**Bayero University, Kano**

**College of Health Science**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**Proposed 30% addition to the CCMAS Course Structure /Summary**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **100 LEVEL** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| BUK-MTH 101 | Mathematics for Health Sciences | 3 | C | 45 | - |
| BUK-MTH 102 | Elementary Mathematics II | 2 | C | 30 |  |
| BUK-COS 101 | Introduction to Computer Science | 3 | C | 30 | 45 |
| **TOTAL** | | **8** |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **200 LEVEL** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| BUK-PIO 201 | Gastrointestinal tract and Renal Physiology | 2 | C | 30 | - |
| BUK-PIO 202 | Endocrinology & Reproductive Physiology | 2 | C | 30 | - |
| BUK-ANA 201 | Histology | 2 | C | 30 | - |
| BUK-ANA 202 | Embryology | 2 | C | 30 | - |
| BUK-BCH 201 | Nutrition, Bioenergetics and Enzymology | 2 | C | 30 | - |
|  | **TOTAL** | **10** |  |  |  |

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| --- | --- | --- | --- | --- | --- |
| **300 LEVEL** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| BUK-PST 301 | Introduction to Medical Sociology | 2 | C | 30 | - |
| BUK-PST 302 | General Nursing Procedures | 2 | C | 30 | - |
| **TOTAL** | | **4** |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **400 LEVEL** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| BUK-PST 401 | Synopsis of Medical Rehabilitation | 2 | C | 30 | - |
| BUK-PST 402 | General Principles of Pharmacology | 2 | C | 30 | - |
| BUK-PST 403 | Pathology | 2 | C | 30 | - |
| BUK-PST 404 | Diagnostic Tests in Musculoskeletal Physiotherapy | 2 | C | 15 | 45 |
| BUK-PST 405 | Evidence-Based Practice and Clinical Decision Making | 2 | C | 30 | - |
| BUK-PST 406 | Neurological Assessments and Differential Diagnosis | 2 | C | 15 | 45 |
| BUK-GST 401 | Character Building, Professionalism and Team Work in Healthcare. | 2 | C | 15 | - |
|  | **TOTAL** | **14** |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **500 LEVEL** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| BUK-PST 501 | Physiotherapy in Arthropathies | 2 | C | 30 | - |
| BUK-PST 502 | Neurophysiological Basis of Therapeutic Exercises | 2 | C | 30 | - |
| BUK- PST 503 | Physiotherapy in Health Promotion | 2 | C | 30 | - |
| BUK-PST 504 | Health Informatics in Rehabilitation | 2 | C | 15 | 45 |
| BUK-PST 505 | Physiotherapy in Neuromedical and Neurogenetic Conditions | 2 | C | 30 | - |
| BUK-PST 506 | Systemic Pharmacology | 2 | C | 30 | - |
| **TOTAL** | | **12** |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **600 LEVEL** | | | | | |
| **Course Code** | **Course Title** | **Unit** | **Status** | **LH** | **PH** |
| BUK-PST 601 | Physiotherapy in Neurosurgical and Neuropsychiatric Conditions | 2 | C | 30 | - |
| BUK-PST 602 | Assistive Technologies in Rehabilitation | 2 | C | 15 | 45 |
| BUK-PST 603 | Physiotherapy in Cardiovascular Disorders | 2 | C | 30 | - |
| BUK- PST 604 | Knowledge Translation in Medical Rehabilitation and Ethics | 2 | C | 30 | - |
| BUK-PST 605 | Intensive Care Physiotherapy | 2 | C | 15 | 45 |
| BUK-PST 606 | Physical Diagnosis and Medical Imaging | 2 | C | 30 | - |
| **TOTAL** | | **12** |  |  |  |
| **GRAND TOTAL** | | **60** |  |  |  |

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-MTH 101 Elementary Mathematics for Health Sciences (3 Units, Core, LH 45)**

**Senate approved relevance**

Training of well-skilled graduates that can apply the knowledge gained in Elementary mathematics for generating and presenting data, analyzing problems involving integration, differentiation using different methods and evaluate simple biostatical problems in other related courses. This is consistent with the university's vision and mission of providing leadership in research and education in Africa which is intended to develop graduates who are effective communicators, critical thinkers, and skilled at integrating evidence into practice.

**Overview**

The course examines the elementary set theory, subsets, union, intersection, complements, venn diagram, real numbers and integers. This course will cover rational and irrational numbers, real sequences, series, and theory of quadratic equations, binomial theorem, circular measures, and trigonometric functions of angles of any magnitude.

Students will learn how to evaluate quadratic equations and trigonometric functions,analyse problems involving rational and irrational numbers, Real sequences and solve mathematical problems in other related courses. Additionally, students will learn how to solve simple biostatical problems in other related courses. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives:**

The objectives of the course are to:

1. Identify and solve problems involving Set, Subset, Union, Intersection, Complements and use of Venn diagrams
2. Solve Quadratic equations and trigonometric functions
3. Solve problems in trigonometry involving angles of any magnitude
4. Analyze problems involving rational and irrational numbers, Real sequences and series
5. Solve Binomial theorem and circular measure
6. Solve mathematical problems in other related courses.

**Learning Outcomes**

On completion of the course, students should be able to:

1. Identify and solve at least five (5) problems involving Set, Subset, Union, Intersection, Complements and use of Venn diagrams
2. Solve at least five (5) Quadratic equations and trigonometric functions
3. Solve at least five (5) problems in trigonometry involving angles of any magnitude
4. Analyze and solve at least five (5) problems involving rational and irrational numbers, Real sequences and series
5. Solve at least two (2) problems in Binomial theorem and circular measure
6. Solve at least five (5) mathematical problems in other related courses.

**Course contents**

Elementary set theory. Subsets Union Intersection and Complements. Venn diagram. Real numbers. Integers. Rational numbers. Irrational numbers. Mathematical Induction. Sequences and series. Theory of quadratic equations. Binomial theorem. Complex numbers. Algebra of complex numbers. The Argand Diagram. De-Moivre’s theorem. nth roots of unity. Circular measure. Trigonometric functions of angles of any magnitude. Trigonometric formulae.

**Minimum academic Standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-MTH 101: Elementary Mathematics II (2 Units C: LH 30)**

**Senate approved relevance**

Training of well-skilled graduates that can apply the knowledge gained in Elementary mathematics for generating and presenting data, analyzing problems involving integration, differentiation using different methods and evaluate simple biostatical problems in other related courses. This is consistent with the university's vision and mission of providing leadership in research and education in Africa which is intended to develop graduates who are effective communicators, critical thinkers, and skilled at integrating evidence into practice.

**Overview**

The course examines the elementary set theory, subsets, union, intersection, complements, venn diagram, real numbers and integers. This course will cover rational and irrational numbers, real sequences, series, and theory of quadratic equations, binomial theorem, circular measures, and trigonometric functions of angles of any magnitude.

Students will learn how to evaluate quadratic equations and trigonometric functions,analyse problems involving rational and irrational numbers, Real sequences and solve mathematical problems in other related courses. Additionally, students will learn how to solve simple biostatical problems in other related courses. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:

1. Solve different types of types of rules in Differentiation
2. Solve different types of types of rules in integration
3. Introduce the meaning of Function of a real variable, graphs, limits and continuity.
4. solve some applications of definite integrals in areas
5. Identify some applications of definite integrals in volumes

**Learning Outcomes**

At the end of the course students should be able to:

1. Describe at least three (3) rules in Differentiation;
2. Identify at least three (3) rules in Integration
3. Explain the meaning of Function of a real variable, graphs, limits and continuity.
4. Solve at least five (5) problems involving integrals in areas and volumes.
5. Identify at least three (3) areas of translational applications of definite integrals in volumes

**Course contents**

Introduction to Calculus. Function of a real variable. Function of graph. Limits of continuity. Idea of continuity. The derivative as limit of rate of change. Techniques of differentiation. Extreme curve sketching. Integration as an inverse of differentiation. Methods of integration. Definite integrals. Application to areas. Application to volumes. Differential equation. Differential operator. Newtons method. Taylor theorem. Inverse function and differentiation.

**Minimum academic Standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-COS 101: Introduction to Computing Sciences (3 Units C: LH 30; PH 45)**

**Senate approved relevance**

Training of well-skilled graduates that can apply the knowledge gained in computer sciences for generating and presenting data, analyzing problems. This is consistent with the university's vision and mission of providing leadership in research and education in Africa which is intended to develop graduates who are effective communicators, critical thinkers, and skilled at integrating evidence into practice.

**Overview**

The course describes application of computer in general sciences. This includes the use of computers for basic research, browsing of the internet, education/learning, research, simulation, accessing libraries, soft wares, statistical packages and spreadsheets.

This course will provide overview and comprehensive understanding of computer application in sciences in general with the aim of enhancing learning and offering efficient computer experience. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:

1. State the basic components of computers and other computing devices;

2. Describe the various applications of computers;

3. Explain information processing and its roles in the society;

4. Describe the Internet, its various applications and its impact;

5. Explain the different areas of the computing discipline and its specializations; and

6. Demonstrate practical skills on using computers and the internet.

**Learning Outcomes**

At the end of the course, students should be able to:

1. Mention at least ten (10) basic components of computers and other computing devices;

2. Describe at least ten (10) applications of computers;

3. Explain information processing and describe at least four (4) of its roles in the society.

4. Describe the Internet and explain least ten (10) of its applications

5. Explain at least five (5) areas of the computing discipline and its specializations

6. Demonstrate practical skills on using computers and the internet.

**Course content**

Brief history of computing. Description of the basic components of a computer/computing device. Input/Output devices and peripherals. Hardware, software and human ware. Diverse and growing computer/digital applications. Information processing and its roles in society. The Internet, its applications and its impact on the world today. The different areas/programs of the computing discipline. The job specializations for computing professionals. The future of computing.

**Lab Work:** Practical demonstration of the basic parts of a computer. Illustration of different operating systems of different computing devices including desktops, laptops, tablets, smart boards and smart phones. Demonstration of commonly used applications such as word processors, spreadsheets, presentation software and graphics. Illustration of input and output devices including printers, scanners, projectors and smartboards. Practical demonstration of the Internet and its various applications. Illustration of browsers and search engines. How to access online materials.

**Minimum academic Standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PIO 201** **Gastrointestinal Tract and Renal Physiology** **(2 Units, status C, LH 30)**

**Senate approved relevance**

Training of highly qualified graduates that can apply the knowledge gained in providing excellent physiotherapy care to patients, and are capable of handling chronic non communicable diseases and acute complications such as autonomic dysreflexia triggered by constipation, bowel impaction or appendicitis; peptic ulcer aggravating back pain and exercise-induced gastrointestinal distress and also the impact of the renal function as it relates to physical impairment. This in-line with the mission of Bayero University Kano of addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Understanding gastrointestinal problems in the patients receiving physiotherapy care is of utmost important. The essence is for students to understand the physiology behind exercise-induced gastrointestinal distress. To understand gastrointestinal disorders triggering abrupt uncontrolled life-threatening increase in blood pressure (autonomic dysreflexia) in patients with spinal cord injury who are undergoing rehabilitation and to appreciate that low back pain in some patients may not be purely a musculoskeletal issue but could be referred from peptic ulcer or stomach cancers.

