	2	2
7	ENT physiotherapy	PT-ENT-414	2	1	-	1	2



8	General PT lab and electrotherapy	PT-LAB-412	Long.	-	1	3	4
			18	12	1	10	20

Examinations (1 weeks)

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**Semester 8 [13 CHs- 16 weeks]:**

	Title	Code	Weeks	Units			CH
				Th	Tut	Prac	
1	Primary Health Care	PT-PHC-421	2	2	-	-	2
2	Case Work Up and Presentation	PT-CASE-423	Long.	2	-	2	4
3	Training In PT Lab and Electrotherapy *	PT-ET-422	Long.	-	-	4	4
4	Graduation Project	PT-GRAD-424	Long.	-	-	3	3
			16	4	-	9	13

Examinations (1 week)

## IMPORTANT

It is the students' responsibility to find out the methods of acquiring Competencies listed in the objectives of each course. Staff is available to guide them. Each student is assigned an academic and social advisor who should be consulted and given all information about a student's academic and social problems, if there are. Even excellent students need their advisors for elective supervision and career choices

## COURSE OUTLINE

Detailed behavioural objectives, skills, assignments and problems are listed in each course book. The lists are too extensive to be included below :

Semester 1, Preliminary Courses (University Requirements)

Title	Code	Semester/Duration	Credits
PHYSICS FOR MEDICAL EQUIPMENTS AND INVESTIGATIONS (MEDICAL PHYSICS)	ME-PHYS-115	1/Longitudinal	2

The basic principles of general physics are important for understanding certain mechanisms that take part in the human body, and also, the technical background of many medical types of equipment. A medical professional is often confronted with a method of investigation or intervention that is based on physical or mechanical process in the human being and he/she has to deal cautiously with the machine and use it correctly considering its proper maintenance and patient's and worker's safety. These include physical chemistry, gas laws, physics of light and sound, and radiation. The details of the contents include; (1) physical quantities and units, (2) measurements techniques, (3) gases and gas laws, (4) waves, (5) optics, and (6) radiation.

Title	Code	Semester/Duration	Credits
ENGLISH LANGUAGE-1& 2	ME-ENG-113+123	1and 2 /Longitudinal	3 + 3

The sources of health information in the World are still in English. The Internet navigation to obtain information is basically in English. Some of the patients, attending clinics in Sudan, may only speak English language, especially with open-up of borders with economic development and of globalization.

Passing the English language examination is an essential entry requirement to universities in Sudan. The general objectives of this course include: (1) correct pronunciation of medical terms, including those related to health services in the country, (2) correct reading and showing understanding of texts from medical books, (3) expressing one's self in good English describing his daily activities, career ambitions, present problems in health and current attempts at management, and (4) translating some pieces from English to Arabic, and three others from Arabic to English, both sets from medical literature.

Title	Code	Semester/Duration	Credits
COMPUTER SCIENCE-1&2	ME- COMP-116+124	1and 2/Longitudinal	2+2

Most of the textbooks of medicine and allied sciences are available on CDs, in which a large volume of knowledge is saved and easily retrievable. There are many software packages demonstrating methods and techniques in clinical skills including patient rapport in history taking, clinical examination, investigations and management. Students and teacher can access the internet for the unlimited sources of health information, both at their professional level and public level for health education. Students and future PT professionals are educators who have to prepare smart documents and presentations for the health team and profession at large. Knowledge of programmed like Word, Excel, and PowerPoint are indispensable for anyone learner or teacher. Computer is important for students both in the developed or developing world, more so for the latter, who might not have inherited voluminous libraries in their colleges and have to utilize the virtual libraries available all over the world. Medical journal as hard copies are difficult to be owned by one institution, now almost all are available on-line for those who can use the computer efficiently. The course is intensive focusing on the basic principles of computer electronics and applications relevant to health science education. This is mainly on the hand-on experience in dealing with famous programmed like DOS, Word, Excel, PowerPoint, Access and Internet Explorer. The use of CDs is stressed covered as well as having e-mails and navigating the internet for health information including how to access medical journals, and communicate with scientists worldwide.

Title	Code	Semester/Duration	Credits
MEDICAL TERMINOLOGY-1 & 2	PT-TERM-125 + 217	1 and 3 /longitudinal	2+2

To study medicine and often health sciences, the student should be familiar with the rules of medical language. This course prepares the students with the clues to formation and understanding words that describe the human body, its component, conditions and functional process in specific way the course is appropriate for health care administrations as well as health sciences students.

