Para-Medical Program

Specialization	**Artificial Kidney technician**
Course Number	020821111
Course Title	**Renal Anatomy and physiology**
Credit Hours	**(3)**
Theoretical Hours	**(2)**
Practical Hours	**(3)**

Course description

The course is designed to assists students to acquire comprehensive knowledge of the normal structure and functions of human body, to facilitate understanding of anatomical and physiological basis of health, identify alteration in structure and function with emphasis on clinical application to practice, and provide the student with necessary physiological knowledge to practice.

Course objectives:

Intended Learning Outcomes

Upon the completion of this course, the student will be able to:

A. Knowledge & Understanding

1. Acquire knowledge and understanding of the structures and functions of the body systems.
2. Define anatomy and physiology.
3. Describe the body organs, their locations, compositions, and specific characteristics and correlate them to their functions.
4. Understand the relationships among the renal system structure and function and the other body systems.

B. Intellectual skills

1. Interpret normal and abnormal anatomy and physiology.
2. Use anatomical knowledge to predict physiological consequences.

C. Subject-specific skills

1. Synthesize ideas to make a connection between knowledge of anatomy and physiology and real-world situations, including healthy lifestyle decisions.
2. Interpret graphs of anatomical data.

D. Transferable skills

1. Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy and physiology.
2. Integrate the anatomy of the body with its physiology.

Unit No.	Unit name	Unit Content	Time Needed
1	**Introduction to medical terminology**	• Discuss the four parts of medical terms • Identify the most common prefixes and suffixes. • Studying the methods of word buildings • Abbreviations related to time, location, and number • Abbreviations related to anatomical position, directional terms, body regions, planes and cavities)	2 hrs
2	**Introduction to the human**	• Scope of Anatomy and Physiology • Homeostasis • Body fluid compartments and electrolytes.	4 hrs
3	**The cells and tissues of the body**	• Structure and function of human cell • Elementary tissues of the human body • Inflammation	4 hrs
4	**Blood, blood vessels, and the lymphatic system**	• Brief Account on Composition of Blood • Functions of blood elements • Blood Group and coagulation of blood, • Blood Vessels: – Types of blood vessels. – Structure of blood vessels. – ajor Blood Vessels – Circulatory routes of blood vessels • The lymph, lymphatic vessels, and the lymph nodes • Function of lymphatic system and organs	4 hrs
5	**The Cardiovascular system**	• Heart: – Size and location – Structure and functions • The flow of blood through the heart • Blood supply to the heart • Blood pressure	4 hrs
6	**The Respiratory System**	• Various parts of the respiratory system and their functions. • Physiology of Respiration	4 hrs
7	**The Endocrine system**	• Endocrine glands, their hormones and functions- ✓ Thyroid, ✓ Parathyroid, ✓ Suprarenal, ✓ Pituitary, pituitary ✓ Thymus	3 hrs

8	**The Urinary System**	• Various parts of the urinary system and its function • Structure and function of kidneys • Physiology of urine formation • Physiological values of Urea, creatinine, electrolytes. • Physiology of renal circulation and auto regulation. • Acid-base balance	6 hrs
9	**The Reproductive System**	• Anatomy and physiology of male and female reproductive system.	4 hrs
10	**The digestive System**	• Anatomy of the digestive system • Physiology of digestion, absorption, and defecation	4 hrs
11	**The Skeletomuscular system**	• Classification of bones & and joints, • Structure of skeleton • Structure of skeletal muscle • Physiology of muscle contraction	4 hrs

Course outline:

Evaluation Strategies: Exams and method of evaluation:

Exams		**Percentage**	**Date**
1.	Midterm Exam	30%	--/--/----
2.	Report and project	20%	
3.	Final Exam	50%	--/--/----

Teaching Methodology:

Lectures. Slides and posters and computers. Models. Coloring sheets. Activities.

References:

1. Ross and Wilson Anatomy and Physiology in Health and illness, Elsevier, 13th Edi, 2018.
2. Surinder Singh, Principles of Human Physiology for Course in Nursing & Allied Health Sciences, CBS, 2017.
3. Inderbir Singh, Textbook of Anatomy, Jaypee, 7th Edi, Vol I to III, 2019

Para-Medical Program

Specialization	Artificial kidney technician
Course Number	**020821112**
Course Title	Renal Pathophysiology
Credit Hours	**(3)**
Theoretical Hours	**(3)**
Practical Hours	**(0)**

Course description:

This course provides an in-depth study of human pathological processes and their effects on homeostasis. Associated pathologies of the body systems and general health management of disease across the human lifespan is explored. It helps students to develop an understanding of the pathogenesis of various congenital malformations and kidney diseases, clinical examinations, and histopathology. This course focuses on clinical decision making and action related to nursing care.

Course objectives:

Intended Learning Outcomes
Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

5. Acquire knowledge and understanding of the pathophysiology of the renal disorders.
6. Define pathophysiology and its importance for professional health students.
7. Describe the most known renal dysfunctions.
8. Recognize the physiological changes that occur due to external and internal environmental Stresses, pathological processes and the response that produces signs and symptoms.

B. Intellectual skills

3. Interpret a variety of concepts in pathology which will be utilized in decision-making and actions related to other artificial kidney courses.

C. Subject specific skills

3. Interpret flowcharts of pathophysiological data.

D. Transferable skills

3. Develop a vocabulary of appropriate terminology to effectively communicate information related to pathophysiology.

Unit No.	Unit name	Unit Content	Time Needed
1	**Introduction**	• What is pathophysiology • The significance of pathophysiology for health professionals	2 hrs
2	**Alteration in Fluids and Electrolytes**	– Fluid and electrolyte disorders – Hyponatremia, hypernatremia, hypokalemia& hyperkalemia: – Disorders of calcium, phosphorous and magnesium ions. – Acid-base disorders: Basics of ABG – Metabolic acidosis & metabolic alkalosis	6 hrs
3	**Disorders of hemostasis**	• Hypercoagulability, thrombosis • Thrombocytosis, thrombocytopenia • Defects of coagulation factors (hemophilia A, DIC)	2 hrs
4	**The Red Blood Cell & Alteration in Oxygenation Transport**	- Anemia and its causes - Mechanisms and symptoms of anemia - Blood loss anemia, hemolytic anemia, thalassemia, aplastic anemia, iron deficiency anemia, megaloblastic anemia	6 hrs
5	**Alteration in Blood Flow**	– Atherosclerosis and its pathogenesis – Peripheral vascular disease	2 hrs
6	**Alteration in Blood Pressure**	– Risk factors for hypertension – Classifications of hypertension – Uncontrolled BP – Orthostatic hypotension	4 hrs
7	**Alteration in Cardiac Function, Heart Failure & Circulatory Shock**	Disorders of the heart - Coronary artery disease - Cardiomyopathy - Valvular heart disease (stenosis, regurgitation) Heart failure Circulatory shock	4 hrs
8	**Alteration in Respiratory Function**	Respiratory tract infections: - Pathophysiology of influenza - Pneumonias Respiratory system disorders: - Respiratory failure - Pleural effusion, pneumothorax, hemothorax, empyema - Atelectasis - Bronchial asthma and COPD - Pulmonary embolism, pulmonary oedema, ARD	4 hrs
9	**Alterations in Gastrointestinal functions**	– Hepatitis – Liver cirrhosis	2 hrs
10	**Alteration in Renal Function & Renal Failure.**	- Urinary tract infections - Congenital and cystic diseases of the kidney - Glomerular diseases - Nephritic syndrome	12 hrs

		- Acute tubular injury - Pyelonephritis - Obstructive uropathy - Renal Stone Diseases - Renal failure	

Teaching Methodology:

Lectures. Group discussion. Videos. Live patterns & samples. Practical applications.

Exams and method of evaluation:

Exams	**Percentage**	**Date**
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

1. Porth, C. (2018). Pathophysiology: concepts of altered health states (10th ed.) Philadelphia, J.B Lippincott
2. Huether S and McCance K (2017) Understanding pathophysiology. (6th edition). St. Louis, Mosby.
3. Story, L. (2017). Pathophysiology: A Practical Approach, 2nd ed. Burlington, MA: Jones & Bartlett Learning
4. Kumar, Robbins & Cotran Pathologic Basis of Disease, WB Saunders, 10th Edi, 2020.