Students are to understand impact of psychological eating disorder such anorexia and bulimia nervosa on patient receiving physiotherapy care. The objectives of the course, learning outcomes, and contents are provided to address this need.

**Objectives**

The objectives of the course are to:

1. Describe the structure and functions of the Gastrointestinal Tract
2. State blood supply, neural and humoral control of the Gastrointestinal Tract functions
3. Describe blood redistribution to Gastrointestinal Tract during exercise and Exercise-induced gastrointestinal distress
4. Explain the Physiology of Gastrointestinal disorders such as Appendicitis, Diarrhea, constipation and peptic ulcer and their complications
5. Describe the control of sensations of satiation, hunger and thirst and appetite
6. Describe psychological eating disorders such as anorexia and bulimia nervosa
7. Discuss the functions of the kidneys
8. Explain the functional unit of the kidney, regional differences, cortical and juxtamedullary nephrons
9. Discuss the physiology of urine formation and mechanism of urine concentration counter current mechanism

**Learning Outcomes**

At the end of this course students should be able to:

1. Describe the structure and explain at least ten (10) functions of the Gastrointestinal Tract
2. State at least five (5) sources of blood supply, neural and humoral control of the Gastrointestinal Tract
3. Describe at least three (3) mechanisms of blood redistribution to Gastrointestinal Tract during exercise and Exercise-induced gastrointestinal distress
4. Explain the Physiology of Gastrointestinal disorders such as Appendicitis, Diarrhea, constipation and peptic ulcer and identify at least three (3) of their complications
5. Describe at least three (3) mechanisms for the control of sensations of satiation, hunger and thirst and appetite
6. Describe at least three (3) psychological eating disorders including anorexia and bulimia nervosa
7. Explain at least six (6) relevant structures of the kidney such as renal cortex, renal medulla, medullary pyramids, renal artery, renal vein and ureter; the nephron
8. Describe at least five (5) functions of the kidney including Excretion of Metabolic wastes, Regulation of water, electrolyte balances; regulation of body fluid osmolality and electrolyte concentrations. Regulation of acid base balance, Regulation of arterial blood pressure.
9. State the renal handling of at least five (5) substrates including K+, Na+, Fe, vitamins, carbohydrates, proteins and lipids
10. Explain the physiology of urine formation and mechanism of urine concentration counter current mechanism

**Course contents**

Introduction to the Gastrointestinal Tract and its Functions. Methods of studying the functions and structure of the Gastrointestinal Tract Layers. Neural and Humoral control, Autonomic innervation of the Gastrointestinal Tract. Sympathetic and parasympathetic Gastro-intestinal reflexes and blood supply to the GIT. Blood redistribution during exercise. Exercise-induced gastrointestinal distress. Functional types of movements in the Gastrointestinal Tract, Propulsive and mixing. Hormonal control of Gastrointestinal Tract Motility. The oral Cavity, Mastication. Salivary glands. Functions of Saliva, Salivary reflexes. Inhibition of salivary secretion. Physio-anatomical consideration of Mixing and propulsion of food in the stomach. Regulation of gastric motility. Gastric Secretion: Composition, properties and functions of gastric juice. Effects of Nutrient types on gastric secretion. Regulation of gastric secretion Stomach (gastric) emptying. Vomiting and major causes. Diarrhea and major causes. Composition, properties and functions of pancreatic juice. Defecation: Control of colonic and rectal motility-myogenic and neural control Physiology of absorption: Mechanism of absorption. Absorption in the mouth. Stomach small and large intestines (Note: absorption of CHO, proteins, fats, water, Na+,K+,P+Cl,HCO3 etc). Control of Sensations of satiation, hunger and thirst; appetite. Physiology of Gastrointestinal disorders: Appendicitis, constipation cancerous tumors peptic ulcer Jaundice. Eating disorders such as anorexia and bulimia nervosa. Renals: The Kidneys. Functions of the kidneys. Excretion of Metabolic wastes, products and foreign chemicals. Regulation of water and electrolyte balances. Regulation of body fluid osmolality and electrolyte concentrations. Regulation of acid-base balance, regulation of arterial blood pressure. Secretion, metabolism and excretion of hormones Gluconeogenesis. The functional unit of the kidney-Nephron, Regional Differences in Nephron structure: cortical and juxtamedullary Nephrons. Physiology of Urine formation: Mechanism of urine concentration counter-current.

**Minimum academic standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PIO 202 Endocrinology and Reproductive Physiology (2 Units, status Core, LH 30)**

**Senate approved relevance**

Training of highly qualified graduates and thoroughbred clinicians who are capable of providing excellent and evidence-based physiotherapy service to clients and patients with chronic non communicable diseases through clinical application of the knowledge gained of the connections between endocrine and reproductive system. This in-line with the mission of Bayero University Kano of addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

This course delves into the fascinating ways in which hormones influence the body's development and function. Initial lectures describe the nature of different hormones and how they exert their actions. Subsequent lectures explore how hormones regulate body functions including growth and reproduction, thyroid and metabolism, calcium and bones, nutrition, and salt/fluid balance. Clinical examples from both health and disease as well as evolutionary and historical perspectives are used liberally to illustrate points.

We also explore how this physiology can be used to understand and treat diverse medical disorders such as diabetes, infertility, abnormal sexual differentiation and puberty, and osteoporosis. This course also discusses the role of hormones in regulating reproduction in mammals, with an emphasis in humans. Topics to be covered include: 1) sexual differentiation of the brain, 2) spermatogenesis and oogenesis, 3) pregnancy, parturition, and lactation, and 4) fertility and sexually transmitted diseases. Background in anatomy and physiology is recommended. Also, students are to learn about the role of structured aerobic exercise in the control of body weight and hyperglycemia in type 2 diabetes. They also learn how to handle stroke survivors who have comorbid diabetes and hypertension.

### **Objectives of the Course**

The objectives of the course are to:

1. Discuss the hypothalamic factors that control the secretion of each of the anterior pituitary hormones and their association with the anterior pituitary;
2. State the anterior pituitary hormones, their synthesis and relationships
3. Explain the posterior pituitary lobes (cell types, vascular supply and anatomic functions)
4. Discuss the stages in biosynthesis, storage and secretion of T3 and T4 and their regulation
5. Explain the role of parathyroid hormone secretion
6. State the hormonal influence of the pancreas, cells, origin, chemical and physiological actions
7. Explain the hormones secreted from each zone of the adrenal glands
8. Explain the role and uses of glucocorticoids
9. Discuss mineralocorticoids and state their biological actions and target organs or tissues
10. Explain catecholamines
11. Explain the mechanisms for developmental changes in the male and female reproductive systems
12. Identify the physiological functions of the major components of the male reproductive tract
13. Explain the synthesis, transport, metabolism and elimination of testosterone.
14. Discuss the roles of FSH, LH, estradiol, and inhibin in oogenesis and follicular maturation;
15. Discuss the cellular mechanisms of oestrogen and their actions
16. Discuss the cellular mechanisms of progesterone and other progestins;
17. Discuss the development and physiological functions of the placenta
18. Explain the neuroendocrine regulation of milk secretion and milk ejection
19. Explain the physiological justification of the steroid hormone contraception

### **Learning Outcomes**

On completion of the course, the students should be able to:

1. List at least five (5) hypothalamic factors that control the secretion of each of the anterior pituitary hormones and describe their route of transport from the hypothalamus to the anterior pituitary;
2. List the three (3) major families of the anterior pituitary hormones and their biosynthetic and structural relationships;
3. Describe the posterior pituitary lobes with respect to at least three (3) of the following: cell types, vascular supply, development, and anatomical function relative to the hypothalamus.
4. Identify at least three (3) of the steps in the biosynthesis, storage, and secretion of tri-iodothyronine (T3) and thyroxine (T4) and their regulation;
5. Describe the regulation of parathyroid hormone secretion and the role of the calcium sensing receptor.
6. Identify five (5) major hormones secreted from the endocrine pancreas, their cells of origin, chemical nature and physiological actions.
7. List one (1) medullary and three (3) cortical zones, innervation, blood supply, principal hormones secreted from each zone of the adrenal glands
8. Identify the 5 major physiological actions and therapeutic uses of glucocorticoids;
9. List at least four (4) major mineralocorticoids and identify their biological actions and target organs or tissues
10. Identify the chemical nature of catecholamines, their biosynthesis, mechanism of transport within the blood, and how they are degraded and removed from the body.
11. Describe at least five (5) developmental changes in the male and female reproductive systems, including the mechanisms responsible for these changes, during in utero development, and in childhood through puberty
12. List at least three (3) physiological functions of the major components of the male reproductive tract
13. Discuss the biosynthesis, mechanism of transport within the blood, metabolism and elimination of testosterone and related androgens;
14. List at least three (3) causes and consequences of over-secretion and under-secretion of testosterone for a) prepubertal and b) postpubescent males;
15. Explain at least three (3) roles of FSH, LH, estradiol, and inhibin in oogenesis and follicular maturation;
16. List at least three (3) actions and cellular mechanisms of estrogens;
17. List at least three (3) actions and cellular mechanisms of progesterone and other progestins;
18. Describe the development and explain at least five (5) major physiological functions of the placenta;
19. Discuss the three (3) mechanisms for neuroendocrine regulation of milk secretion and milk ejection;
20. Explain at least three (3) physiological mechanisms of steroid hormone contraception.

### **Course Content**

### Nature of hypothamo-hypophyseal relationship. Synthesis, storage and release of the neurohypophyseal and adenohypophyseal hormones. Functions of the hypothalamus to include regulation of body temperature, thirst appetite and food intake. Regulation of adenophypophyseal function and higher autonomic control. Functions and control of the secretions of the pituitary, thyroid, parathyroid, pancreas and adrenal glands. Abnormalities of endocrine functions. Normal integration in the control of calcium and glucose metabolism. Reproduction: Fertilization. Structures of ectodermal, mesodermal and endodermal origins and embryogenesis of different organs. Medical genetics. Physiologic anatomy of male reproductive system. Spermatogenesis. Male sexual act-nervous coordination. Male sexual hormones. Cryptochidism. Physiological anatomy of the female reproductive system. The female sex hormones. Oestrous and menstrual cycles. Physiology of pregnancy, parturition and lactation. Pregnancy tests. Contraception and physiological basis of infertility.

### **Minimum Academic Standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-ANA 201 Histology (Unit 2, Status Core, LH 30)**

**Senate approved relevance**

Training of highly qualified graduates that can appropriately apply the knowledge gained of the basic histology of cells and tissues as essential guides to effective management of patients with different disease conditions that are amenable to physiotherapy care. This is in line with mission of Bayero University Kano of addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Understanding the basic histology cells and tissues and more specifically the histology of connective tissues, blood, bone, muscles and nervous tissue are very important to the field of physiotherapy.