Title	Code	Semester/Duration	Credits
CELL BIOLOGY	PT-CELL-110	1 /Longitudinal 16 weeks	2

This course provides the basic concepts of life science, with emphasis on diversity of life, the form and function of the cell. Students will gain general knowledge about the introductory topics and theories needed to develop an in-depth understanding of cell biology

Title	Code	Semester/Duration	Credits
GENERAL CHEMISTRY	PT-CHEM-111	1 /Longitudinal 16 weeks	2

This is a 16 weeks longitudinal courses focus on basic general chemistry, organic chemistry and analytical chemistry. General Chemistry is intended to serve as a broad introduction to a variety of concepts in chemistry. It is typically introduce concepts such as reaction product, chemical kinetics. Aim of teaching of this course is to give the students an overview of different topic of basic general chemistry and basic organic chemistry in details, the student learn about Atomic Structure, Structure of atoms (electrons, protons, neutrons) and isotopes, fourth quantum numbers, principle, secondary, magnetic and spin quantum number, electron configurations.

Title	Code	Semester/Duration	Credits
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BASIC BIOCHEMISTRY

ME-BIOC-118

1/Longitudinal

2

A Longitudinal course I in Semester 2, to include: atomic structure, chemical bonding, chemical reactions, anabolism and catabolism, molecular formulae, solutions and solubility, molarity, modality, normality and molar fraction, acids and bases, buffers, hydrocarbons, isomerism, introduction organic compounds, classification of aliphatic and aromatic hydrocarbons, their properties and reactions; Aldehydes and ketenes, alcohols, phenols and ethers acids and amines benzenes and their derivatives; carbohydrates, lipids and proteins, vitamins and enzymes and coenzymes, carbohydrates, lipids, proteins, phospholipids, cholesterol, nucleic acids, nitrogen bases, enzymes and co-enzymes.

Title	Code	Semester/Duration	Credits
GENETICS & MOLECULAR BIOLOGY	ME-GET-119	1 / longitudinal	2

The course describes the flow of information from DNA to mRNA to proteins, as well as the role of molecular genetics in the investigation and understanding of disease processes such as inborn errors of metabolism and cancer as well as utilization of such knowledge in treatment and follow up to protein. The open future of this new aspect of science will be introduced.

Title	Code	Semester/Duration	Credits
HUMAN BODY STRUCTURE AND FUNCTION	PT-NAT-126	1 / longitudinal	6

Humans continuously affect their environment and are affected by it. Throughout history, humans have changed their environment through hunting, farming, mining, and introducing new animal species with them as they traveled to new lands. The availability of specific nutrients, in the local environment changes the physiological characteristics of humans, i.e. improved nutrition in developed countries has increased the height of Man. The *milieu interieur*, or the internal environment, is formed of the body systems working in harmony to achieve homeostasis, a state of equilibrium of all influences, including the external environment. The body can lead a disease free life, or be crippled by disease, mostly from failure of this equilibrium. Man cannot be separated from his environment. His mental state is closely linked with his surroundings (physical, biological and social) and the extent of his adaptation and tolerance to these surroundings.

**Semester 2**

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
Biochemistry (Metabolism)	PT-BIO-121	2 / Longitudinal	2

This is a 15 weeks longitudinal course. This course includes the study of metabolism such as (1) Carbohydrates, lipids, proteins and nucleic acids metabolism, as well as the study of (2) Vitamins function (3) Metabolic Effects of Insulin and Glucagon (4) Diabetes Mellitus (5) Obesity (6) Biotechnology and Human Disease.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
BEHAVIOURAL SCIENCE	ME-BEHAV-129	2 / Longitudinal	2

A two-week block during Semester 1, to include: (1) introducing psychology, psychoanalysis, defence mechanism manifesting as behaviours, (2) role of stress in the etiology of physical and psychological illness, (3) coping with loss, grief and death, (4) biological basis of behaviour {catecholamine's, dopamine, neurotransmitters, neuropeptides, (5) cultural considerations in medical practice, (6) family structure and dynamics in health care, (6) health and illness behaviour. (7) personality, (8) terminology of psychiatric disease, (9) medical bases of substance and drug abuse.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
INTRODUCTION TO MEDICINE AND MEDICAL EDUCATION	ME-EDU-114	2/Longitudinal	2