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821121**
Course Title	**principles of Nursing care**
Credit Hours	**3**
Theoretical Hours	**1**
Practical hours	**6**

Course description

This course introduces the Artificial kidney technician student to the theoretical and practical skills associated with foundational nursing practice. It provides the basis for future clinical practice and quality patient care in clinical settings. Moreover, it links research and theory to nursing practice, to promote and maintain health in the context of the clients' needs in a variety of settings.

Course objectives :

Intended Learning Outcomes

Upon the completion of this course, the student will be able to:

A. Knowledge & Understanding

1. Understand the nursing process as a framework for providing nursing care for clients.
2. Understand the continuum of nursing care from assessment of vital signs to more complex procedures.

B. Intellectual skills

1. Describe the phases of the nursing process
2. Differentiate objective and subjective data.
3. Explain the techniques of physical examination
4. Describe the principles underlying effective recording and reporting/ documenting of nursing interventions.
5. Describe essential steps for safely administering oral, and parenteral.
6. Describe the role of a nurse in dealing with the dying process and death.

C. Subject-specific skills

1. Apply pain assessment as the fifth vital sign.
2. Apply the principles of infection prevention in any clinical setting.

D. Transferable skills

1. Develop an awareness concerning the role of artificial kidney technician.
2. Use safe practices, including body mechanics, when providing any nursing procedure.

Unit No.	Unit name	Unit Content	Time Needed
1	**The nursing process**	• Overview of the nursing process. • Characteristics of the nursing process. • Assessment. ✓ Collection of data, Types and sources of data, Data collection methods, Organizing data, Validating data, Documenting data. • Diagnosis (Definition, Types of nursing diagnosis, Components) • Planning (Types of planning, Planning process) • Implementing action (the process of implementation) • Evaluation (Process of evaluating client responses) • Documenting and Reporting. • Purposes of client records. • Documentation system. • Guidelines for recording and Reporting.	3
2	**Safety and Infection control**	• Factors affecting safety • Safety hazards throughout the life span. • Preventing specific hazards. = Burns. – Falls. – Suffocation or choking. - Seizures.	2
3		• Definitions (infection, asepsis, sepsis, nosocomial infection) • The chain of infection • Factors increasing susceptibility to infection • Cleaning, disinfecting and sterilization. • Isolation precautions and practices. • Sterile field. • Preventing Nosocomial infection. • Wear a Protection (Isolation) Barrier • Donning and Removing Sterile Gloves (open & closed) • Perform Hand Washing • Perform Surgical Hand Washing • Body mechanics • Bed making (Unoccupied bed)	2

2	**Health assessment**	**A. Vital signs.** – Time to assess vital signs. – Variations in normal vital signs by age. **Body temperature** • Factors affecting body temperature. • Alterations in body temperature. • sites for body temperature measurement. • Types of thermometers. • Temperature scales (Celsius and Fahrenheit) **Pulse** – Factors affecting pulse rate. – Pulse sites and reasons for using specific pulse sites. – Apical – radial pulse. • Obtaining the Client's Pulse • Obtaining the Client's Apical Pulse • Obtaining the Client's Radial Pulse **Respiration** – Assessing respiration. – Factors affecting respiratory rate. – Altered breathing patterns and sounds (orthopnea, bradypnea, wheezes, stridor). • Perform Respiratory Rate Assessment **Blood pressure** – Factors affecting blood pressure. – Equipment, sites, and methods for assessing blood pressure. – Common errors in assessing blood Pressure • Perform Blood Pressure Assessment **B. Physical Health Assessment** – Preparing the client and the environment. – Techniques of examination. – General survey • Measuring Height and Weight of an Adult • Measuring Height, Weight and Head Circumference of an Infant	6
4	**Pain Management**	• The nature of pain. • Types of pain. • Factors affecting pain experience. • Pain assessment (as the fifth vital sign). • Barriers to pain management. • Key strategies in pain management • Pharmacological and non-pharmacological pain management.	2

Course outline:

5	**Activity and Exercise**	_ Basic – elements of normal movement _ Factors affecting body alignment and activity. – Positions (Fowler's, dorsal recumbent, prone, lateral, Sims',.. etc.) - Support devices (pillows, bed boards, footboard,..) • Transferring Patient from Bed to Chair • Transferring Patient from Bed to stretcher • Moving Patient Up in Bed	6
6	**Fluid and electrolyte, and acid-base balance**	– Fluid intake. – Fluid output _ Normal electrolyte values for an adult	2
7	**Urinary Elimination**	_ Altered urinary elimination problems. _ Characteristics of normal and abnormal urine. _ Maintaining normal urinary elimination – Preventing urinary tract infections. – Urinary catheterization. – Use of urinal • Collecting Urine Specimens for Culture • Collecting Urine Specimens for Analysis • Provide Care of Folly's Catheter • Remove the Folly's Catheter	6
8	**Promoting psychosocial health**	_ Loss and grief. – Types and sources of loss _ Stages of grieving. _ Factors influencing the loss and grief responses	2
		_Definitions and Signs of Death. _Death-related- religious and cultural practices _Helping clients die with dignity. - Post-mortem care.	2
9	**Medications**	• Types of drug preparation • Legal aspects of drug administration. • Routes of administration. • Medication orders (types) and their essential parts. • Calculating dosages • The ten "rights" of safe medication administration. – Oral medications _ Parenteral medication(ID, SC, I.V and I.M) • Assist in Administering Intramuscular, Intradermal, and Subcutaneous Injection • Administer Oral Medication • Preparing Medication from Vial and Ampoule • Intravenous Infusion and monitoring • Discontinuing an Intravenous Infusion • Blood Transfusion	6

10	**Oxygenation**	_ Alteration in respiratory function. _ Respiratory inhalation. _Oxygen therapy methods.	2
11	**Skin integrity and wound care**	• Factors affecting skin integrity. • Pressure ulcers. • Types of wound dressings. • Clean A Wound and Apply a Sterile Dressing • Obtain A Specimen of Wound Drainage • Remove Suture and surgical clips	

Teaching Methodology:

Lectures. Discussion. Assignments. Videos, animations.
Demonstration and redemonstration.

Exams and method of evaluation:

Exams	**Percentage**	**Date**
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

1. Kozier, B., Abdalrahim, M., Abu-Moghli, F., & Saleh, M. (2012). Fundamentals of nursing: Concepts, process, and practice. (Arab World Ed.). UK: Pearson Education Limited.
2. Berman, Snyder, & Frandsen. (2021). Kozier & Erb's Fundamentals of Nursing, Global edition (11th Ed.) Pearson Education Limited.
3. Smeltzer, S., & Bare, B., Hinkle, J., & Cheever, K. (2018). Brunner and Suddarth's textbook of medical surgical nursing (14th Ed.). Philadelphia, PA.: Lippincott.
4. Hogan-Quigley, B. Palm, L. Bickley, L. (2021). Bates' Nursing Guide to physical examination and history taking (3rd ed.). Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821114**
Course Title	**Introduction To Kidney Diseases**
Credit Hours	**3**
Theoretical Hours	**3**
Practical hours	**0**

Course description:

This course focuses on the health care needs of adult and elderly clients suffering from common acute and chronic renal disorders. Building on the foundations of previous courses, student will examine the impacts of altered health states and plan best care for clients and their families. Topics include the care of clients who are experiencing acute and chronic renal disorders.

Course objectives:

Intended Learning Outcomes

On completion of the course the students will be able to:

1. Describe the appropriate techniques used in the physical assessment and significant subjective and objective data related to the urinary system
2. Describe the purpose, significance of results related to diagnostic studies of the urinary system.
3. Comprehend the congenital abnormalities of the urinary system.
4. Classify and enumerate kidney diseases, including Glomerular, tub interstitial and vascular diseases
5. Describe the pathophysiology, clinical manifestations, collaborative care and drug therapy of cystitis, urethritis, pyelonephritis, acute post streptococcal Glomerulonephritis, good pasture syndrome, chronic Glomerulonephritis & nephritic syndrome.
6. Differentiate between acute renal failure and chronic renal failure.
7. Differentiate among the causes of pre renal, intra renal, and post renal acute renal failure & describe the clinical course of acute renal failure.
8. Comprehend the etiology and pathogenesis of chronic renal failure/ CKD.
9. Comprehend the pathology of the peritoneum in peritonitis.
10. Describe the etiology, pathogenesis and management of urinary tract infections.