The essence is to ensure that students are able to understand the clinical implication of some heamatological, neurological, musculoskeletal and oncological diseases and to effectively evaluate and manage such cases as part of multidisciplinary health team. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

**The objectives of the course are to:**

1. Describe the various histological and cytological techniques for observation of living tissues and cell.
2. Describe the epithelium, structural features, specialization and classification
3. State Structural (microscopic) Features of blood cells in health and disease, Function of Blood-formed elements, blood cell formation, Destruction of blood cells.
4. Describe Cartilage Types, Classification, Chemistry, Regeneration, Regressive change in Cartilage and Histophysiology
5. Describe Bone classification, Chemistry, development and remodeling after injury e.t.c.
6. Explain structure of the muscle tissue types (structural and smooth), Molecular basis of Muscular contraction, Histogenesis and regeneration of muscular Tissues.
7. Describe the nervous tissue – structure, types and distribution. Peripheral nerve endings, Neuroglia and synapse.

**Learning Outcomes**

At the end of this course students should be able to:

1. Describe at least five (5) histological and cytological techniques for observation of living tissues and cell.
2. Describe the epithelium and explain at least five (5) structural features, specialization and classification
3. State at least five (5) structural (microscopic) Features of blood cells in health and disease, Function of Blood-formed elements, blood cell formation, Destruction of blood cells.
4. Describe at least five (5) Types Cartilages, and explain their Chemistry, Regeneration, Regressive change and Histophysiology
5. Describe at least five (5) Bone types, chemistry, development and remodeling after injury etc.
6. Explain structure of the two (2) muscle tissue types (structural and smooth), Molecular basis of Muscular contraction, Histogenesis and regeneration of muscular Tissues.
7. Describe the nervous tissue in at least three (3) of these major areas – structure, types and distribution. Peripheral nerve endings, Neuroglia and synapse.

**Course contents**

Methods of Histology and Cytology, direct observation of living tissues and cell. Examination of killed tissue. Differential centrifugation. Histochemical Methods, Principles of Microscopic Analysis X-ray Diffraction. The cell-nucleus, cytoplasmic organelles, cell membrane chemical composition of protoplasm, macromolecules etc. Cell Division-Mitosis, Meiosis, Factors affecting cell division. Abnormal cell division in selected genetic disorders. Epithelium-Classification, Structural Features, Specialization. Histology of Blood tissue: Function Blood-formed elements of blood, blood cell formation, Destruction of blood cells. The bone marrow, connective tissue proper – extracellular, components, cellular elements chemistry, functions classification, histological features histogenesis and histophysiology etc. Cartilage-Types, Classification, Chemistry, Regeneration, Regressive change in Cartilage, Histophysiology etc. The Bone classification, Chemistry, development and remodeling after injury etc. Muscular Tissue, Types of muscle, Chemistry. Molecular basis of Muscular contraction. Histogenesis and regeneration of muscular Tissues. The Nervous Tissue. The nervous – structure, types and distribution. Peripheral nerves. Neuroglia. Synapse. Development of Nervous system.

**Minimum academic standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-ANA 202 Embryology (Unit 2, Status Core, LH 30)**

**Senate approved relevance**

Training of highly qualified graduates and competent practitioners with adequate knowledge and hands-on skills to provide evidence based and excellent pediatric physiotherapeutic services. This in-line with the mission of Bayero University Kano of addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

This course introduces students to understand both congenital and acquired abnormalities in children that can be traced to events that occurred in the prenatal (embryonic and fetal life) perinatal and post-natal periods which are very relevant to pediatric physiotherapy specialty.

Understanding neural tube defects (myelomeningocele, meningocele), hydrocephalus and Arnold Chiari II malformations, congenital talipes equinovarus deformity, cerebral palsy, intrauterine growth restriction and microcephaly etc. from embryology perspective is relevant to pediatric physiotherapy practice. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

**The objectives of the course are to:**

1. Explain spermatogenesis and spermatogenic cycles before and at puberty
2. Describe the menstrual cycle, oogenesis and ovulation, fertilization and Implantation and formation of embryo from the zygote
3. Describe errors of fertilizations and neural tube defect
4. Explain the role of cleavage and gastrulation in foetal development
5. Explain different congenital disorders, malformations and their causes

**Learning Outcomes**

At the end of this course students should be able to:

1. Explain spermatogenesis and spermatogenic cycles before and at puberty
2. Describe conception in at least five (5) areas beginning with menstrual cycle, oogenesis and ovulation, fertilization and Implantation and formation of embryo from the zygote.
3. Describe at least five (5) Errors of fertilizations and neural tube defect
4. Explain at least five (5) roles of cleavage and gastrulation in foetal development
5. Explain at least five (5) different congenital disorders, malformations and their causes

**Contents**

Oogenesis and Ovulation – Mitotic changes in Oocytes, formation and function of the Zona pellucida. Follicular growth, pre-ovulatory menstruation, ovulation free of Follicle post-ovulation Atresia. Spermatogenesis and the spermatozoa. Testis before and at Puberty seminiferous epithelium. The spermatozoa, spermatogenic cycles and time rotations in spermatogenesis, Cycles and seasons- puberty. Oestrous and menstrual cycles, Ovulation, Pseudopregnancy and pregnancy. Delays of reproduction, Fertilization – Egg and sperm transport, Capacitation. Acrosome reaction and sperm penetration, immediate response to sperm penetration prenuclear development and syngamy. Errors of fertilization and neural tube defect. Fertilization in vitro, pre-Embryonic Period-Cleavage, Embryonic cell differentiation, Embryogenesis- Differentiation of the embryonic area formation of primary axial structure, Differentiation of the intraembryonic mesoderm. Germ layers and derivatives. Development of the Nervous System. Early development of the Alimentary canal, the face, separation of the Nose and Mouth, Differentiation of Mid-gut and Hind-gut Foetal membranes, Implantation and formation of placenta at birth. Blood Vascular-System: Development of blood corpuscles, formation of primitive blood vessel. Congenital malformations.

**Minimum academic standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-BCH 204 Nutrition, Bioenergetics and Enzymology (Unit 2, Status Core, LH 30)**

**Senate approved relevance**

Training of highly qualified graduates with adequate theoretical knowledge and clinical skills to offer evidence-based physiotherapy services to clients and patients in various health care settings, rehabilitation centers and sporting centers in line with global best practices. This is in line with mission of Bayero University Kano of addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

This course introduces students to understand nutritional requirements of both the apparently healthy and patients with various heath conations and across different age categories. It is of utmost importance for students to know the appropriate nutritional requirements necessary to facilitate weight reduction in overweight and obese individuals who are undergoing supervised structured physical exercise.

This course also introduces students to understand the appropriate nutritional requirement to facilitate maximal gain in musculoskeletal adaptation to exercise such as muscles strength, muscle endurance, power, flexibility and cardiorespiratory endurance. The objectives of the course, learning outcomes, and contents are provided to address this need:

**The objectives of the course are to:**

1. Describe nutritive value of different foods (CHO, LIPIDs, proteins, vitamins, etc.) and the practical assessment of nutritional status of persons
2. Explain disease conditions that are related to poor nutrition and recommend appropriate diet
3. Describe changes in nutrition requirement in relation physical activity, aging and weight control
4. Describe energy production from substrates via glycolysis, Kreb’s cycle and electron transport chain, gluconeogenesis, glucogenolysis, oxidative deamination and transamination
5. Explain enzyme classification, nomenclature and how temperature influences enzyme-calalysed reactions and biochemical basis of hormone action and state properties of enzymes, co-enzymes and cofactors

**Learning Outcomes**

At the end of the course, students should be able to:

1. Describe nutritive value of at least five (5) different foods including CHO, LIPIDs, proteins, vitamins, etc. and the practical assessment of nutritional status of persons
2. Describe at least five (5) disease conditions that are related to poor nutrition and recommend appropriate diet
3. Explain at least five (5) changes in nutrition requirement in relation physical activity, aging and weight control
4. Describe at least four (5) pathways of energy production from substrates such as glycolysis, Kreb’s cycle and electron transport chain, gluconeogenesis, glycogenolysis, oxidative deamination and transamination.
5. Describe at least three (3) types of enzymes, their nomenclature and how temperature influences enzyme-catalyzed reactions and biochemical basis of hormone action and state properties of enzymes, co-enzymes and cofactors

**Contents**

Nutritive value of foods: carbohydrates, lipids, proteins, vitamins, minerals and water. Nutrition status and nutritional requirements. Malnutrition biochemical definition and causes. Recommended dietary allowances. Assessment of nutritional status. General reaction of carbohydrates and estimation of serum lipids, determination of serum ascorbic acid. Serum uric acid sources and normal serum values and clinical implication of abnormal values. Nutritional disorders: causes, prevention and therapy. Diet and diseases Nutrition in relation to physical activity and ageing. Importance of nutrition. Calorimetry. Energy requirements with reference to age and sex. Thermogenesis, Specific dynamic action. Balance diet across different age groups and role of fibers in diet. Nitrogen balance and its significance. Protein energy malnutrition (Kwashiorkor & Marasmus). High energy compounds in foods. Substrate level phosphorylation. Glycolysis, tricarboxylic acid cycle gluconeogenesis, glycogenolysis, oxidative deamination and transamination. Electron transport chain and oxidative phosphorylation and hexose monophosphate shunt. Enzymes classification and nomenclature. Effects of temperature and pH on enzyme catalyzed reactions Introduction to enzyme inhibition. Intracellular localization of enzymes. Properties of enzymes. Enzyme kinetic and inhibition; Co-enzymes and cofactors. Membranes and transport glycogen synthesis and breakdown. Oxidative deamination and transamination. Urea cycle and disorders. Degradation of amino acid. Syntheses of fatty acids, oxidation of fatty acids. Protein biosynthesis and regulation. Cholesterol: chemistry, synthesis and breakdown. Biochemical basis of hormone action. Drug metabolism. Mineral metabolism and role of calcium formation.

**Minimum academic standards**

A minimum lecture hall capacity for 50 students with a projector and availability of the wireless network

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 301: Introduction to Medical Sociology (2 units, Status Core, LH 30)**

**Senate – approved relevance**

Training graduates with appropriate knowledge and skills to identify medical sociology concepts, social change and the changing social values in the society and how it affects an individual undergoing rehabilitation in order to promote social participation among patient receiving physiotherapy care. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates which is intended to develop graduates who are effective communicators, critical thinkers, and skilled at integrating evidence into practice.

**Overview**

The course examines medical sociology concepts. The course will provide an overview on social organsation, social change and the changing pattern in the society and how it affects the individual. The course will be taught by experts in the field, incorporating the latest research and data to provide students with a comprehensive understanding of the social aspects of care in promoting participation ICF frame work of the world health organization.