This is a (2 CHs) Longitudinal, starting with a simple medical problem that emphasize the managing and message of health, health care delivery system in the country, the role of the physician in health care, role of other professional and administrative staff, priority health problem concepts and principles of learning, adult education and learning, student centred and problem based learning, instructional techniques (lecture, small group etc), student assessment method, holistic approach, interdisciplinary and partnership concepts, curriculum development, program evaluation, leadership and professional ethics. Students are divided to groups to spend a week in health facility, hospital theatre, hospital outpatient, health centre, various directorates and departments of Federal and State Ministries of Health, etc.. Meanwhile students are given discussion sessions on group dynamics and instructional methods, at the end of the course the groups present their field activity using a suitable audiovisual technique. Evaluation assesses the knowledge and attitudes of the students in these three Areas: health system, group dynamics and instructional methods.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
INTRODUCTION TO MEDICAL ETHICS	PT-ETHIC- 313	2 / Longitudinal	2

The student should show an understanding of the (1) history of medicine; before and during the Islamic era, (2) the role of the Moslem scholars in the practice of medicine, research and medical ethics, (3) the milestones of medical education in the Islamic era, (4) the fight of illness and the sick, the religious regulations concerning treating the sick person, how does the sick person performs his

rituals: cleanliness, prayers, fasting, pilgrimage? Also, (5) the visiting of sick person, (6) managing a death episode, (7) the religious conduct when males are man-aging female disease and vice versa, (8) the emerging controversial ties of vitro fertilization, transplantation, brain death, cloning, genetic engineering. Students should be aware of the (9) Fight of health preservation including cleanliness, sleep, moderation in eating and drinking, the jurisprudence of toxic substances and narcotics, infectious diseases, breast feeding, consanguineous marriage, quarantine, death and funerals, dissection of human body for teaching and law, (10) medical behaviour, professional ethics, responsibility of a health professional, (11) issues in protection of acts of a health professional and (12) giving an expert witness at court.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PHYSIOTHERAPY SERVICES IN COMMUNITY & HOSPITALS	PT-SERV-127	2 / Longitudinal	3

The aim of this course is mainly to introduce electro- hydro-, heat-, light- and mechanotherapy methods and their application for different diseases and injuries, beside paying visits to a number of some PT centres. This will give theoretical and practical knowledge of the various modalities used in physical therapy. After the course the student must be able to decide independently in which cases the physical therapy methods are useful and how to use them, with basic practical skill knowledge of such use of suitable equipments. Then after that he has to, (1) list the health facilities providing physical medicine services in the Country, (2) list the various modalities used to provide physical treatments (3) describe the equipments available in the PT centres, (4) outline the physical basis, and the illnesses which require the physiotherapy intervention, (5) discuss the qualifications of the physiotherapists and (6) prepare assignments on the above topics. These objectives are achieved through visits, questionnaires and discussions.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
MUSCULOSKLETAL SYSTEM	PT-MSK-128	2 / Longitudinal	6

the structural and functional details on bones, muscles, nerves and joints, physiology of excitable tissues, processes of muscle contraction, disruption in continuity of bone and methods or restoration of bone function, complications of bone fractures, calcium metabolism, bone infections, inflammation and degeneration in joints, bone and muscle tumors, living anatomy or bony landmarks of musculoskeletal system, examination skills of musculoskeletal system, musculoskeletal pain, and essential drugs used in musculoskeletal disorders, road traffic accidents and their impact on individual, family and community (outline).

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
BIOSTATISTICS	ME-STAT-117	2/Longitudinal	2

A Longitudinal course basic statistics as applied to health, to include: introduction to statistics, probe abilities, data summary, presentation; measurement of central tendency; interpretation of variation (dispersion), population means, normal distribution; confidence interval, frequency distribution, sampling techniques, calculation and interpretation of the concept of confidence interval, the concept of p-value and its interpretation, the normal and skewed frequency distribution of biomedical data, and apply the appropriate test of significance for a given data set and a given research methodology (using t test as an example).