Discuss the anatomy and physiology of the kidney and the cardiovascular system.

A. Knowledge & Understanding

1. Differentiate between acute and chronic renal failure and discussing causes of each.
2. Recognize health alterations and principal manifestations of common health disorders in the adult and the elderly client with acute and chronic renal disorders.
3. Understand factors related to the disease processes, diagnostic evaluation, and technicians interventions of acute and chronic renal disorders.
4. Identify related treatment modalities.

B. Intellectual skills

1. Utilize the nursing process as a frame work to follow-upcare of the client with renal disorders.
2. Discuss the clinical indications, client preparation and other related technicians implications for common tests and procedures.
3. Educate patients on strategies to prevent urinary tract infections

4. Educate patients on peritoneal dialysis on aspects of the prevention of peritonitis

C. Subject specific skills

1. Develop an individualized teaching plan to the client and family.

Course outline:

Unit No.	Unit name	Unit Content	Time
1	**Assessment and Diagnostic studies of the Urinary system**	• Structure and function of the kidney. • Tubular function. • Renal blood flow and glomerular filtration rate (GFR). • Physical assessment of a person with kidney disease, basics of assessment, list various • diagnostic tests done for kidney diseases, Laboratory tests, imaging studies, normal values, Radiologic examination • Renal biopsy • interpretation of the tests including the roles and responsibilities of a technologist. •	
2	**Disorders of acid-base balance**	• Physiology of acid- base system • Metabolic acidosis and nursing care for the patient. • Respiratory acidosis and nursing care for the patient. • Metabolic alkalosis and nursing care for the patient. • Respiratory alkalosis and nursing care for the patient.	
3	**Classification of renal diseases**	• Define renal disorders • Introduction to the classification of the various types of renal disorders • Stages of renal disorders	

Unit No.	Unit name	Unit Content	Time
4	**Renal diseases for adult**	• The student will be able to discuss the pathophysiology of this diseases, etiology, and medical management. • Acute and chronic renal failure (Acute Kidney Injury • Definition, etiology, type's pathophysiology, medical and surgical management) • End stage renal diseases – causes & pathology (Definition, etiology, type's pathophysiology, medical and surgical management). • Renal artery stenosis • Anemia • Glomerular diseases. • Nephritic syndrome. • Diabetic nephropathy. • Acute post-streptococcal glomerulonephritis. •**Renal Tubular Disorders.** -Oxalosis. -Bartter's syndrome. -Cystinosis	
		•**Tubular and Interstitial Disease.** -Interstitial nephritis -Analgesic nephropathy -Reflux nephropathy -Pyelonephritis -Urinary tuberculosis •**Renal cystic disease** -Simple renal cysts •**Miscellaneous** -Proteinuria -Hematuria -Polyuria and oliguria -Nursing care of renal and urologic problems. - Infections and inflammatory disorders of urinary system. UTI and cystitis, Urinary tract calculi. -Glomerular diseases (causes, types & pathology (Definition, etiology, type's pathophysiology, medical and surgical management). - Tubulointerstitial diseases & Renal vascular disorders (Definition, etiology, type's pathophysiology, medical and surgical management). - Pathology of peritoneum – peritonitis – bacterial, tubercular & sclerosing -Peritonitis (Definition, etiology, types pathophysiology, medical and	

Unit No.	Unit name	Unit Content	Time
		surgical management). - Pathology of urinary tract infections (Definition of UTI, Common organisms involved, etiology, pathophysiology of UTI, Medical and surgical management) - Pyelonephritis & tuberculous pyelonephritis (Definition, etiology, types pathophysiology, medical and surgical management).	
5	**Hypertension and the kidney**	• Etiology and classification • Pathology of kidney in hypertension, diabetes mellitus, pregnancy • Definition, etiology, type's pathophysiology, medical and surgical management • Essential hypertension and nursing care.	
6	**Uremic osteopathy**	• The minerals and hormones involved. • Classification and management of bone disease • Complications	

Teaching Methodology:

Discussions and lecture Presentations, videos, animations, cases, group discussion, videos, live patterns & samples.

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

1. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Single Volume, (10th Ed.) Elsevier.
2. Scott, J Gilbert.,Danial E,wiener(2022).primer on kidney disease: national kidney foundation,(8th edition).

3. Nicola Thomas(2019).Renal Nursing.(5th Edition).
4. Capriotti,T(2021).Pathophysiology made incredibly visual,(6th edition).
5. Lewis, Dirks (2022). Clinical companion to medical surgical nursing. (12th Ed.) Elsevier
6. Hinkle, J. Cheever, K. (2022). Brunner &Suddarth's Textbook of Medical-Surgical Nursing (15th Ed).Lippincott Williams & Wilkins
7. LeMone, P., Burke, K., Bauldoff, G., Gubrud, P. (2019) Medical-Surgical Nursing: Clinical Reasoning in Client Care (7th Edition) (Medical Surgical Nursing – Lemone (6th Ed.)Pearson
8. Davison A.M., (2016) Oxford textbook of Nephrology Volume 4 Oxford University Press
9. Nissenson, A. R., Fine R.N., (2017) Textbook of Dialysis therapy 3rd Ed Hanley & Belfus

Para- Medical Program	
Specialization	**Artificial kidney technician**

Course Number	**020821223**
Course Title	**Nutrition in renal disease**
Credit Hours	**(2)**
Theoretical Hours	**(2)**
Practical hours	**(0)**

Course Description:

Brief Course Description:
This course presents the fundamental concepts that link nutrition with health and disease. It aims to provide the student with knowledge about the characteristics and functions of nutrients. Individual nutritional characteristics through the life span, and effect of cultural, economic and social habits. In addition, this course aims to provide core skills and competencies for students to educate people about all aspects of renal health, nutritional assessments, diet for various renal diseases and methods to improve nutritional status. It also provides a core focus on the nutritional approaches for reducing the risk of renal disease

Course Objectives:
Upon the completion of the course, the student will be able to:
1. Be oriented to the historical development of nutrition and food and the related terms.
2. Understand the importance of food for the individual in the life span.
3. Determine the basic food elements.
4. Explain the nutritional habits and the factors affecting food planning.
5. Identify the appropriate diet for different renal diseases.
6. Provide nutritional health education for patients with different renal problems.
7. Assess the dry weight of patients on hemodialysis.
8. Identify the effects of kidney disease on nutrient metabolism.

Course outline:

Unit No.	Unit name	Unit Content	Time Needed
1	**Introduction to nutrition**	• Development of dietetics. • Basic terms and nutrition: Food and nutrition, nutritional status, nutritional assessment, meal, diet, dietetic, balanced diet, metabolism of food, mal-nutrition, food regime-Nutrients, essential nutrients, coal cal RDA's +DRI	
2	**Energy yielding Materials**	Energy sources. – Carbohydrates. – Proteins. – Lipids. • Definitions. • Structure. • Types. • Function. • Sources.	
3	**Non-energy yielding materials**	Vitamins. – Fat-soluble vitamins (A, D, K, H). – Water soluble vitamins (thiamine B1, riboflavin B2, cyanocobalamin b). – Characteristic. – Functions. – Toxicity. – Preventive & and curative measures. • Minerals: Calcium, Sodium, Phosphorus, ferns, magnesium, chloride. – Function. – Sources. – Effects of altered minerals intake. – Prevention and curative measures. Water: – Function. – Water recommendation and sources. – Effect of dependency. • Prevention and curative.	
4	**Food & Health**	• Define health. • The relationship between nutrition & health. • Food functions. • The four food groups (Milk, meat, vegetables and fruits, bread and grains) • Food pyramid guides.	
5	**The effect of social and psychological factors on food & nutrition**	Psychological factors. • Social status (Culture and habits traditions, religious beliefs, economic status	
7	**Nutritional**	• Methods of Assessing Nutritional Status.	