Formal organization and Hospital organization. It will also provide students with the skills and knowledge to analyse the impact of culture on the conception of health and illness and the effects of urbanization and social welfare in a medical setting. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives:**

**The objectives of the course are to:**

1. Identify Medical sociology concepts
2. Explain social organization, social change and the changing patterns in the society and how it affects an individual
3. Discuss the effects of urbanization and social welfare in a medical setting
4. Analyse the impact of culture on the conception of health and illness
5. Evaluate the differences between social institution, Formal organization and Hospital organisation

**Learning Outcomes**

At The end of this course the students should be able to:

1. Describe at least five (5) Medical sociology concepts
2. Describe social organization, social change the changing patterns in the society and how it affects an individual
3. Describe at least five (5) effects of urbanization and social welfare in a medical setting
4. Describe at least five (5) Impact of culture on the conception of health and illness
5. Describe at least five (5) differences between social institution, Formal organization and Hospital organization

**Course Contents**

Definition of sociology and medical sociology. Importance of sociology in medicine. The sick role. The sociological perspectives. Functionalist perspective. Conflict perspective. Symbolic interactionism. Social organization. Social change. Changing patterns of society. The loss of community (Ferninard Tonnies). Social participation based on ICF concept of WHO. Urbanization and its consequences. Social welfare. Culture. Material and non-material culture. Elements of culture. Symbols, languages, values, beliefs and norms. Taboos. Impact of culture on the conception of health and illness. Complex social organization. Social institution. Formal organizations. The hospital organization.

**Minimum academic standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 302: General Nursing Procedures (2 units, Status Core, LH 30)**

**Senate approved relevance**

Training of highly skilled physiotherapy graduates who have gained some knowledge from other related health fields, importantly the knowledge on basic procedures and practice of nursing care in order to provide excellent and evidence-based care to patients. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates which is intended to develop graduates that can demonstrate excellence in diagnosis, intervention, consultation, teaching and administration; and are effective at working with patients across the lifespan and the continuum of care.

**Overview**

The course examines some of the basic nursing procedures and practice. The course will provide an overview of the general nursing practice as it relates adequate understanding of current and changing medical status patients receiving Physiotherapy, especially nursing documentations and practices.

It will provide students with a comprehensive understanding of the need for team work in the rehabilitation of patients. The course also aims to expose students to simple and basic nursing practices in the hospital environment. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives:**

**The objectives of the course are to:**

1. Explain basic procedures of nursing care and practice
2. Discuss assessment of vital signs in a patient
3. Evaluate general skin care, prevention of bed sores, wound dressing and bandaging
4. Describe nursing procedures in the management of surgical patient’s, those with disability and those on ventilator
5. Demonstrate basic lifting techniques and bed making procedures
6. Describe the various routes for administration of medication and injection.

**Learning Outcomes**

At the end of this course the students should be able to:

1. Describe at least five (5) nursing care procedures
2. Explain at least five (5) vital signs and their Assessments in a patient
3. Explain at least five (5) procedures for general skin care, prevention of bed sores, wound dressing and bandaging
4. Describe at least five (5) nursing procedures in the management of surgical patient’s, those with disability and those on ventilator
5. Identify at least three (3) basic lifting techniques and bed making procedures
6. Demonstrate ability to administer of medication through at least three (3) different routes

**Course Contents**

Nursing Charts. Vital signs. Temperature. Pulse rate. Respiration. Blood Pressure. Bed making. Prevention of bedsores. General skin care. Sterile dressing/bandaging. Nursing procedures in the management of surgical patients. Nursing procedures in the management of patients on artificial respirator. Care for patients with disability. Care for patients with amputation. Care for patients with fracture. Nursing care for burns injury. Lifting techniques of patients. Intramuscular/ intravenous Injection. Chemotherapy/Medication procedure on the wards. Nurse-Therapist relationship. Practical/Clinical Sessions.

**Minimum academic Standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 401: Synopsis of Medical Rehabilitation (2 units, Status Core, LH 30)**

**Senate approved relevance**

Training of skillful physiotherapy graduates who understand their professional boundaries and can play a significant role in the delivery of standardized healthcare services, either alone or as a team member, to promote the health and wellbeing of the people of Kano and Nigeria at large. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Synopsis of medical rehabilitation is a foundational course that introduce students to the medical rehabilitation profession. History of medical rehabilitation as it relates to the past and the ever-changing landscape of health care delivery that is currently obtainable, as well as the competencies of physiotherapists across the world

The course will also ensure transfer of knowledge on the scope of practice, regulatory bodies, professional associations, and roles of members of the medical rehabilitation team are discussed to enable the students to comprehend the roles and responsibilities of the medical rehabilitation professionals.

**Learning objectives of the course are to:**

1. Describe the concept of medical rehabilitation and its role in healthcare team
2. Analyze and link various treatment interventions utilized by medical rehabilitation professionals
3. Describe the roles of the members of the medical rehabilitation team
4. Describe the roles and responsibilities of world confederation of physiotherapy
5. Explain the roles and responsibilities of physiotherapy professional association
6. Delineate the roles of regulatory bodies from national associations

**Learning Outcomes**

On completion of the course, student should be able to:

1. Explain at least three (3) concepts of medical rehabilitation and their role in healthcare team
2. Describe at least Ten (10) treatment interventions utilized by medical rehabilitation professionals
3. Explain the roles of at least seven (7) members of the medical rehabilitation team
4. Describe at least two (2) local physiotherapy professional associations in Nigeria
5. State at least five (5) responsibilities of world confederation of physiotherapy and international physiotherapy professional associations
6. State Physiotherapy professional regulatory bodies

**Course contents**

The topics in this course include: Definition of medical rehabilitation including sub-disciplines such as physiotherapy, occupational therapy, speech therapy, prosthetics and orthotics, etc. The concept of medical rehabilitation its role within the health team and in dealing with illness. The rehabilitation cycles. Identification of the other members of the rehabilitation team - speech therapist, occupational therapist, prosthetist and orthotist, chiropractors and the mode of interaction between them and the physiotherapists. Roles and responsibilities of the members of the medical rehabilitation teams. Aims and methods of treatment utilized by medical rehabilitation professionals. Theoretical perspectives and models for practice. Criteria for professionalism. Conceptualization, philosophy, and scope of Physiotherapy. Historical development – abroad and in Nigeria including major contributors (Margaret Knott, Basmajian, Bertha Bobath, Maitland, Robin McKenzie etc). Competencies of a physiotherapists. Treatment theories and frameworks in physiotherapy practice. Physiotherapy professional bodies – World Physiotherapy (WPT), APTA, CSP, CPA, Nigeria Society of Physiotherapy. Registration/Licensing bodies – MRTB (Nigeria), HPC (UK), Canadian Alliance of Physiotherapy Regulators (Canada), etc. Professional responsibilities to NSP & MRTB. Roles of physiotherapy in healthcare- promotion, preservation (including prevention of complications) & restoration of physical function. Ethical principles in healthcare. Codes of ethics of physiotherapy professional bodies.

**Minimum academic Standards**

As contained in the NUC MAS in addition to a functioning gymnasium for practical session.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 402: General Principles of Pharmacology (2 units; Status Core; LH 30)**

**Senate approved relevance**

To equip physiotherapy graduates with up-to-date knowledge of various therapeutic interventions, including therapeutic drugs, to produce competent physiotherapists that will contribute to the specialized healthcare workforce in Kano and Nigeria at large. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Pharmacology is the study of substances that interact with living systems through chemical processes. Pharmacology is also important for health sciences students in view of its detailed knowledge transfer even at molecular levels. It aims to teach the mechanism involved in the binding of drugs to regulatory molecules which leads to either activating or inhibiting normal body processes.

This course will equip physiotherapy graduate with the requisite knowledge needed to understand how therapeutic chemical substances influence human functioning in the presence or absence of pathological process. Students are to understand the impact of some medications to outcomes of physiotherapy care.

**Learning objectives of the course are to:**

1. Describe the basic principles of pharmacology
2. Analyze the influence food-drug interaction and drug-drug on physical activity and performance
3. Delineate the effects of physical agents and therapeutic drugs
4. Describe the skills necessary for prescription of therapeutic drugs
5. State the effects of therapeutic drugs on various systems of the body
6. Describe the indication, contraindication, mechanism of action, and side effects of therapeutic drugs for various diseases and disorders

**Learning Outcomes**

On completion of the course, student should be able to:

1. Explain the basic principles of pharmacology
2. Describe at least five (5) drug mechanisms of interactions, absorption, metabolism, and toxicity
3. Explain at least five (5) potential interaction between physical agents and therapeutic drugs
4. Describe at least ten (10) drugs classes and chemicals including their properties, mechanisms and interactions
5. Describe drugs affecting at least ten (7) systems of the body
6. Explain various drugs for at least twenty (20) various disorders

**Course contents**

Introduction to pharmacology. General principles of pharmacology. Pharmacodynamics. Pharmacokinetics. Pharmacogenomics. Routes of drug administration including topical administration. Drug distribution in the tissues. Drug elimination. Drug absorption. Time course of drug action/half-life. Drug toxicity and mechanisms of detoxification. Drug metabolism. Induction inhibition and interactions. Species, age and gender variations in drug metabolism. Drug Receptors. Drug resistance. Drug dependence and allergies. Teratogenesis, mutagenesis and carcinogenesis.

**Minimum academic Standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 403: Pathology (2 units, Status Core, LH 30)**

**Senate approved relevance**

Train physiotherapy graduates equipped with a comprehensive knowledge of effects of pathologic processes on the individual’s functional abilities and limitations, to provide effective rehabilitative services to healthcare users in Kano and Nigeria at large. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Pathology investigates the essential nature of disease, especially changes in body cells, tissues, and organs that are caused by a disease condition. The study of pathology of diseases is important for students to understand the bases of how pathological conditions evolve, with a view to proffering adequate intervention strategies.

This course examines the pathogenesis of diseases and condition, that is, the progression of each pathologic process on both its cellular level and clinical presentation whenever signs and symptoms are manifested. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Learning objectives of the course are to:**

1. Describe the basic pathological concepts
2. Describe healing in different tissue types
3. Describe pathological basis of conditions affecting the body systems
4. Explore and analyze pathological processes in relation to the movement system
5. Describe the role of physiotherapy in modulating pathological process

**Learning Outcomes**

On completion of the course, student should be able to:

1. Describe at least five (5) basic pathological concepts
2. State at least five (5) healing processes in different types of tissues
3. Describe the pathological basis of at least ten (10) conditions affecting the body systems
4. State at least five (5) systemic pathological processes in relation to the movement system
5. Explain at least five (5) roles of physiotherapy in modulating pathological process

**Course contents**

Concepts of health, illness, and disability. Introduction to pathological concepts. Injury, inflammation, healing and repair. Immune system and autoimmune diseases (changes in circulation, anemia and hyperemia. Oedema formation and drainage of tissue fluids, mechanisms of development of oedema. Thrombosis, embolism and infarcts. Atrophy, hypertrophy and hyperplasia. Neoplasia and tumours, neurosis. Oncology. Osteoporosis, bone and joints diseases, skin and muscle tissues diseases. Pathology of diseases of the central nervous system. Pathology of diseases of the cardiovascular system. Pathology of diseases of the respiratory system; Pathology of diseases of the musculoskeletal system. Pathology of diseases of the endocrine and metabolic system. Pathology of diseases of the integumentary system. Pathology of diseases of the hematologic system. Pathology of diseases of the lymphatic system. Pathology of diseases of the gastrointestinal system. Pathology of diseases of the renal and urologic system. Infectious disease. Transplantation. Role of physiotherapy in the moderation of pathologies.