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
CARDIOVASCULAR & RESPIRATORY SYSTEMS	PT-CVRS-213	3 / Block 6 weeks	5

This is a six-week block in Semester 3, to include both the respiratory and cardiovascular systems, mainly: (1) describing the anatomy of the thoracic cage, muscles, diaphragm, upper and lower Respiratory tract (including nasal cavity, larynx, trachea, bronchial tree, lungs, pleura), mediastinum, mechanism of respiration, as well as the anatomy, histology and development of the heart and vessels (2) physiological and biochemical bases of normal lung functions and volumes, gas exchange in lung and tissues, gas transfer, heart functions, cardiac muscle physiology, electrical activity, normal ECG tracing, cardiac cycle, cardiac output, regulation of BP, (3) pathological and microbiological aspects.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
NERVOUS SYSTEM AND SPECIAL SENSES	PT-NEURO-218	3 / Block 5 weeks	5

This is a 5-weeks course that covers the basic and clinical sciences of the nervous system including the special senses, all integrated with the necessary skills, around common problems. The content detailed in the comprehensive objectives below includes the anatomy of the central nervous system, peripheral and cranial nerves and plexuses, autonomic nervous system, their histological and devils potential features, their junctions, common problems, methods of examining the systems, diagnosis, management and prevention

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
CLINICAL AND SPORT MASSAGE	PT-MASS- 223	3/ Longitudinal	2

The aim of this course is to introduce the theoretical and practical knowledge of different massage elements, their indications, contraindications, and the physiological, psychological and emotional effects of professional sympathy. The students study massage in sports, in injury prevention and in clinical setting relieving symptoms in pathological conditions.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PHYSICAL EDUCATION PRINCIPLES	PT-PEPR-227	3/ Longitudinal	2

This course is a study of basic theories and therapeutic application of exercise. Emphasis is given to the principles of therapeutic exercise, the appropriate use of related equipment, definition of physical education & physical fitness, risks of sedentary life style, and exercise prescription.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
KINESIOLOGY AND BIOMECHANICS	PT-KINS-224	3 / Longitudinal	2

This Longitudinal course provides the student with quantitative and qualitative analysis of human movement in relation to mechanical effects. It includes both anatomical and mechanical issues integrated. The student should: (1) show awareness of the literature in the area of biomechanics, and a preliminary ability to interpret and evaluate selected research in this area, (2) discuss the morphology and functions of muscles and muscle groups in the human body, (3) describe the biomechanical principles of human motor performance, and (4) enumerate and identify the instruments used in study of biomechanics.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PROFESSIONAL SKILLS-1,2,&3	PT-SKIL-211, 221, 311	3, 4, &5 / Longitudinal	2+2+2

This course will introduce the student to the theoretical and practical principles and concepts for a standard assessment and evaluation of a person's motor function. The students will learn how to approach a patient, take a case history and do a basic assessment. They will learn how to evaluate the findings of the assessment and how to put goals based on it. They will learn how to make a functional diagnosis according to ICF. The course also introduces Basic Biomechanics of the Musculoskeletal System. It also emphasizes oral communication skills to health professionals, including physiotherapists for greater personal and professional confidence, in community physiotherapy service management or owners and managers of such setups. It consists of small study groups presenting real life situations and role play. It includes communication skills and physiotherapy laboratory skills. Those are the skills necessary for equipping and running a physical therapy laboratory.

## Semester 4



<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PRINCIPLES OF DISEASE	ME-DIS-212	4 / Block 5 weeks	5

Pathology is considered the basis of disease. This block on Principles of Disease is, therefore, a vital one since its main objective is to provide students with sufficient knowledge of basic concepts of pathology and microbiology with some inputs from molecular biology and pharmacology. The need for this block is to precede the integrated blocks on 'systems' is therefore quite obvious. Basic concepts of processes like infections, inflammations and neoplasia which cause most of the morbidity and mortality in the world are introduced in the block to prepare the ground for the more in depth study of the various organ systems of the body. This is a five-week block on general pathology and microbiology to include: (1) general histology, (2) morphology, classification, staining reactions, and pathogenicity of bacteria, viruses, fungi, (3) sterilization and disinfection, (4) basic concepts in immunity, (5) principles of inheritance, introduction to molecular biology, and genetic defects underlying inherited disorders. (6) General pathology of inflammation, neoplasia and abnormal cell growth, (7) parasites and parasitic diseases, (8) anti microbial and anti-parasitic drugs.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
POUTURE AND POSTURE EDUCATION	PT-POST-228	4 / Longitudinal	2