Unit No.	Unit name	Unit Content	Time Needed
	planning	– Clinical evaluation. – Biochemical studies. – Anthropometrical measurements. – Dry weight assessment and hemodialysis. – Dietary history. • Exchange lists. – Dietary requirements. – Use of the recommended nutrient in the table. – Use the food exchange lists. – Practical application. • Factors Affecting Meal Planning – Age – Sex. – Activity. – Economical status. – Food reliability. – Likes & Dislikes. – Habits and beliefs and culture. • Dietary planning	
8	**Nutrition in health care throughout the life cycle**	• Food intake and growth. • Nutrition during pregnancy. • Nutrition during lactation. • Nutrition for infancy. • Breastfeeding versus artificial feeding. • Child nutrition during different age groups – From (1-3) years. – From (4-6) years. – From (7-11) years. • Adult nutrition. • Elderly nutrition.	
	Nutrition and kidney diseases	• The effect of kidney disease on nutrient metabolism (Proteins, carbohydrates, Lipids) • Uremic toxicity • Effects of acidosis and alkalosis on food metabolism	
9	**Nutritional management in kidney diseases**	• Urinary tract infection. • Nephritic syndrome. • Renal calculi. • Renal failure. • Diet post-kidney transplantation • Nutritional management of non-dialyzed chronic kidney disease • Nutritional management for dialyzed chronic kidney disease (Hemodialysis, peritoneal dialysis).	

Evaluation Strategies: <u>Exams and method of evaluation:</u>

Exams		Percentage	Date
1.	Midterm Exam	30%	--/--/----
2.	Report and project	20%	
3.	Final Exam	50%	--/--/----

Teaching Methodology:

- Lecture. Discussion, Small and large group, Assignment, Case study.

Text Books & References:

1. Nutrition & diet therapy, Kathryn Pinna & Linda Kelly, E-Book Publisher, 10th Edition, 2018.

2. Nutrition life cycle, Sari Edelstein, PhD, RD, Dar Alkutob Al Ordony, Amman, second edition, 2015

3. Nutritional Management of Renal Disease. Kopple, Massry, Kalantar-Zadeh, & Fouque. Elsevier, 4th edition, 2021.

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821221**
Course Title	**Renal Pharmacology**
Credit Hours	**2**
Theoretical Hours	**1**

Practical hours	3

Course Description:

This course is designed to provide students with general information and a description of the important drugs that are related to the renal system. Pharmacokinetics of different classes of drugs, legal responsibilities, and safe drug administration are explored as well. In addition, it provides the students with the required knowledge to be familiar with dialysis medications and solutions.

Course objectives :

Intended Learning Outcomes

Upon the completion of this course, the student will be able to:

A. Knowledge & Understanding

1. Acquire the knowledge of the general principles of pharmacology that will enable the student to assist in administering medications properly and safely in the renal unit.
2. To be familiar with the therapeutic indications, and contraindications of drugs commonly used in clinical practice with renal diseases.
3. Identify the most common examples of the most widely used drugs in renal disease.
5. Comprehend the drug adjustments to be made for varying degrees of renal dysfunction

B. Intellectual skills

1. Describe and define the basic terms and concepts of pharmacology
2. Relate the type of medication to the renal disease.

C. Subject-specific skills

1. Comprehend and describe the action, indication, dosage, route of administration & and side effects of heparin in Hemodialysis

D. Transferable skills

1, Perform the preparation of Hemodialysate concentrates
2. Teaching patients about their given medications

Course outline:

Unit No.	Topics	Unit Content	Time Needed
1	**General principles of pharmacology**	• What is pharmacology •Pharmacokinetics (absorption, metabolism and elimination of drugs) • Pharmacodynamics • Routes of drug administration • Medications Classes and names • Prescription and non-prescription drugs • Factors that modify the client's response to drugs • The role of nurses in drug administration.	4
2	**IV fluid therapy & Hemodialysis concentrates**	• Define IV fluids, • Differentiate the various IV fluids. • Use of crystalloids and colloids in renal diseases. • Mode of action, contraindication, precautions and side effects of using various IV fluids • Composition & dilution (acetate & bicarbonates) • Potassium exchange resins with special emphasis on the mode of administration	3
3	**Peritoneal dialysis fluid**	• Fluids used in peritoneal dialysis, the composition and strength of concentration. • Mode of action, uses, indications and precaution	1
4	**Antiseptics and disinfectants Formalin, sodium hypochlorite, hydrogen peroxide**	• Action, characteristics, the use of the drugs and their role as disinfectants & adverse effects of residual particles applicable to formalin	2
5	**Drugs & dialysis and Dialyzable drugs**	• Dose and duration of drugs used in dialysis. • The administration of drugs and the effect of dialysis on the action of drugs • List of drugs that are dialyzable, action, dosage, side effects and contraindications of phenobarbitone, lithium, methanol etc	2
6	**Analgesics**	• Types of analgesics (Paracetamol, NSAIDs, Opioids) • Renal diseases and analgesics	2
7	**Diuretics and Antihypertensives**	• Introduction to diuretics, definition, classification, actions, dosage, side effects & contraindications • Definition, classification, actions, dosage, side effects and contraindications, • Special reference during dialysis, • Vasopressors, • Drugs used in Hypotension	4
8	**Drugs used in chronic kidney disease (CKD) management**	• Drugs used in CKD anemia (Erythropoietin, Iron, folic acid) • Drugs used in the treatment of dialysis complications (Hyperphosphatemia, hyperuricemia, hyperparathyroidism, itching, hyperlipidemia) • Vitamin D and its analogues, and calcium	4
9	**Nephrotoxic drugs**	• Drugs and acute kidney injury • Drugs and CKD	1

Unit No.	Topics	Unit Content	Time Needed
10	**Anticoagulants**	• Introduction to heparin and Low molecular weight heparin. • Description of Heparin & LMWH, pharmacokinetics, mode of action, indications and use, dosage and route of administration & side effects • Warfarin • Introduction to protamine, mode of action, pharmacokinetics, indications, uses, dosage, route of administration, side effects, precautions, contraindications	2
11	**Antimicrobial drugs**	• General considerations • Penicillin, Cephalosporines, Macrolides, Beta-lactam antibiotics, Fluoroquinolones, Aminoglycosides, Metronidazole Antiretroviral drugs used in post-exposure prophylaxis	2
12	**Drugs used in emergencies**	• Atropine • Adrenaline • Nor-adrenaline • Dopamine & Dobutamine • Chlorpheniramine maleate • Vasopressin •Aminophylline • Sodium bicarbonate • Hydrocortisone & dexamethasone	2

Method of teaching

Lectures, Discussion, Presentation. Videos, animations

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

1. DiPiro J.T., & Yee G.C., & Haines S.T., & Nolin T.D., & Ellingrod V.L., & Posey L(Eds.), (2023). *DiPiro's Pharmacotherapy: A Pathophysiologic Approach, 12th Edition*. McGraw Hill
2. Manceno, & Gallagher. (2019**)**. Frequently prescribed medications. Jones & Bartlett. The 3rd edition.
3. Smith, B. (2016) Pharmacology For Nurses. Jones & Bartlett
4. Karch, A. (2016). Focus on Nursing Pharmacology, (7th Ed.), Lippincott and Wilkins
5. Sheridan, E. (2008). Falconer's the Drug, the Nurse, the Patient, W B Saunders Co

Para- Medical Program	
Specialization	**Artificial kidney Technician**
Course Number	**020821132**
Course Title	**Principles and Equipment of Dialysis**
Credit Hours	**3**
Theoretical Hours	**1**
Practical hours	**6**

Course description:

This course discuss the instructions for usage from the integral part of the dialysis machine and describe the appropriate and safe use of the dialysis machine at all stages of operation . Deal with machine dysfunction and different alarms during treatment. And discuss the importance of water purification in Hemodialysis.

Course objectives:

Intended Learning Outcomes

Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

1. Identify all the safety features on a hemodialysis machine.
2. Critically evaluate the importance & role of all technical aspects of the hemodialysis machine.
3. Evaluate the importance of water purification in hemodialysis.
4. Understand the complications of raw untreated water.