**Minimum academic Standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 404: Diagnostic Tests in Musculoskeletal Physiotherapy (2 units, Status Core, LH 15, PH 45)**

**Senate approved relevance**

Equip physiotherapy graduates with necessary skills and competencies needed to properly diagnose musculoskeletal conditions. Students will acquire up-to-date practical diagnostic skills to examine, evaluate, and identify anomalies that can be manage using therapeutic procedures. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Diagnostic tests in musculoskeletal physiotherapy involves the use of special tests and procedures to examine, evaluate, and identify pathological processes within the musculoskeletal system. Diagnostic tests are required for future physiotherapy professionals to adequately assess patients to arrive at a definite diagnosis.

This course will enable physiotherapy graduates to acquire the requisite skills and competencies needed to make a justifiable clinical decision about a musculoskeletal injury, condition, or pathology. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Learning objectives of the course are to:**

1. Describe Examination and evaluation methods for musculoskeletal diseases and disorders
2. Describe diagnosis of various disorders of the musculoskeletal system
3. Describe skills needed to carry out physical tests in musculoskeletal physiotherapy
4. Differentiate between various musculoskeletal conditions, diseases, and disorders
5. Analyze various musculoskeletal conditions, diseases, and injuries for referral to other healthcare professionals

**Learning Outcomes**

On completion of the course, student should be able to:

1. Describe at least five (5) procedures of evaluation of musculoskeletal conditions, diseases, and disorders
2. Explain the diagnosis of at least ten (10) disorders of musculoskeletal system
3. Demonstrate ability to carry out at least five (5) physical tests in musculoskeletal physiotherapy
4. Differentiate between various musculoskeletal conditions, diseases, and disorders
5. Analyze at least five (5) musculoskeletal conditions, diseases, and injuries for referral to other healthcare professionals.

**Course contents**

Principles of physiotherapy evaluation of the patient with musculoskeletal conditions. The comprehension of procedures and techniques related to the evaluation of current and potential musculoskeletal conditions. Brachial tension test. Distraction test. Vertebral artery test. Supine iliac compression test. Straight leg raise test (Laseque's test). Slump test (Sitting root test). Anterior apprehension test. Posterior apprehension test. Varus stress test, Valgus stress test. Tinel's sign, Ortolani's sign Barlow's test. Hamstring length test. Phalen's test. Lachman's test. Anterior drawer sign test, posterior drawer sign test. McMurray's test. Appley's (grinding) test.

**Minimum academic Standards**

As contained in the NUC MAS in addition to a functioning gymnasium with standard chairs, couches and rehabilitation mats

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 405: Evidence-Based Practice and Clinical Decision making (2 units, Status Core, LH 30)**

**Senate approved relevance**

Train competent physiotherapists equipped with state-of-the-art knowledge and skill needed to render evidence-based care to healthcare users in Kano and beyond. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Evidence-based physiotherapy is designed to empower physiotherapy graduates to develop essential skills for conducting evidence-based care based on (1) clinical practice experience, (2) patient’s preferences, values and goals, and (3) available evidence from the research literature.

This course will also enable students to learn the requisite skills for combining sources of evidence into effective and efficient physical therapy service. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

**The Objective of the course are to:**

1. Define the concept of Evidence Based Practice
2. Formulate answerable clinical questions
3. Develop essential skills for conducting evidence-based practice
4. Describe competencies needed to combine sources of evidence into effective and efficient physical therapy
5. Explain clinical reasoning in practical form from class room knowledge
6. Demonstrate case-based problem-solving strategies
7. Describe clinical reasoning needed to arrive at an appropriate clinical decision

**Learning Outcomes**

At The end of this course the students should be able to:

1. Describe the concept of Evidence Based Practice
2. Demonstrate ability to formulate at least five (5) answerable clinical questions
3. Explain at least five (5) essential skills needed for conducting evidence-based practice
4. Describe the at least three (3) areas of competencies required to combine sources of evidence into effective and efficient physical therapy
5. Explain at least five (5) applications of clinical reasoning in practical form from class room knowledge
6. Describe at least five (5) case-based problem-solving strategies
7. Explain at least three (3) clinical reasoning methods to arrive at an appropriate clinical decision

**Course contents**

Formulation of answerable clinical questions. Search relevant research literature. Analyze the validity of the outcomes reported in these studies. Search literature addressing clinical issues of intervention. Literature addressing clinical issues of diagnosis. Literature addressing clinical issues of prognosis. Theories of clinical reasoning and clinical decision making. Application of Theories of clinical reasoning and clinical decision making to individuals in clinical settings. Identification of key elements of a case, relating relevant information from class discussion. Application of clinical reasoning skills for optimal client outcomes. Case-based problem solving that synthesize biomechanical principles. Case-based problem solving that synthesize physiological principles. Case-based problem solving that synthesize musculoskeletal principles. Case-based problem solving that synthesize cardiopulmonary principles. Case-based problem solving that synthesize motor control/learning principles.

**Minimum academic Standards**

A minimum Lecture Hall capacity of 50 students, with a projector and availability of the wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 406: Neurological Assessments and Differential Diagnosis (2 units, Status Core; LH 15, PH 15)**

**Senate approved relevance**

Equip physiotherapy graduates with necessary skills and competencies needed to properly diagnose neurological conditions. Students will acquire up-to-date practical diagnostic skills to examine, evaluate, and identify neurological anomalies that can be manage using therapeutic procedures. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Neurological assessments and differential diagnosis involve the use of special tests and procedures to examine, evaluate, and identify pathological processes of the neurological system. Neurological assessments are important for physiotherapy graduates to adequately identify the exact treatment required and the prognosis of a particular patient.

This course will enable physiotherapy graduates to acquire the requisite skills and competencies needed to make a justifiable clinical decision about a neurological injury, condition, or pathology. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

**The objectives of the course are to:**

1. Describe objective examination of neurological disorders and clinical syndromes
2. Describe subjective evaluation of neurological disorders and clinical syndromes
3. Explain the diagnosis of various disorders of neurologic origin
4. Demonstrate various neurological assessments and tests
5. Explain differences between various neurological conditions, diseases, and disorders
6. Analyze various neurological conditions, diseases, and injuries for referral to other healthcare professionals

**Learning Outcomes**

On completion of the course, student should be able to:

1. Describe at least five (5) objective physical examination procedures of neurological disorders and clinical syndromes
2. Describe at least five (5) major subjective factors indicating the likely presence of neurological disorders and clinical syndromes
3. Explain at least five (3) major criteria for diagnosis of various disorders of neurologic origin
4. Demonstrate at least seven (7) neurological assessments and tests
5. Explain differences between at least five (5) neurological conditions, diseases, and disorders
6. Analyze at least five (5) neurological conditions, diseases, and injuries for referral to other healthcare professionals

**Course contents**

Speed of onset, pattern of progression and mental status. Clinical syndromes such as paraplegia, quadriplegia. tabes dorsalis, syringomyelia, spinal cord tumors and associated clinical features. Differentiation of central and peripheral paresis, assessment. Reflex Testing. Cranial and peripheral nerve testing. Testing. Cranial and peripheral nerve pathologies. Nerve Tension testing. Pain and its assessment and management. The pain gait theory. Phantom pain. Musculoskeletal pain. Neuropathic pain. Reflex sympathetic dystrophy. causalgia nerve pain. Assessments of sensory impairments. Assessments of motor impairments. Assessments of motor gait impairments. Assessments of balance impairments. Assessments of postural impairments. Assessments of coordination impairments. Assessments of cognitive impairments. Functional assessments.

**Minimum academic Standards**

As contained in the NUC MAS in addition to a well-functioning gymnasium equipped with standard chairs, couches, rehabilitation mats, Frenkels mat and reflex hammer.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-GST 401: Character Building, Professionalism and Team Work in Healthcare. (2 units, Status Core, LH 30)**

**Senate approved relevance**

This course is designed in line with the vision and mission of the Bayero University, Kano to produce graduates that are highly qualified with excellent knowledge and high proficiency in skills capable of delivering excellent, respectful, empathic and culturally attuned healthcare services to society devoid of exploitation. The character, professional outlook as well as the work ethics of the graduates would be sharpened by the course to achieve this goal.

This course would further strengthen the graduates to work as a team in the health sector to achieve the desired objectives. It should encourage individual members’ professional development through appropriate mentorship and character building. The course will discourage the development of the barrage of emerging 21st century societal vices inclusive of, but not limited to drug and substance abuse. In essence the course would entrench the humane and professional aspects of the graduates as they serve the society equipped with knowledge and skills consistent with the vision and mission of the Bayero University, Kano.

**Overview**

A major life expectation of the graduates from this programme is the deployment of their services to a variety of clients including students, colleagues and vulnerable groups in the Nigerian milieu and beyond. Graduates of this programme, working with others, would also be expected to research into, propose, design and implement programmes, working with others, would research into, propose, design and implement policies and legislations in many areas of need to enhance better societal outcomes in health and education.

Accordingly, this course would prepare graduates from this programme to deploy their expertise in knowledge, skills, professionalism and work ethics in a culturally accepted manner, in the various services they offer to a variety of clients in healthcare, academia and other fields of endeavor. The students would be exposed to nature of successful team work, appropriate leadership styles, mentorship and character-building skills and ways of refraining from societal vices such as drug and substance abuse.

**Objectives**

**The objectives of the course are to:**

1. Describe various types of leadership styles applicable in clinical and academic settings.
2. Describe various skills of mentoring in clinical and academic settings.
3. Enumerate the characteristics of a successful team in achieving team objectives.
4. Describe roles professionalism in various fields of health professional endeavor.
5. Describe the principles and practice of psychology in health care settings.
6. Describe the principles of effective communication for general public patients and healthcare team.
7. Discuss the essentials of successful character building for various personality traits.
8. Describe the general principles of ethics in medicine and health care research.
9. Explain risk factors and preventive strategies for substance abuse.

**Learning Outcomes**

At the end of this course the students should be able to:

1. Identify at least three (3) common types of leadership styles with 2 merits and demerits of each.
2. Discuss any two (2) theories of leadership that could be applied in healthcare.
3. Identify at least three (3) mentoring skills needed by all healthcare professionals.
4. Enumerate four (4) attributes of a successful team.
5. Mention five (5) circumstances where professionalism is required to meet client needs and expectations.
6. Discuss human behaviour and its application in health counselling and enumerate four (4) character traits each for three (3) personality types.
7. To demonstrate effective communication skills in dealing with the clients, and the general public.
8. Mention four (4) ethical challenges and 4 appropriate ethical principles to address them in a clinical practice.
9. Enumerate four (4) preventive strategies to address 3 forms of drug abuse and to conduct counselling sessions.

**Course contents**

Concept of leadership and meaning of leaders. Theories, principles and styles of leadership. Methods of developing team wisdom. Team work as a personal skill. Creating powerful partnership in mentoring. Mentoring and mentoring skills: Stages of formal mentoring relationships. Introduction to professionalism in healthcare practice. Communication and interpersonal skills. Introduction to general psychology and medical psychology. Counselling psychology in applied psychology. Definition, principles and application of effective communication skills in healthcare settings. The principles of Character Building and types personality traits. Philosophical concepts of Character Building. Code of ethics and principles for various health professions. Case scenarios in health care and their ethical implications. Introduction to psychoactive substances and their clinical manifestations. Cultural perspectives and management strategies in psychoactive substance abuse.