In this 2CHs Longitudinal course the student will learn about the physique of man who has been created in a best form, and learn the negative effects of the environments, and his behavior on it, and how to handle this in its correction.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
GYMNASTICS	PT-GYM-316	4 / Longitudinal	2

The aim of this course is to provide students with theoretical knowledge and practical skills for teaching and practicing gymnastics, studying the main elements of gymnastics, enhancing special physical preparation level, studying the terminology for describing exercises and developing the skills of anticipating injury and outline the methods of management including suggestions on preventions and changes in the details of the sport itself.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
ERGONOMICS	PT-ERGO-226	4 / Longitudinal	2

This is a Longitudinal course Subject that introduces students to the study of designing objects to better adapted to the shape of the human body and/or to correct human posture, through the use of scientific information. This may be mainly related in seating in work chairs and desks and car seats, but it involves the design of objects, systems and environment for human use, including sports and leisure, and utilizes many disciplines like anatomy, physiology, orthopedics, psychology and design. The final product details and fitness for target user is one of the major objectives of this course.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
THERAPEUTIC EXERCISES	PT-EXER-225	4 / Longitudinal	3

## 204 UNDERGRADUATE & GRADUATE PROSPECTUS

National University - Sudan

This Longitudinal course consists of the wide variety of therapeutic exercises to assist patients regaining function after injury or disease. The student should apply systematic implementation of planned physical movements, posture and activities to: (1) prevent impairment, (2) enhance function, (3) enhance fitness and well-being, The student should acquire the skills necessary to develop exercise programmed that not only address pain and current disability, but protect vulnerable system or region and prevent anticipated sequelae of the injury or disease process.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
BIOCHEMISTRY & PHYSIOLOGY OF EXERCISE	PT-BIOCHME-222	4 / Longitudinal	2

The aim of this course is to introduce the alterations which take place in the human body in response of exercise and the benefits or contraindications of exercise. Such aspects include muscle blood flow, systemic circulatory changes and heart disease, temperature regulation and training, a general outline of bioenergetics and the role of ATP. It may include the biochemical and hematological values and causes of their change.

**Semester 5**

Title	Code	Semester/Duration	Credits
COMMUNITY MEDICINE & PUBLIC HEALTH	PT-COM-312	5 / Block 2 weeks	2

This two-week-clerkship provides students with elements of community physiotherapy service. The student should: (1) enumerate the types of domiciliary services for adults with physical health difficulties, (2) coordinate with fellow students, physiotherapists and other professionals (particularly the general practitioner) offering home or hospital care for the patient, (3) assist in treatment required for physical difficulties, mobility, pain and chest problems, (4) enumerate conditions that may be managed as outpatients, (5) show understanding, and ability to execute, mobilization techniques and operate relevant apparatuses, (6) show understanding of specific exercise therapy and electrotherapy, and use them.

Title	Code	Semester/Duration	Credits
SPORT INJURIES AND THERAPY	PT-SPORT-314	5 / Longitudinal	2

The aim of this course is to handle the basics of recreational and professional sports and its applications and training methods in different sport events. It surveys the organization of both types of sports considering gender and age aspects, including the biological basis of recreation, programmed for weight regulation, types of injuries resulting from all and the suitable stationary and ambulatory therapy services. It included also the specialty-related knowledge in sports medicine at large. It may also include safety precautions and organization of recreation in training camps.

Title	Code	Semester/Duration	Credits
ORTHOPEDIC PHYSIOTHERAPY	PT-ORTHO-326	5 / Longitudinal	4

The aim of this course is to review the theoretical basic scientific knowledge and provide practical skills on musculoskeletal physiotherapy. During the course students see a large number of cases and attend clinical assessments of patients needing physical therapy, see and discuss the choice of physical modality and monitor the effect of management on the patient. The student will have a textbook to assure completion of certain tasks, fulfillment of specific objectives on practical skills.

Title	Code	Semester/Duration	Credits
REHABILITATION	PT-REHAB- 317	5/ Longitudinal	2

This is Longitudinal course that cares for methods of restoration of body function through physiotherapy. It includes: (1) considering function during treatment, (2) constructing after care schedule of checks, (3) teaching of appropriate behaviour that restores shape and action, (4) utilization of community physiotherapy service.