B. Intellectual skills

1. Explore the need for different hemodialysis prescriptions
2. Discuss different hemodialysis filter membranes and sizes
3. Discuss and explore the rationale for different dialysate concentrations and flows and when they may be required.

C. Subject specific skills

1. Connect and disconnect the patient properly.
2. Dealing properly with dialysis machine.

Course outline:

Unit No.	Unit name	Unit Content	Time
1	**hemodialysis machine**	• Connect the extra-corporeal circuit to the machine, do priming correctly. • Definition, indications, uses, method of initiation of dialysis. • Contraindications of therapy. • Complications of therapy , prevent complications. • Disinfection programs of the machine and disinfection solutions follow instructions for these solutions. • Dialyzer preparation. • Various dialysate compositions, its uses and indications. • Method for obtaining various compositions of dialysate. • Types of dialysis machine. • How dialysis machine work. • Machine circuit. • Composition & dilution (acetate & bicarbonates)	
2	**High flux / high efficiency dialysis**	• Definition of high flux / high efficiency dialysis. • Differences between high flux dialysis and Hemodialysis, used and indications for high flux dialysis, • Complications of high flux dialysis, precautions and contraindications. • Care during a high flux dialysis.	
3	**Patient assessment pre dialysis**	• Dialysis equipment. • Measuring vital sings and pre dialysis weight for the patient, holistic assessment for the patient. • Dry weight.	
4	**Patient connection and disconnection to dialysis machine**	• Initiation and termination guidelines.	
5	**Dialysis Team**	• Rights-responsibilities-patient technician relationship • The overview of the dialysis team. • Responsibilities of a technologist, doctor in the dialysis setting • Building effective working relationship- Its importance • Dealing with difficult working relationships • Respect the rights of the patient(s) • Conflict Management	

Unit No.	Unit name	Unit Content	Time
6	**Equipment, Accessories and Function**	• Parts of a dialysis machine. • Tubing and the water supply for dialysis. • Overview of the various equipment ,accessories and working of a dialysis machine • The technology, functioning, calibration, and sterilization of dialysis machine according to their: Type/ brand, Frequency and duration of use. • Importance of Calibration and Sterilization. • Recording (Calibration, Sterilization and set up details). • Planning and Organizing Scheduled Maintenance • Various indicators, alarms and sensors of the dialysis machine. • Corrective steps to be taken when a particular alarm goes off.	
7	**Renal data maintenance**	• Records and reports maintained in the dialysis unit. • Need for maintenance of records and report. • The technologist's responsibility in maintenance of records and report. • Medico legal aspects of maintenance of records	
8	**Water treatment**	• Define reverse osmosis water. • Purpose of water treatment for dialysis. • Components of a dialysis water treatment system. • Advantages and disadvantages of water softeners, carbon tanks, reverse osmosis, deionization, and ultraviolet irradiation in the treatment of water for dialysis. • Monitoring of water treatment systems • Disinfection, microbiological testing, water sampling and chemical monitoring. • Method for microbiological testing of the water treatment system. • Typical water treatment monitoring schedule. • Reverse osmosis process and system: definition of RO, cartridge pre – filter, reverse osmosis pump and monitor assembly, RO membranes.	

Teaching Methodology:

Discussions and lecture Presentations, videos, animations.

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
reports and Projects	20%	
Total	**100%**	

References:

10. Nicola Thomas,(2019).Renal Nursing.(5th Edition).
11. Edgar V.Lerma,Matthew R.Weir(2017).Principles and practice of dialysis,(fifth Edition) Wolters Kiuwer.
12. Judith Z. Kallenbach C.f.Gutch , Martha H. Stoner,Anna L.Corea ,(2020).Review of hemodialysis for nurses and dialysis personnel,(10th Edition).

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821134**
Course Title	**Hemodialysis 1**
Credit Hours	**2**
Theoretical Hours	**2**
Practical hours	**0**

Course description:

This course introduces the theory of dialysis. Topics include the principles of dialysis, nutritional needs, patient preparation and interaction, diagnostic tests, and measurement of the effectiveness and adequacy of dialysis. Building on the foundations of previous courses, student will examine the impacts of altered health states and plan best care for clients and their families. Topics include the care of clients who are experiencing acute and chronic renal disorders and undergoing hemodialysis.

Course objectives:

Intended Learning Outcomes

Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

1. Identify related treatment modalities.
2. Comprehend the various modalities of renal replacement therapy with the knowledge of merits and demerits of each.
3. Comprehend the principles of hemodialysis, the various forms of hemodialysis and when each is to be used in the clinical setting.

4.Discus the principles and processes, and the history of dialysis.
5. Demonstrate beginning theoretical, technical, and clinical skills needed to provide patient care techniques in the dialysis units.
6. List and describe the various vascular access devices used in Hemodialysis and its complications.
7. High efficiency dialysis & Hemodialysis in terms of purpose, indications, advantages, disadvantages and the responsibilities of a technicians.
8. Practice and perform independently the water maintenance for the Hemodialysis room.
9. Independently maintain the Hemodialysis machine with respect to disinfection and Priming
10. How to prepare the patient for kidney transplantation, know the complications.

B. Intellectual skills

1. Utilize the nursing process as a frame work to follow-upcare of the client with renal failure.
2. Discuss the clinical indications, client preparation and other related technicians implications for common tests and procedures.

C. Subject specific skills

1. Develop an individualized teaching plan to the client and family.

Course outline:

Unit No.	Unit name	Unit Content	Time
1	**History, types of Dialysis**	• Genesis of dialysis, invention and the process involved in the evolution of dialysis. • Types of dialysis and classification. Dialysis for acute kidney injury, dialysis for chronic kidney. • Solute Transfer. • Terminology. • Types of dialysis. • the dialysate • Buffers	
2	**Principles of Dialysis**	• Principles of dialysis (diffusion, filtration, ultra filtration, convection, and osmosis. • Solute transport and fluid movement during dialysis. • Principles of fluid dynamics. • Indication of treatment. • Hemodialysis prescription. • Hemodialysis equipment • Patients assessment. • Patients preparation for hemodialysis. • priming of the dialyzer. • Intra dialytic assessment and monitoring. • Post dialytic assessment.	
3	**Preparation and positioning of patient and Machine for dialysis Hemodialysis**	• Patient Assessment – Pre, intra & post dialysis & Machine and patient • Monitoring during Hemodialysis • Introduction to patient assessment, Understanding a treatment plan, Equipment • preparation (Dialysate, Dialyzer and Bloodlines, Decisions regarding the appropriate size) • Type of catheter/ IV tubing to be used • Connecting patients to the machine • Initiation of dialysis. • Removing fluid • Replacing fluid. • Creatinine clearance. • Drawing blood samples (Testing blood sample). • Dialysis and post dialysis care. • Communicating and documenting the findings prior to the dialysis process.	

Unit No.	Unit name	Unit Content	Time
		• Starting the dialysis treatment: Monitoring during dialysis - Patient Monitoring (blood pressure, temperature, rate of blood flow, proper mixture of dialysate, presence of air bubbles) • Technical Monitoring. • Importance of reporting • Procedure to disconnect the patient • Procedure for removing the IV cannula • Post dialysis procedures, Post dialysis patient evaluation. • Recording of the Treatment, Recording changes in Patient's condition, • Preparation of status and progress reports. • Equipment cleans up and Maintenance. • Recording the dialysis procedure on the medical report/chart of the patient	
4	**Vascular Access Temporary and Permanent**	• Types of vascular access – Fistulae, Grafts, Catheters. • Peripheral vascular access. • Central vascular access. • Cannulation of vascular access. • Cannulation technique • Complications. • Patient and family education. • Pre dialysis assessments for all types of vascular access. • Methods of needle insertion for AVFs and grafts. • Pre dialysis assessment, accessing procedure, exit site care, and monitoring of catheters • Monthly assessments and investigations. • The role of the technicians in the dialysis units.	
5	**Acute and chronic dialysis prescription**	• Common prescription for patients with ARF and CRF(Actions, side effects and special considerations) • Dialysis in the intensive care setting Emergency care and Intensive care of a dialysis patient. • Plasmapheresis, CRRT. • Preparation of dialysis patients for various surgical procedure and post-operative Dialysis support	
6	**Kidney transplantations**	• History of transplantation. • Recipient selection and preparation. • General medical and physical examination. • Contraindications. • Matching the donor and recipient • Cadaveric donations.	