**Minimum academic Standards**

As contained in the NUC MAS in addition to a projector and flip chart.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 501 Physiotherapy in Arthropathies (2 units, Status Core, LH 30)**

**Senate approved relevance**

Training graduates with appropriate knowledge and skills on various forms of arthritis, their pathological basis and how they are managed. This is conformity with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The course aims to describe various form of arthropathies with the aim of exposing the students to all aspects of joint diseases and other connective tissue disorders. This has become necessary in view of increasing prevalence and the associated morbidity of these disorders worldwide.

This course will provide overview and comprehensive understanding of various forms of the arthropathies based on definition, etiology, epidemiology, examination, management with emphasis in physiotherapy management. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Describe and classify different types arthropathies including aetiolofy and risk factors
2. Describe exacerbative and palliative factors of different forms of arthropathies
3. Explain the epidemiology of various forms of arthropathies
4. Explain how to conduct examination and assessment of different forms of arthropathies
5. Explain the management of various forms of arthropathies

**Learning Outcomes**

At the end of this course, the students should be able to:

1. Describe at least five (5) forms of arthropathies, including aetiology and risk facotors
2. Describe at least five (5) exacerbative and palliative factors of different forms of arthropathies
3. Explain the epidemiology of at least five (5) forms of arthropathies
4. Physically examine and provide diagnosis of at least five (5) forms of arthropathies
5. Provide evidence-based physiotherapy management at least five (5) forms of arthropathies

**Course Contents**

Introduction to Rheumatology. Seropositive arthritis. Lab tests. Rheumatoid arthritis (RA), immunopathology of RA, common clinical manifestations, disease course, general; assessment differential diagnosis, Seronegative arthritis. Ankylosing spondylitis. Osteoarthritis and related disorders. Metabolically arthritis. Gout arthritis. Infectious arthritis. Septic arthritis specific joints, hip, knee, shoulder. Tuberculous arthritics (hip and spine). Myositis ossificans traumatica. Connective tissue diseases. Systemic lupus erythematosus. All conditions must be treated adequately on the basis of the definition, etiology, epidemiology, examination, management with emphasis in physiotherapy management. Interpretations of radiological finding. Interpretation of results of LAB tests.

**Minimum academic standards**

A minimum lecture hall capacity for 50 students with multimedia projector with wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 502 Neurophysiological Basis of Therapeutic Exercise (2 units, Status Core, LH 30)**

**Senate approved relevance**

Training graduates with appropriate knowledge and skills on human motor control, neurophysiological basis of movement and exercise, neuroplasticity and neurodynamics as well as various forms of neurorehabilitation treatment approaches. This is conformity with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The course describes various interactions in the neuromuscular system of the body to produce movement, it describes human motor control, neurodynamic and neuroplasticity. It also describes form of neurorehabilitation approaches.

This course will provide overview and comprehensive understanding of various approaches in the management and rehabilitation of various neurological disorders. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Describe motor control, motor learning and task-oriented training
2. Explain the neurophysiological basis of movement and exercises
3. Explain the interaction between various body segments and body systems to produce movement
4. Describe the neurophysiological treatment approaches in rehabilitation of various neurological conditions
5. Explain the motor learning treatment approaches in rehabilitation of various neurological conditions
6. Describe the neurophysiological treatment approaches in rehabilitation of various neurological conditions

**Learning Outcomes**

At The end of this course the students should be able to:

1. Describe at least three (3) theories of motor control and motor learning and task-oriented training
2. Explain the neurophysiological basis of least three (3) movement and exercise based therapies
3. Explain the interaction between least five (5) body segments and body systems to produce movement
4. Describe the neurophysiological treatment approaches in rehabilitation of least seven (7) neurological conditions
5. Explain least three (3) motor learning treatment approaches in rehabilitation of various neurological conditions
6. Describe least three (3) current and emerging treatment approaches in rehabilitation of various neurological conditions.

**Course Contents**

Motor control. Introduction to motor learning. Interaction of sensory, motor, cognitive and balance systems in producing and controlling movement. Introduction to neuroplasticity. Neurodynamics. Basis and application of approaches in neurorehabilitation such as neurophysiologic approaches, motor learning approaches and current emerging neurophysiologic-based therapy approaches. Rooths sensorimotor approach. Principles of neurodevelopmental therapy (NDT) or Bobath. Carr and Shepherd motor relearning techniques. Sensory integration therapy.Proprioceptive neuromuscular facilitation (PNF). Constraint induced movement therapy (CIMT), task-oriented training. virtual reality. motor imagery. Biofeedback approaches. Gait trainings. Strength training. Aerobic exercise etc.

**Minimum academic standards**

A minimum lecture hall capacity for 50 students with multimedia projector with wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 503 Physiotherapy in Health Promotion and disease prevention (2 units, Status Core, LH 30)**

**Senate approved relevance**

Training graduates with appropriate knowledge and skills on effect of physical and activity and exercise on various body systems, benefits and hazards of exercise in diseases, concept, theory, practice, models, and approaches of health promotion. This is conformity with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The course describes effects of physical activity and exercise on various body systems. it describes the benefit of exercise in prevention of various disease conditions, it describes hazard of exercise. The course is also aimed at providing information and knowhow of how to approach health promotion for different categories of individuals.

This course will provide overview and comprehensive understanding of concept, theory, practice, models, and approaches of health promotion. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Describe physical activity and exercise
2. Explain about benefit of exercise and disease prevention
3. Describe theory and practice of health promotion
4. Explain different types of health promotion models
5. Describe Health behavior theories and ergogenic aids

**Learning Outcomes**

At The end of this course the students should be able to:

1. Describe least five (5) forms physical activity and exercise
2. Explain least ten (10) benefit exercise in disease prevention
3. Describe least three (3) theories and practice of health promotion
4. Explain least five (5) types of health promotion models
5. Describe least five (5) Health behavior theories and ergogenic aids

**Course Contents**

Physical activity and exercise: definition, types (isotonic, isometric and isokinetic). Effects of exercise on different body systems especially on the cardiopulmonary, musculoskeletal, endocrine and nervous systems. Forms of exercise (walking, jogging, running, the use of treadmill and bicycle ergometer). Merits and demerits of treadmill and bicycle ergometer exercises. Exercise dosage: intensity (use of VO2max and HRR), duration, frequency and mode. Computation of VO2max (direct and indirect methods). Target HR and target VO2. Physical fitness and its components. Bioenergetics: carbohydrate, fat and protein metabolism. Exercise for improvement of cardiopulmonary endurance in healthy individuals. Benefits and hazards of exercise in diseases: hypertension, diabetes mellitus, coronary heart disease, obesity and overweight, osteoporosis, etc. Detailed discussion of the conditions mentioned above is required. Ergogenic aids: STAe and explain the different categories with appropriate examples. International laws that govern the use of ergogenic aids. Introduction to the theory and practice of health promotion. Multidisciplinary approach to health promotion. Roles of physiotherapists in health promotion. Models of health promotion. Health behavior theories. Barriers and enhancers of health promotion. Analysis and evaluation of health promotion; lifestyle behavioral modifications. Health promotion policy and implementation**.**

**Minimum academic standards**

As contained in the NUC MAS

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 504 Health Informatics in Rehabilitation (2 Units, Status Core, LH 15, PH 15)**

**Senate approved relevance**

Training graduates with appropriate knowledge and skills on computers in: medical libraries, physical therapy education/learning, research, simulation in multiple scenarios, computers as tools in diagnosis, computer-based technology in rehabilitation, Introduction to some medical software, spreadsheets and statistical packages. This is conformity with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The course describes application of computer in various fields of healthcare. This includes medical libraries, physical therapy education/learning, research, simulation, diagnostics, rehabilitation technologies, medical soft wares, statistical packages and spreadsheets.

This course will provide overview and comprehensive understanding of computer application in physiotherapy and rehabilitation. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Explain the use of computers in physical therapy education/learning
2. State the use of computers in physiotherapy and medical practice
3. Explain the use of computer-based technology in healthcare and rehabilitation
4. Describe the medical data bases, search engines, medical data analysis and statistical soft wares
5. Explain the Telehealth, Telerehabilitation and Tele physiotherapy
6. Describe Medical soft wares, Microsoft office and Simulation in medical rehabilitation

**Learning Outcomes**

At The end of this course the students should be able to:

1. Demonstrate least five (5) uses of computers in physical therapy education/learning
2. Demonstrate least five (5) uses of computers in physiotherapy and medical practice
3. Explain least five (5) tuses of computer-based technology in healthcare and rehabilitation
4. Describe the medical data bases, search engines, medical data analysis and statistical soft wares
5. Explain health informatics application in least three (3) areas: the Telehealth, Telerehabilitation and Tele physiotherapy
6. Describe least five (5) Medical soft wares, Microsoft office and Simulation in medical rehabilitation

**Course Contents**

Introduction to the basic concept of computer and computer technology. Application of computer and computer technology in healthcare and rehabilitation. Medical databases. Computer automation in physiotherapy and medical rehabilitation. Computer-assisted clinical decision making. Computers as tools in diagnosis and treatment. Digital Health and e-Health concepts. Telehealth, Telerehabilitation, and Telephysiotherapy. Modes of Telehealth/Telerehabilitation delivery. Uses, benefits, and drawbacks of Telehealth/Telerehabilitation. Ethical consideration on the use of Telehealth/Telerehabilitation. Virtual reality and simulation in medical rehabilitation. Microsoft Office and their application in medical rehabilitation. The internet, browsers, and health sciences databases and search engines. Computers and medical data analysis. Practical hands-on sessions for medical literature search using medical databases and search engines. Practical hands-on sessions for medical data analysis (SPSS, Epi Info, and Nvivo). Practical hands-on sessions for Microsoft Office (Word, Excel, and Power point). The use of computers in medical libraries. The use of computers in research. The use of computers in record keeping. The use of computers in physical therapy education/learning. Introduction to some medical software. Introduction to some statistical packages.

**Minimum academic standards**

As contained in the NUC MAS in addition to a functioning computer laboratory with wireless network and ability to access to medical data bases and latest SPSS software.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 505 Physiotherapy in Neuromedical and Neurogenetic Conditions (2 units, Status Core, LH 30)**

**Senate approved relevance**

Training graduates with appropriate knowledge and skills on assessment, evaluation, diagnosis, prognosis and treatment/Rehabilitation of neuromedical and neurogenetic conditions including vascular conditions, degenerative conditions, inflammatory, infectious, immunological, and toxic/metabolic disorders. This is conformity with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The course describes various inflammatory, infectious, immunological, toxic/metabolic disorders such as vascular conditions, degenerative conditions, inflammatory, infectious, immunological, and toxic/metabolic disorders. This course will provide overview and comprehensive understanding of the various neuromedical and neurogenetic conditions.