Title	Code	Semester/Duration	Credits
ELECTROTHERY & PT EQUIPMENT	PT-EQUIP-315	5/ Longitudinal	4

The aim of this course is to expand on the various modalities presenting equipments used the terminology and manufacturers of major units and the cost effective methods used for equip- ping stationary and ambulatory private service clinics in hospitals, recreational sport facilities, professional sport halls, hospitals, primary health care units and homes.

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### Semester 6

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PHYSIOTHERAPY FOR INTENSIVE CARE PATIENTS	PT-ICU- 324	6/ Longitudinal	2

This is a long-clerkship caring for patients in the ICU for any reason. Such patients remain for some time, usually with limited movements and activities, and connected to a system of tubes and equipments. The student should: (1) enumerate the conditions in the ICU, (2) the consequences of being in an ICU for a long time in each of these conditions, (3) the physical management that suits each case and helps in healing of the original ailment and future resto- ration of unction, (4) the team work and coordination with other health professional working on the patient in the ICU, and (5) the specific methods in physiotherapy used in each case where tube and equipments are connected to the patient.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
NEUROLOGICAL PHYSIOTHERAPY	PT-NEURO- 322	6 / Longitudinal	4

The aim of this clerkship is to give a survey of possibilities for treatment and rehabilitation of pa- tients with neurological diseases, and survey the possibilities of applying physiotherapy methods in cases of peripheral and central nervous diseases. The student spends most of the time in neu- rological and neurosurgical wards, classifying problems that require management and aftercare policy. These include: headache, monoplegia, hemiplegic, quadriplegia, peripheral nerve injury, spondylitis, backache, parkinsonism, ataxias, etc.

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<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PEDIATRIC PHYSIOTHERAPY	PT-PED- 323	6/ Longitudinal	4

The aim of this course is to strengthen theoretical background and offer practical skills on physiotherapeutic management of sensory and motor deficits, developmental disorders and functional limitations occurring with diseases in infancy and childhood. These conditions include cerebral palsy, neuromuscular diseases, juvenile chronic arthritis, bronchial asthma. It requires also giving first aid in critical situations of seizures, fever and acute attack of bronchial asthma and bronchiectasis.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
BASIC PHARMACOLOGY	PT-PHARMA-318	6 / Longitudinal	3

In this 2CHS longitudinal course the students will learn some of the most important basic pharmacological facts needed for studying and understanding the nature and the resources of the commonly used drugs, their preparation and their dosage forms, which are used to treat the common diseases. It introduces the student to the basic facts related to the nature of drug, the interaction between living organization and drugs, mode of effect, dosage action, interactions, direct effects, side effects and precautions to avoid the hazards of their work with them.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PHYSIOTHERAPY IN CARDIORESPIRATORY CLINIC	PT-CVRS -325	6/ Longitudinal	4

The aim of this course is to introduce theoretical and practical knowledge on internal diseases in the chest that require physiotherapeutic intervention, and that respond to such treatment or to any other means of rehabilitation in cardiorespiratory diseases and the CCU problems, chest problems particularly bronchiectasis, pneumonia, bronchial drainage, respiration training, chest pain, and post-traumatic pain.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
GERIATRIC CARE	PT-GER- 321	6 / Longitudinal	2

The aim of this course is to introduce specific skills in geriatric medicine related to physical therapy, and to handle the relations between physical activity and age, including the dynamics of changes in human organism with age and age-related characteristics, features and capabilities, and the adaptations a physiotherapist has to make in his/her understanding of problems and the methods and techniques used in management and rehabilitation.

## Semester 7

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
HYDROTHERAPY AND SPA TRAINING	PT-HYDRO-415	7 / Longitudinal	2

The use of water for treatment has been known for more than five thousand years in the old Egyptians, Greece and Roman civilization. As an alternative system of healing, hydrotherapy is the oldest, safest and cheapest method of treatment. It is easy to use in all forms as vapor, liquid or solid. It markedly relieves pain, reduces swelling, inflammation and treats a variety of ailments.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
RESEARCH METHODOLOGY	PT-RESE-418	7/ block - 2 Weeks	2

This is a two-week block, which focuses on the synthesis of professional knowledge, skills, and attitudes in preparation for professional employment and lifelong learning. Students are trained to perform small research projects in one of the physiotherapy topics that enable them to collect data, review literature, obtain results and discuss their findings in the form of presentations. The student should: (1) describe research methodology listing elements of research, (2) collect up to date information on a particular topic, using proper sampling techniques (3) execute a small research project and analyze obtained data, (4) discuss the significance of the results obtained and research conclusions, and (5) write down a research paper, and (6) present his findings in front of the class and discuss it with his colleagues and staff.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
OPHTHALMOLOGY AND PT TRAINING	PT-OPTAL-413	7 / block - 2 weeks	2