Unit No.	Unit name	Unit Content	Time
		• Complications. • Rejection. • Immunosuppression.	

Teaching Methodology:

Discussions and lecture Presentations, videos, animations, cases, group discussion, , live patterns & samples, practical applications, field visits (industries).

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

13. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Single Volume, (10th Ed.) Elsevier.
14. Scott, J Gilbert.,Danial E,wiener(2022).primer on kidney disease: national kidney foundation,(8th edition).
15. Nicola Thomas(2019).Renal Nursing.(5th Edition).
16. Capriotti,T(2021).Pathophysiology made incredibly visual,(6th edition).
17. Lewis, Dirks (2022). Clinical companion to medical surgical nursing. (12th Ed.) Elsevier
18. Hinkle, J. Cheever, K. (2022). Brunner &Suddarth's Textbook of Medical-Surgical Nursing (15th Ed).Lippincott Williams & Wilkins
19. LeMone, P., Burke, K., Bauldoff, G., Gubrud, P. (2019) Medical-Surgical Nursing: Clinical Reasoning in Client Care (7th Edition) (Medical Surgical Nursing – Lemone (6th Ed.)Pearson

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821136**
Course Title	**hemodialysis 1(clinical)**

Credit Hours	**4**
Theoretical Hours	**0**
Practical hour	**12**

Course description

This course is the clinical component of hemodialyis1 course. It designed to equip students with the theory and skills necessary to provide evidence-based, quality care to patients with renal/urological disorders in today's challenging healthcare environment .It allows the technician student to utilize the knowledge, skills and critical thinking to provide safe effective care to adults and the elderly with renal disorders and undergoing dialysis. The course is arranged within acute and long term care settings.

Course objectives:

Upon the completion of this course the student will be able to:

1. Explore the etiology and pathophysiology of renal disorders and their physiological effects on other body systems.
2. Evaluate the holistic assessment of the patient presenting with a diagnosis of renal disease.
3. Demonstrate awareness of the holistic nursing care and management of the renal patient receiving renal replacement therapies.
4. Demonstrate an awareness of the Course content & assessment Explain what is expected of them whilst on the course.
5. Analyze the psychological implications of the diagnosis of kidney disease.
6. Critically evaluate the multidisciplinary care of kidney disease protocols.
7. Explore the relationship of the heart, hypertension and kidney failure.
8. Critically evaluate the treatment options.
9. Apply the most appropriate protective strategies for the hypotension prone patient on an individual basis.
10. Describe the purpose, significance of results related to diagnostic studies of the urinary system.
11. Receive and assess the patients undergoing hemodialysis for a new session.
12. Gain knowledge about the equipment used in the unit.
13. Initiate the hemodialysis properly.
14. Adhere to aseptic technique during hemodialysis access procedures
15. Acquire knowledge on specific treatments such as hemodialysis, peritoneal dialysis, kidney transplant. Provide effective nursing care of patients, pre and post renal transplant

Course outline:

Unit No.	Unit name	Unit Content	Time Needed
	Participation in the care of patient with renal disorder	• Evaluation of CKD. • Management and Renal replacement therapy options. • Nutritional requirements of healthy adults, effects of renal failure on nutrient metabolism, lipid abnormalities. • Overview of calcium phosphorous metabolism, trace elements and vitamins.	
	Hemodialysis	• The process of Hemodialysis. • Vascular access. • Starting Hemodialysis. • Priming of the dialyzer. • Alarms and the settings of a dialyzer. • Completion of Hemodialysis. • Closing the Hemodialysis. • Cleaning of the tubing and dialyzer and the dialysis machine	
	Participation in the care of patient with alteration blood pressure	• Blood pressure: definition, normal value, clinical measurement of blood pressure, • Hypotension, hypertension. Factors affecting it and regulation	
	Participation in patient investigations	• Tests done for a patient on Hemodialysis. • Interpretation of tests and normal values. • Blood chemistry- Biochemical components and their reference ranges in normal and diseased states. • Specimen Collection (Blood, Urine and Body	

Unit No.	Unit name	Unit Content	Time Needed
		fluids). • Oxygen therapy administration.	
	Kidney Transplantation	• The student will recognize the options for patient with ESRD, basics in transplant immunology, donor selection, recipient evaluation • The students will know the science of deceased donor and living donor renal transplant, ischemia times and its impact on kidney function, immune suppression used in transplant. • Problems encountered in transplant recipient-rejection, infection, drug toxicity.	

Teaching Methodology:

Demonstrations in the clinical area of all skills required for caring for adults and elderly patients.

• Bedside teaching
• Case study
• Clinical Tutorial
• Video films related to cases in hospitals

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30	--/--/----
Homework and Projects	20	--/--/----
Final exam	50	
Total	**100%**	

References:

20. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Single Volume, (10th Ed.) Elsevier.
21. Scott, J Gilbert.,Danial E,wiener(2022).primer on kidney disease: national kidney foundation,(8th edition).
22. Nicola Thomas(2019).Renal Nursing.(5th Edition).
23. Capriotti,T(2021).Pathophysiology made incredibly visual,(6th edition).
24. Lewis, Dirks (2022). Clinical companion to medical surgical nursing. (12th Ed.) Elsevier

25. Hinkle, J. Cheever, K. (2022). Brunner &Suddarth's Textbook of Medical-Surgical Nursing (15th Ed).Lippincott Williams & Wilkins
26. LeMone, P., Burke, K., Bauldoff, G., Gubrud, P. (2019) Medical-Surgical Nursing: Clinical Reasoning in Client Care (7th Edition) (Medical Surgical Nursing – Lemone (6th Ed.)Pearson

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821231**
Course Title	**Hemodialysis 2**
Credit Hours	**2**
Theoretical Hours	**2**
Practical hours	**0**

Course description:

This course introduces Explore the complications associated with hemodialysis including their management and prevention. Evaluate the effectiveness of the multidisciplinary team in the provision of a support network to the urological patient and their families.

Course objectives:

Intended Learning Outcomes

Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

1. Comprehend the process of dialysis, the role of a technologist with respect to the pre, intra and post dialysis process.
2. Start and close Hemodialysis sessions independently.
3. Enumerate the various drugs used during the dialysis process.
4. Comprehend and describe the action, indication, dosage, route of administration & side effects of heparin in Hemodialysis. Manage the anticoagulation on patients on dialysis.
5. Enumerate on the various complications of Hemodialysis in terms of the technologists responsibility in prevention and worsening of the complications.
6. Correctly assess the patient's vital signs and weight. Successfully cannulate arterio – venous fistulae for Hemodialysis
7. Calculate weight gain and target for the hemodialysis patient and correctly program the machine.

8. How to calculate dialyzer and extracorporeal circuit size, blood flow rate, and dialysate flow rate and temperature and ultrafiltration rate for patients of different sizes and different ages.
9. Correctly drawing up and labeling saline, heparin, syringes; prepare packs and basins.
10. Check blood tests, and identify the normal ranges for each.
11. Discuss methods of measuring effectiveness and adequacy of dialysis.
12. Appreciate the legal and ethical issues relevant to chronic renal failure.
13. Medication calculation and administration.
14. Appreciate the care of death and dying patient.
15. Describe the nutrition requirement for a patient with chronic kidney disease & acute kidney injury, & prepare a health teaching plan for the same.

B. Intellectual skills

1. Utilize the nursing process as a frame work to follow-upcare of the client with End Stage Renal Disease (ESRD).
2. Discuss the clinical indications, client preparation and other related nursing implications for common tests and procedures.