This course also aims to improve knowledge of various clinical syndromes in the aspects of assessment, evaluation, diagnosis, prognosis and treatment/Rehabilitation using best available treatment approaches/interventions and procedures. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Describe the evaluation, diagnosis, prognosis and rehabilitation vascular and degenerative conditions
2. Explain the evaluation, diagnosis, rehabilitation and prognosis of inflammatory disorders
3. Describe the assessment, diagnosis, prognosis and rehabilitation of infectious disorders
4. Explain the evaluation, diagnosis, rehabilitation and prognosis of immunological disorders
5. Describe the assessment, diagnosis, prognosis and rehabilitation of toxic/metabolic disorders
6. Explain the management and rehabilitation of clinical syndromes of neurologic origin

**Learning Outcomes**

At The end of this course the students should be able to:

1. Describe the evaluation, diagnosis, prognosis and rehabilitation least three (3) vascular and degenerative conditions
2. Explain the evaluation, diagnosis, rehabilitation and prognosis of least three (3) inflammatory disorders
3. Describe the assessment, diagnosis, prognosis and rehabilitation of least three (3) infectious disorders
4. Explain the evaluation, diagnosis, rehabilitation and prognosis of least three (3) immunological disorders.
5. Describe the assessment, diagnosis, prognosis and rehabilitation of least three (3) toxic/metabolic disorders
6. Explain the management and rehabilitation of clinical syndromes of least three (3) neurologic disorders

**Course Contents**

Assessment, evaluation, diagnosis and treatment/Rehabilitation of neuromedical and neurogenetic conditions. Assessment, evaluation, diagnosis, prognosis and treatment/Rehabilitation of vascular and degenerative conditions. Stroke. Parkinson disease. Disseminated sclerosis. Syringomyelia. Transverse myelitis. Myeloningocele. Neuralgia. Huntingtons disease. Motor neuron diseases. Progressive muscular dystrophy, progressive bulbar palsy. Amyotrophic lateral sclerosis.Assessment, evaluation, diagnosis, prognosis and treatment/rehabilitation of inflammatory, infectious, immunological, toxic/metabolic disorders. Meningitis. Neurological sequalae of cerebrospinal meningitis. Encephalitis. Poliomyelitis and Post-polio syndrome. Gullain brain syndrome, encephalitis lethargica. Management of clinical syndromes such as non-traumatic (neoplastic) paraplegia. Hereditary paraplegia. Pott’s paraplegia. Physiotherapy approach to other genetic neurological conditions such a down syndrome.

**Minimum academic standards**

A minimum lecture hall capacity for 50 students with multimedia projector with wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 506 Systemic Pharmacology (2 units, Status Core, LH 30)**

**Senate approved relevance**

To equip physiotherapy graduates with up-to-date knowledge of drugs influencing various systems of the body which may have impact on the physiotherapeutic interventions. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Pharmacology is the study of substances that interact with living systems through chemical processes, especially by binding to regulatory molecules and activating or inhibiting normal body processes. The knowledge of pharmacology has become very necessary for health professionals that will be managing patients in the future, with a view to providing the best care possible while understanding the systemic effects of the medications that the patients are currently using.

This course will equip physiotherapy graduate with the requisite knowledge needed to understand how drugs influence various systems of the human body with specific to treatment and management of various disease conditions and disorders which are of relevance to physiotherapy practice. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

**The objectives of the course are to:**

* + - 1. Classify drugs with respect to their actions, uses and toxicity
      2. Describe mechanism of action of drug in specific diseases and organs
      3. Describe the drugs for management of pain and inflammation
      4. Describe therapeutic effects of drugs on various systems of the body
      5. Describe the indication, contraindication and side effects of drugs on various organs and systems

**Learning Outcomes**

On completion of the course, student should be able to:

1. Explain the classification of least five (5) drugs with respect to their actions, uses and toxicity
2. Describe mechanism of action of drug in least five (5) specific diseases and organs
3. Identify the drugs for management of least five (5) pain and inflammation disorders
4. Describe therapeutic effects of drugs on least five (5) systems of the body
5. Mention least five (5) indication, contraindication and side effects of drugs on various organs and systems of the body.

**Course Contents**

Drugs classification with respect to their actions, uses and toxicity. The justification for the use of a particular drug in a few typical disease. Drug mechanism of action in specific diseases and organs. Indication, contraindication and side effects of therapeutic drugs on various organs and systems. Drugs for pain management and inflammation (NSAIDS, cyclooxygenase I and II, topical analgesics, opiate analgesics). Drugs affecting cardiovascular system. Drugs affecting CNS. Drugs affecting musculoskeletal system. Drugs affecting respiratory system. Drugs affecting gastrointestinal system. Drugs affecting endocrine system. Chemotherapeutics. Topical drugs. Drug interactions. Drug prescription writing. Drug prescription interpretation. Laws guiding drug prescription in Nigeria.

**Minimum academic standards**

A minimum lecture hall capacity for 50 students with multimedia projector with wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 601: Physiotherapy in Neurosurgical and Neuropsychiatric Conditions (2 units, Status Core, LH 30)**

**Senate approved relevance**

This course is aimed at equipping the students with the relevant knowledge and skills to evaluate and rehabilitate individuals with neuropsychiatric disorders pre, peri and post-surgery as well with the aim of rendering rehabilitation using the evidence-based approaches and state of the art facilities. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The essence of this course is to expose the students to thorough assessment, evaluation and management of post-surgical neurological conditions. Conditions such as traumatic paraplegia, quadriplegia are now a common feature in the surgical units of our health institutions.

The course will also expose the students to thorough assessment, evaluation and management of neuropsychiatric cases using the best available treatment interventions and procedures. Presently, more physiotherapists are being employed in psychiatric hospitals. Therefore, it is expected that this course will further be provided for them a solid foundation for future practice.

**Objectives**

The Objectives of the course are to:

1. Evaluate neurosurgical and neuropsychiatric disorders
2. Describe the diagnosis, prognosis and management of neurosurgical and neuropsychiatric disorders.
3. Evaluate, diagnose and manage traumatic neurological disorders
4. Evaluate, diagnose and manage neuro-oncotic disorders and neoplasms
5. Evaluate, diagnose and manage neuropsychiatric disorders

**Learning Outcomes**

At the end of this course the students should be able to:

1. Demonstrate the assessment, evaluation, diagnosis, management/rehabilitation and prognosis of least five (5) neurosurgical disorders
2. Demonstrate the assessment, evaluation, diagnosis, management/rehabilitation and prognosis of least five (5) neuropsychiatric disorders
3. Evaluate, diagnose and manage least five (5) traumatic neurological disorders
4. Evaluate, diagnose and manage least five (5) neuro-oncotic disorders and neoplasms
5. Evaluate, diagnose and manage least five (5) neuropsychiatric disorders

**Course contents**

Assessment, evaluation, diagnosis, prognosis and treatment/Rehabilitation of neurosurgical and neuropsychiatric disorders. Assessment, evaluation, diagnosis, prognosis and treatment/Rehabilitation of traumatic brain injury. Cerebral abscess. Traumatic paraplegia. Traumatic quadriplegia. Intracranial space occupying lesions e.g. neoplasm. Physiotherapy post-surgical repair of myelomeningocele. Physiotherapy and traumatic peripheral nerve injuries. Physiotherapy care of the unconscious patient. Psychiatry and psychiatric disorder. Prevalence of psychiatric disorder in rehabilitation setting. Classification of psychiatric disorders. Adjustment disorders and stress reactions. Post-traumatic stress disorder. Depressive illness. Anxiety. Organic brain syndromes. Neurosis. Sexual disorder. Psychiatric aspects of physical illness. The psychoses, Schizophrenia. Psychotherapy and counseling. Psychological testing tools.

**Minimum Academic Standards**

A minimum lecture hall capacity of 50 students with a projector and availability of the wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 602: Assistive Technologies in Rehabilitation (2 Units; Status Core; LH 15, PH 15)**

**Senate approved relevance**

This course trains the undergraduate on the prescription and use of assistive and adaptive devices in the rehabilitation of patients. It also exposes them to different roles plays by the Physiotherapist in the prevention and management of work-related musculoskeletal disorders in an industrial setting. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The course is about the role of physiotherapy in the prescription of assistive devices in the prevention and management of work-related musculoskeletal disorders. This course is important for several reasons including the recent increases in the prescription of assistive devices to patients receiving physiotherapy.

The course also aims to teaches the students the roles physiotherapy plays in industrial settings using workstation design, posture, occupational health and safety. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Teach the undergraduate students the use of assistive devices.
2. Teach the students the role of Physiotherapy in the prevention and management of musculoskeletal disorders an industrial setting.
3. Describe the assessment and prescription of prosthetic and orthotic devices
4. Explain the seating systems in assistive technology
5. Demonstrate the role of physiotherapy before and after amputation
6. State various Dangers, complications and contraindications associated with different assistive and adaptive devices

**Learning Outcomes**

At the end of this course the students should be able to:

1. Demonstrate least five (5) application of assistive technology
2. Describe the assessment, evaluation, diagnosis, management/rehabilitation and prognosis of least five (5) neurogenetic conditions
3. Describe the assessment and prescription of least five (5) prosthetic and least five (5) orthotic devices
4. Explain least five (5) seating systems in assistive technology
5. Demonstrate least five (5) role of physiotherapy before and after amputation
6. State various dangers, complications and contraindications associated with least five (5) assistive and least five (5) adaptive devices

**Course Contents**

Assistive technology used in therapeutic environments. Ergonomics and work station arrangement. Hierarchy of access and switch access. Adaptive software/interfaces/augmentative communication. Assistive technology for those with communication, hearing, cognitive and other deficits. Home environmental control systems. Accessibility in homes and works. Seating systems, assistive technology for mobility and transportation. Funding assistive technology. An appraisal of the different assistive devices: techniques, methods of fabrication and application of these devices. Different types of orthotic and prosthetic devices for correcting or assisting specific problems. Biomechanical principles in prescribing prosthesis basis and criteria for selection. Prescribing orthoses basis and criteria for selection. Physiotherapy in amputee rehabilitation. Patient’s education on care, maintenance and uses of Orthosis and prosthesis. Dangers, complications and contraindications in use of the different assistive/corrective devices. Care, uses and prescription of wheelchairs. Indications for prescription of assistive devices for activities of daily living e.g. walking aids.

**Minimum Academic Standards**

A minimum lecture hall capacity of 50 students with a projector and availability of the wireless network. A spacious gymnasium for practical demonstration equipped with canes, crutches, model seating systems, model prosthesis and wheel chairs

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 603: Physiotherapy in Cardiovascular Disorders (2 units, Status Core, LH 30)**

**Senate approved relevance**

This course is designed to teach students some basic physiological principles and dynamics of circulation and cardiovascular conditions that require physiotherapy management. It also provides students with the knowledge and skills require in the assessment of cardiovascular conditions and provision of safe and effective physiotherapy for patients with these conditions based on the best available treatment procedures. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

The course is aimed at empowering Physiotherapy undergraduates’ basic knowledge underpinning the prevention and management of cardiovascular disorders using physiological and anatomical principles. This is with a view to understanding the role of physiotherapy in the prevention and management of cardiovascular disorders that is currently on the rise globally.