In this course the student should learn the movement of the eye ball ( muscles and nerves) and physiology of extra ocular muscles.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
HEALTH ECONOMICS AND HOSPITAL MANAGEMENT	PT-HM-411	7/ block - 2 weeks	2

This two-week clerkship addresses the increasing role of health economics in international decision making in health systems worldwide. The student should: (1) define health economics, (2) describe the econometric methods of research, (3) discuss microeconomics for decision-making and policy analysis in health, (4) describe clinical decision analysis, (5) basics of administering a physiotherapy unit.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PROSTHEICS AND ORTHOYICS	PT-ORTH-417	7 / block - 4 weeks	4

The political instability in a number of African countries led to local disputes and wars. Sudan is one of these countries suffering war for more than 50ys. During these wars millions of mines had been buried mainly in the lands where civilians move and many of them became victims to those mines and lost their limbs, mainly the lower extremities.

In addition to this Sudan is a mycetoma - Madura region, which affect many people (peasants & farmers) ending up with amputation of the affected limb. On the other hand, complications of certain diseases such as diabetes mellitus, osteomyelitis, arterial insufficiency in the lower limbs, and the much rising the road traffic accidents, may all lead to the loss of the lower limbs. All these patients ending with amputated limbs will require substitute with artificial ones. And this in turn, requires comprehensive physiotherapy rehabilitation.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PHYSIOTHERAPY AND IMAGING	PT-RAD-416	7 / block - 2 weeks	2

The practice of physiotherapy requires a good experience in reading radiological images and using the findings to plan management and follow up for the patients. This course explores the basic principles of radiological imaging.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
ENT PHYSIOTHERAPY	PT-ENT-414	7 / block - 2 weeks	2

The treatment of hearing impairments, deafness and the dumb, mainly in childhood, has witnessed great advances with the development of ENT surgical technologies, and cochlear implantation. This surgery has to be followed by a precise speech therapy programme guided by a well-trained speech therapist or a physiotherapy technologist.

Also, there is a number of ENT problems associated with defects in speech and articulation problems caused by neurological diseases that needs treatment intervention by the physiotherapy technologist.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
GENERAL PT LAB AND ELECTROTHERAPY	PT-LAB-412	7 / Longitudinal	4

In this course, the students will work supervised in a physiotherapy department to learn the practical methods for managing the department and provide physiotherapeutic services to patients.

### Semester 8

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
PRIMARY HEALTH CARE	PT-PHC- 421	8/ Block 2 weeks	2

This four-week clerkship, two hours per week during Semester 7, that introduces the student to the front line of medical care where the patient presents for the first time. The student should: (1) show understanding of the healthcare system, (2) describe the range of primary health care services, (3) enumerate the conditions requiring physical therapy at the level of the health centre, (4) list the facilities for physical therapy that should be available at the PHC.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
CASE WORK UP AND PRESENTATION	PT-CASE-423	8 / Longitudinal	4

This course is a review for genuine cases which commonly present to physiotherapy clinics.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
TRAINING IN PT LAB AND PRESENTATION	PT-ET-422	8 / Longitudinal	4

This course is an approach to electrotherapy from a practical perspective. It takes the basic information about electrotherapy and applies it to practical scenarios encountered by physiotherapists on a daily basis.

<i>Title</i>	<i>Code</i>	<i>Semester/Duration</i>	<i>Credits</i>
GRADUATION PROJECT	PT-GRAD-424	8 / Longitudinal	3

A topic relevant to physiotherapy practice, selected through student-supervisor consultation, and submitted at the end of the semester.

### NOTE:

THE DIPLOMA PROGRAMME IS SIMILAR TO THE BACHELOR 'S EXCEPT THAT THE THEORETICAL PHASE 2 COURSES ARE REDUCED TO ONE SEMESTER, AND THE REST OF THE PERIOD IS THE CLERKSHIP WHICH INCLUDES MORE PRACTICAL SKILL TRAINING (SEE DETAILED OBJECTIVES OF THE COURSES).