C. Subject specific skills

1. Develop an individualized teaching plan to the client and family.

Course outline:

Unit No.	Unit name	Unit Content	Time
1	**Dialysis, quantification of adequacy**	. • Measuring dialysis adequately: Urea reduction ratio • Urea Kinetic Modeling. • BUN Measurement. • Factors affecting dialysis treatment, • Measurement of KT/V. • Pre –dialysis and post dialysis care.	
2	**The extracorporeal circuit**	• Dialyzer design • Hollow fiber dialyzer • membranes • blood lines • Complications during dialysis: Clinical complications, Technical Complications	
3	**Drugs & dialysis**	• Dose and duration of drugs used in dialysis. • The administration of drugs and the effect of dialysis on the action of drugs. • Dialyzable drugs (List of drugs that are dialyzable, action, dosage, side effects and contraindications). • Clearance • Drug removal during dialysis • Factors affecting removal • Anemia correction (medications) and nursing care. • Erythropoietin (use of erythropoietin. Its action, function - Primary role in RBC formation and secondary role. Mechanism of action , Indications for use , available forms and dosages) • Protamine sulphate (Introduction to protamine, mode of action, indications, uses, dosage, route of administration, side effects, precautions, contraindications). • Antihypertensive use (considerations during dialysis). • Vaccines for patients on hemodialysis, need and the schedule. • Dialysis for pregnant women. • Blood and blood component transfusion. • Dialysis for acute patients.	
4	**Anticoagulation**	• Anticoagulation drugs • Anticoagulation during hemodialysis	

Unit No.	Unit name	Unit Content	Time
		• Complications associated with anticoagulation therapy and nursing care. • Bleeding tendencies. • Vascular access clotting. • Heparin including low molecular weight heparin (Introduction to heparin and Low molecular weight heparin. Description of Heparin and LMWH, pharmacokinetics, mode of action, indications and use, dosage and route of administration and side effects • Use of anticoagulation in the dialysis setting, various anticoagulants used in dialysis. Monitoring during use of anticoagulants, Method of administration, Calculation of anticoagulant use and complications. • Heparin free dialysis (need and indication). • Regional citrate anticoagulation	
5	**Complications in dialysis patients**	• Hypotension and nursing care. • Nausea and vomiting and nursing care. • Cramp and nursing care. • Disequilibrium and nursing care. • Dialyzer reactions and nursing care. • Hemolysis and nursing care. • Air embolism and nursing care. • Clotting of the blood lines and dialyzer and nursing care. • Seizure and nursing care. • Prevention of complications. • Education to patient on prevention of complications. • Emergency management of hypotension & hemorrhage • Acute complications (monitoring, prevention for acute complications). • Chronic complications (list, prevention strategies, monitoring for chronic complications).	
	Psychosocial aspects and patient education	• Psychological impact of a chronic disease. • The financial implications of the disease. • The family and its role in the care of the patient with CRF. • Patient education • Diet • Prevention of complications, drug compliance.	
	prescription	• Acute and chronic dialysis prescription. • Calculate weight gain and target for the hemodialysis patient and correctly program the machine. • In-home treatment and precaution	

Unit No.	Unit name	Unit Content	Time
		• Identification of the type of patient for whom in house treatment is possible and in line with doctor's advice, procedure of in-house treatment options, The relevant protocol and procedures to be followed to carry out the process	

Teaching Methodology:

Discussions and lecture Presentations, videos, animations, cases, group discussion, live patterns & samples, practical applications.

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

1.Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Single Volume, (10th Ed.) Elsevier.
2. Henrich's Principles and Practice of Dialysis Fifth Edition(2017)
3.Edgar V.Lerma,Matthew R.Weir(2017).Principles and practice of dialysis,(fifth Edition) Wolters Kiuwer.
4.Scott, J Gilbert.,Danial E,wiener(2022).primer on kidney disease: national kidney foundation,(8th edition).

5.Review of Hemodialysis for Nurses and Dialysis Personnel,10th Edition - April 3, 2020
6.Nicola Thomas(2019).Renal Nursing.(5th Edition).
7.Capriotti,T(2021).Pathophysiology made incredibly visual,(6th edition).
8.Lewis, Dirks (2022). Clinical companion to medical surgical nursing. (12th Ed.) Elsevier

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821233**
Course Title	**Hemodialysis 2 (clinical)**
Credit Hours	**4**
Theoretical Hours	**0**
Practical hour	**12**

Course description

This course aims to prepare practitioners working in hemodialysis Units for their role within renal health care. They will have the opportunity to develop and critically evaluate specialist hemodialysis skills and knowledge in order to deliver high quality compassionate care to patients undergoing hemodialysis treatment. There will be emphasis on the wider context of care.

Course objectives:

Upon the completion of this course the student will be able to:

1. Develop and critically review their own skills and competence in the holistic care of the patient undergoing hemodialysis.
2. Enhance systematic assessment skills and professional experience to influence hemodialysis patient outcomes.
3. Critically evaluate and reflect on the professional role of the hemodialysis technician within the inter-disciplinary settings and other members of the multi-disciplinary team to gain a more insightful perspective.
4. Critically explore the complications associated with hemodialysis and peritoneal dialysis
   therapies including their management and prevention.
5. Critically discuss the physiological concepts and principles of dialysis adequacy.
6. Critically explore the forms of therapy available for the management of acute renal failure in the critical care setting
7. Manage the complications of hemodialysis depending on implementation of nursing care plan.
8. Take blood samples in a correct way.
9. Critically evaluate the treatment options
10. Learn the physical set-up of unit.
11. Have knowledge of various drugs, their doses, route of administration used for patients of genito urinary disorders.
12. Gain sound knowledge of diets prescribed in conditions like nephritic syndrome, ARF, CRF, urolithiasis, glomerular nephritis.
13. Provide complete physical, spiritual, emotional support and promote the health status of the patient and the family members.
14. Able to maintain healthy and good communication skills with patients and their family members and with other health team.
15. .Give health education to patients and family members

1. Course outline:

Unit No.	Unit name	Unit Content	Time Needed
1	**care of patient with chronic renal diseases and undergoing hemodialysis**	• The students will assess the patient properly. • The students will recognize the treatment options, decision to start dialysis and withdrawal of dialysis.	
2	**Participation in the preparation of hemodialysis machine**	• The student will participate in pre dialysis patient education, assessment. • The students will recognize the basics of hemodialysis and urea kinetic modeling. • The student will recognize mechanisms of solute transport, • he student will calculate the dialyzer clearance, kt/v and urea reduction ratio adequacy in hemodialysis • The students will know and participate in HD apparatus (blood circuit, dialysate circuit, monitors and alarms, pumps). • Dialyzers (types /structure/membrane/clearance/ high flux and low flux).	
3	**Participate in providing nursing care ,cannulation for the patient with vascular access**	• The students will know the vascular access for hemodialysis- venous catheters (type, design, location of • Insertion and methods used, complications of CVC, maintenance of dialysis catheters) • The students will know the Arterio venous access AVF/AVG (pre surgical evaluation, advantages, complications. • Participate in cannulation techniques, measuring access flow, general measures to reduce infection)	
4	**Participate in dose calculation and administration of medication**	• Oral, Intravenous, Intradermal, subcutaneous rectal drugs)	

Unit No.	Unit name	Unit Content	Time Needed
5	**Acute and Chronic Hemodialysis**	• The students will participate in preparation hemodialysis for acute renal failure(indications, vascular access, HD prescription) • Chronic hemodialysis- indications, residual renal function, clearance targets and • Adequacy, chronic HD prescription, dry weight, complications, access recirculation.	
6	**Anticoagulation**	- The student will recognize anticoagulation used in hemodialysis, various protocols influencing clotting of extracorporeal circuit clotting. • Drugs used for anticoagulation, monitoring of anticoagulation, calculation.	
7	**Complications**	- The student will Participate in providing nursing care for patient with complications of HD(Hypotension, causes and management , Headaches, Chest pain and back pain, Leg cramps, dialyzer reactions, itching, nausea, dialysis disequilibrium (etiology and management), seizures, cardiac arrhythmias, air embolism. - Renal anemia and its management- etiology, symptoms, treatment, indications for Dosing of erythropoietin and its side effects.	

Teaching Methodology:

Demonstrations in the clinical area of all skills required for caring for adults patients.