The students would also be taught indications, requisition and interpretation of electro-diagnostic investigations relating to cardiovascular disorders. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Describe an overview of physiology of the cardiovascular system.
2. Develop skills in the identification of clinical features (clinical and electro-diagnostic presentations) associated with various cardiovascular disorders.
3. Develop skills in the management of cardiovascular disorders by employing evidence-based physiotherapeutic procedures.
4. Explain the principles of cardiac rehabilitation
5. Describe the steps in history taking for cardiovascular conditions

**Learning Outcomes**

The Objectives of the course are to:

1. Describe least five (5) physiological principles and dynamics of cardiovascular system
2. Demonstrate the assessment, clinical judgment, evaluation, and management/rehabilitation of specific cardiovascular conditions
3. Develop least five (5) skills in the management of cardiovascular disorders by employing evidence-based physiotherapeutic procedures.
4. Explain least five (5) principles of cardiac rehabilitation
5. Describe the steps in history taking for least five (5) cardiovascular conditions

**Course Contents**

Review of basic physiological principles and dynamics of circulation. Heart physiology. Cardiac cycle. ECG – normal and abnormal. Clinical features, pathological basis, assessment and management of specific cardiovascular conditions including. Hypertension. Thrombosis. Embolism. Thoracic outlet syndrome. Congenital heart deformities. Hypertensive heart disease. Corpulmonale. Congestive heart failure. Heart attack, cardiac arrest. Ischaemic heart disease. Myocardial infarction. Atherosclerosis. Arteriosclerosis. Principles of cardiac rehabilitation.

**Minimum Academic Standards**

A minimum lecture hall capacity of 50 students with a projector and availability of the wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 604: Knowledge Translation in Medical Rehabilitation and Ethics (2 units, Status Core, LH 30)**

**Senate approved relevance**

Training and equipping physiotherapy graduates with the required skills needed to bridge the knowledge implementation gap is vital for promoting knowledge transfer and utilization. The foundation of knowledge translation in medical rehabilitation will provide physiotherapy students with the required skills for knowledge transfer and utilization. The course also aims at empowering the undergraduate students the laws that guide Physiotherapy practice and the right of patients and individuals requesting physiotherapy services This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

Knowledge translation involves the exchange, synthesis, and ethically-sound application of knowledge within a complex system of interactions among clinicians, researchers, and other users, to accelerate the capture of the benefits of research knowledge, through improved health, effective services and products, and a strengthened health care system.

This course prepares physiotherapy graduates to acquire the foundational skills needed to design, develop, implement, and evaluate knowledge translation strategies, to facilitate research knowledge utilization in medical rehabilitation. Knowledge translation skills are essential for the facilitation of evidence-based care and client-centered medical rehabilitation. This course also introduces law and ethics that guide physiotherapy practice as well as the professional codes of conduct and ethics, and patients’ rights and responsibilities. It is hopeful that this should help physiotherapists to practice and function within the scope of the law, within their professional scope. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

**The objectives of the course are to:**

1. Describe the foundational concepts, techniques, and strategies of knowledge translation in health care and medical rehabilitation
2. Analyze barriers and facilitators for knowledge utilization in medical rehabilitation
3. Describe the skills required for effective knowledge translation in health care and medical rehabilitation
4. Identify, select and implement robust knowledge translation techniques to facilitate the uptake and utilization of medical rehabilitation services
5. Evaluate various knowledge translation techniques and strategies to determine approaches best suited for a given clinical scenario and target audience
6. Discuss the ethical guidelines for the practice of physiotherapy
7. Describe the guiding principles of establishing a private practice
8. Describe the guiding principles of business, medical, research and legal ethics

**Learning Outcomes**

On completion of the course, student should be able to:

1. Unpack the nexus between least five (5) concepts, techniques, and strategies of knowledge translation in health care and medical rehabilitation
2. Identify least five (5) barriers and facilitators for knowledge utilization in medical rehabilitation
3. Develop least five (5) robust knowledge translation strategies aimed at promoting the uptake and utilization of medical rehabilitation knowledge among patients, clients, and the general public
4. Demonstrate effective application of least five (5) knowledge translation techniques to bridge the gap in medical rehabilitation knowledge utilization
5. Demonstrate the application of knowledge translation skills and strategies to influence least three (3) areas: health policy and decision-making, healthcare providers, the general public, and patients’ behavior and attitude.
6. Discuss least five (5) ethical guidelines for the practice of physiotherapy
7. Describe least five (5) guiding principles of establishing a private practice
8. Explain least five (5) guiding principles of business, medical, research and legal ethics

**Course Contents**

Introduction to knowledge translation. Terms and definitions of knowledge translation in medical rehabilitation. Background and development of knowledge translation in medical rehabilitation. Frameworks and approaches to knowledge translation in medical rehabilitation. Knowledge translation concepts such as ‘push and pull’, integrated knowledge translation, diffusion, dissemination, implementation, and linkages and exchanges. Knowledge translation methods and designs. Specific issues related to knowledge translation in medical rehabilitation. Barriers and facilitators to knowledge translation in medical rehabilitation. Knowledge translation interventions and evaluations in medical rehabilitation. Developing knowledge translation plans in medical rehabilitation. Steps for effective knowledge translation. Knowledge translation strategies that aim to influence health policy and decision-makers. Knowledge translation strategies that aim to influence healthcare providers. Knowledge translation strategies that aim to influence the general public. Knowledge translation strategies that aim to influence patient behavior. Knowledge translation strategies that aim to influence people with disability. Measuring the impact of knowledge translation in medical rehabilitation. Understanding ethical problems and principles in physiotherapy. Understanding the ethics of other health professions, how they interact and what can be expected from them as correct ethical behaviour. Knowledge of Private practice ethics. Business Ethics. Media Ethics. Police Ethics. Medical Ethics. and Research Ethics.

**Minimum academic Standards**

A minimum Lecture Hall capacity of 50 students, with a projector and availability of the wireless network.

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 605: Intensive Care Physiotherapy (2 Units; Status Core; L15, PH 15)**

**Senate approved relevance**

This is to train undergraduates about the role of physiotherapy in critical care settings. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

This course is aimed at introducing students to the role and contribution of physiotherapy in the rehabilitation and management of patients admitted in the ICU either for medical, surgical and/or obstetric reasons. This is aimed at promoting early recovery of these patients will result in their early recovery.

Having a basic knowledge of ICU will prepare future physiotherapists to develop interest in the ever-expanding specialization area. It will also give a sound theoretical bases upon which future ICU physiotherapy practicum can be based upon. The objectives of the course, learning outcomes, and contents are provided to address this need:

**Objectives**

The Objectives of the course are to:

1. Describe the general principles and practice of rehabilitation in the ICU
2. Describe the subjective and objective assessment of critically ill patients based on a systematic manner
3. Identify all aspects of the care of critically ill patients in the ICU irrespective of whether the cause of admission is medical, surgical or obstetric
4. Explain the common ICU conditions such as head injury, burns, coma, medical and surgical complications
5. Explain complications from anaesthesia
6. Describe various physiotherapy techniques for airway clearance and mobilization utilized in the ICU

**Learning Outcomes**

At the end of this course the students should be able to:

1. Demonstrate Knowledge of the least five (5) principles and practice of intensive/critical care
2. Describe the subjective and objective assessment of critically ill patients covering a least seven (7) body systems
3. Demonstrate Knowledge of **all** aspects of the care of critically ill patients irrespective of whether the cause is medical, surgical or obstetric
4. Describe least ten (10) common ICU conditions such as head injury, burns, coma, medical and surgical complications
5. Explain least five (5) complications from anaesthesia
6. Identify least five (5) physiotherapy techniques for airway clearance and mobilization utilized in the ICU

**Course Contents**

General principles of intensive care. Demands of the ICU environment. Assessment of a critically ill patient. Subjective and objective assessment of ICU patients by systems (respiratory, cardiovascular, neurological, arterial blood gasses, sputum/hemoptysis, chest radiograph, chest shape, breathing patterns, vital signs). Assessment and treatment devices relevant to ICU physiotherapy. Introduction to physiotherapy techniques for mobilizing secretions and/or airway management in the ICU. Secretion Mobilisation. Incentive spirometry. Nebulization. Suctioning. Manual hyperinflation. Active Cycle of Breathing Technique. Percussion, Vibration/Shaking. Postural drainage. Pre-operative and post-operative physiotherapy care for cardiothoracic, abdominal, obstetric/gynecological surgeries etc. Specific Physiotherapy Interventions in the ICU (mechanical ventilation, bed ergometry, sit-stand, strengthening exercises). Management of patient in Coma and/or head injury. Anesthesia complications and its physiotherapy related care. Intensive care of burnt patients. Management of medical complications of hypertension, hypertensive heart disease, diabetes, etc.

**Minimum Academic Standards**

A minimum lecture hall capacity of 50 students with a projector and availability of the wireless network. A laboratory equipped with mannequins, stethoscope, sphygmomanometer, pulse oximeter, ambu-bag, oxygen cylinder and face mask,

**Bayero University, Kano**

**Faculty of Allied Health Science**

**Department of Physiotherapy**

**DPT. Physiotherapy**

**BUK-PST 606: Physical Diagnosis and Medical Imaging (2 units, Status Core, LH 30)**

**Senate approved relevance:**

This course empowers the undergraduate students the knowledge of using various laboratory measures to arrive at an informed diagnosis which will eventually lead to accurate treatment intervention prescription. This is consistent with the university's vision and mission of providing leadership in research and education in Africa while also addressing African development challenges through cutting-edge research, knowledge transfer, and the training of high-quality graduates.

**Overview**

This course aims at training the Undergraduate students the use of physical and diagnostic measures to reach and arrive at a diagnosis while assessing the patients/clients. Future physiotherapists are required to be highly skilled when it comes to physical assessment of patients in a systematic manner.

The course will also expose the students to basic understanding of radiological investigations and radiographic equipment. This could be in form of reading and interpreting scans, films and reports. And knowing when to request for such investigations and re-assessment.

**Objectives**

The Objectives of the course are to:

1. Describe the physical diagnosis, medical diagnosis and differential diagnosis
2. Describe the interpretation of pathology in physical therapy management courses using imaging and laboratory procedure
3. Define physical, medical and differential diagnosis as related to physiotherapy
4. Teach different methods of imaging and laboratory techniques
5. Describe the foundation for interpretation of pathology in physiotherapy

**Learning Outcomes**

At the end of this course the students should be able to:

1. Describe the three (3) forms of diagnosis: Physical diagnosis, medical diagnosis and differential diagnosis
2. Interpret the pathology in physical therapy management using at least three (3) imaging techniques and (3) imaging laboratory techniques
3. Define physical, medical and differential diagnosis as related to physiotherapy
4. Describe at least five (5) different methods of imaging and laboratory techniques
5. Describe at least five (5) foundations for interpretation of pathology in physiotherapy

**Contents**

Definitions of diagnosis. Physical diagnosis. Medical diagnosis. Differential diagnosis. Importance of physical diagnosis in physiotherapy. Drawing inferences from clinical data. History taking. Health measurement. Physical examination. Vital signs. End-feels. Case studies/simulation for clinical reasoning. Methods of imaging the body using X-ray. Methods of imaging the body using MRI. Methods of imaging the body using CT scan. Methods of imaging the body using Doppler ultrasound. The content will provide a foundation for interpretation of pathology in the physical therapy management courses.

**Minimum Academic Standards**

As contained in the NUC MAS