• Bedside teaching
• Case study
•Personal and Group Tutorials Practice placements
•Directed reading and study including online reading list Case studies and discussion
• Video films related to cases in hospitals

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30	--/--/----
reports and Projects	20	--/--/----
Final exam	50	
Total	**100%**	

References:

1. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Single Volume, (10th Ed.) Elsevier.
2. Scott, J Gilbert.,Danial E,wiener(2022).primer on kidney disease: national kidney foundation,(8th edition).
3. Nicola Thomas(2019).Renal Nursing.(5th Edition).
4. Capriotti,T(2021).Pathophysiology made incredibly visual,(6th edition).
5. Lewis, Dirks (2022). Clinical companion to medical surgical nursing. (12th Ed.) Elsevier
6. 6. Hinkle, J. Cheever, K. (2022). Brunner &Suddarth's Textbook of Medical-Surgical Nursing (15th Ed).Lippincott Williams & Wilkins
7. LeMone, P., Burke, K., Bauldoff, G., Gubrud, P. (2019) Medical-Surgical Nursing: Clinical Reasoning in Client Care (7th Edition) (Medical Surgical Nursing – Lemone (6th Ed.)Pearson

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821232**
Course Title	**Peritoneal dialysis**
Credit Hours	**2**

Theoretical Hours	**2**
Practical hours	**0**

Course description:

This course focuses on the principles of peritoneal dialysis (PD), the application of the concepts of transition to the context and the theory of peritoneal dialysis, comprehensive nursing assessments and care of clients living with peritoneal dialysis, and integrating self-management and self-management support into practice. The emphasis will be on empowering clients on dialysis to self-manage through collaborative goal setting.

Intended Learning Outcomes

Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

1. Summarize the indications for peritoneal dialysis.
2. Describe the equipment needed for insertion of a peritoneal dialysis catheter.
3. Outline the complications of peritoneal dialysis.
4. The students will recognize and participate in the setting up of acute PD- catheter insertion, connections, performing and monitoring of PD
5. Describe the process of peritoneal dialysis, the indications, dialysate required and the various complications.

6. The students will recognize and participate in the setting up CAPD, performing and monitoring of CAPD, CAPD catheter insertion. Independently operate machines, CAPD cyclers & initiate CAPD therapy.
7. Technical aspects of APD machine and performing and monitoring of APD
8. The students will educate patients on peritoneal dialysis on aspects of the prevention of peritonitis
9. Review inter professional team strategies for enhancing care coordination and communication to advance the safe use of peritoneal dialysis in patients with renal failure.
10. Train patients and the care givers in performing peritoneal dialysis.

B. Intellectual skills

1. Utilize the nursing process as a frame work to follow-up care of the client with renal failure.
2. Discuss the clinical indications, client preparation and other related technicians implications for common tests and procedures.

C. Subject specific skills

1. Develop an individualized teaching plan to the client and family.

Course outline:

Unit No.	Unit name	Unit Content	Time
1	**History and principles of peritoneal Dialysis**	• Genesis of dialysis, invention and the process involved in the evolution of dialysis. • Anatomy • Physiology of peritoneal dialysis • Solute Transfer. • Terminology. • the dialysate • Buffers(Types of solutions)	
2	**Principles of peritoneal Dialysis**	• Principles of dialysis • Solute transport and fluid movement during dialysis. • Principles of fluid dynamics. • Indication of treatment. • Peritoneal dialysis prescription. • peritoneal dialysis equipment • Patients assessment. • Patients preparation • peritoneal dialysis.priming. • Intra dialytic assessment and monitoring. • Post dialytic assessment. • Dialysis for diabetic patient.	
	Types of peritoneal Dialysis	• CAPD(Continuous ambulatory peritoneal dialysis) • CCPD (Continuous cycling peritoneal dialysis) • APD (Automated peritoneal dialysis) • Patient selection.	
3	**Preparation and positioning of patient and Machine for peritoneal dialysis**	• Patient Assessment (Pre, intra, post dialysis, Machine and patient preparation). • Monitoring during dialysis • Introduction to patient assessment, Understanding a treatment plan, Equipment • preparation (Dialysate, Dialyzer, prescription , appropriate size) • Type of catheter/ IV tubing to be used • Connecting patients • Initiation of dialysis. • Removing fluid • Replacing fluid. • Creatinine clearance. • Drawing peritoneal samples. • Dialysis and post dialysis care.	

Unit No.	Unit name	Unit Content	Time
		• Communicating and documenting the findings prior to the dialysis process. • Starting the dialysis treatment: Monitoring during dialysis - Patient Monitoring (blood pressure, temperature, flow, proper) • Technical Monitoring. • Importance of reporting • Procedure to disconnect the patient • Post dialysis procedures, Post dialysis patient evaluation. • Recording of the Treatment, Recording changes in Patient's condition, • Preparation of status and progress reports. • Equipment cleans up and Maintenance. • Recording the dialysis procedure on the medical report/chart of the patient • Acute and Chronic Peritoneal Dialysis. History, access, physiology of Peritoneal Dialysis. • PD (Transport kinetics, ultrafiltration, UF, Peritoneal Dialysis, Dialysis Solutions, Novel uses of PD. • Adequacy of peritoneal dialysis • chronic peritoneal Dialysis • KT/V Creatinine clearance. • PET (Peritoneal Equilibrium test and interpretation).	
	Infectious and noninfectious complications of PD	• Introduction to complications in peritoneal dialysis. • List of Complications: Catheter Infections Peritonitis Inadequate flow or drainage of the dialysis fluid Lesions Ultra filtration failure. • Management of exit site infection, Early Exit Site Care. • Chronic Care of the Healed Exit Site Diagnosing Exit Site • Infections Treatment of exit-site infections • Technique to culture exit site infection • Medical management of CAPD peritonitis • Initiation of therapy based on gram stain results Antibiotic selection. • Contraindication • Nursing care • Drug use • Anemia	

Teaching Methodology:

Discussions and lecture Presentations, videos, animations, cases, group discussion, , live patterns & samples, practical applications, field visits (industries).

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

27. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Single Volume, (10th Ed.) Elsevier.
28. Scott, J Gilbert.,Danial E,wiener(2022).primer on kidney disease: national kidney foundation,(8th edition).
29. Nicola Thomas(2019).Renal Nursing.(5th Edition).
30. Capriotti,T(2021).Pathophysiology made incredibly visual,(6th edition).
31. Lewis, Dirks (2022). Clinical companion to medical surgical nursing. (12th Ed.) Elsevier
32. Hinkle, J. Cheever, K. (2022). Brunner &Suddarth's Textbook of Medical-Surgical Nursing (15th Ed).Lippincott Williams & Wilkins
33. LeMone, P., Burke, K., Bauldoff, G., Gubrud, P. (2019) Medical-Surgical Nursing: Clinical Reasoning in Client Care (7th Edition) (Medical Surgical Nursing – Lemone (6th Ed.)Pearson

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821234**
Course Title	**Peritoneal dialysis (clinical)**
Credit Hours	**2**
Theoretical Hours	**0**
Practical hour	**6**

Course description

This course aims to prepare practitioners working in dialysis Units for their role within renal health care. They will have the opportunity to develop and critically evaluate specialist peritoneal dialysis skills and knowledge in order to deliver high quality compassionate care to patients undergoing peritoneal dialysis treatment. There will be emphasis on the wider context of care.

Course objectives:

Upon the completion of this course the student will be able to:

16. Develop and critically review their own skills and competence in the holistic care of the patient undergoing peritoneal dialysis.
17. Enhance systematic assessment skills and professional experience to influence peritoneal dialysis patient outcomes.
18. Critically evaluate and reflect on the professional role of the dialysis technician within the inter-disciplinary settings and other members of the multi-disciplinary team to gain a more insightful perspective.
19. Critically explore the complications associated with peritoneal dialysis therapies including their management and prevention.
20. Critically discuss the physiological concepts and principles of dialysis adequacy.
21. Critically explore the forms of therapy available for the management of acute renal failure in the critical care setting
22. Manage the complications of peritoneal dialysis depending on implementation of nursing care plan.
23. Take peritoneal samples in a correct way.
24. Critically evaluate the treatment options
25. Learn the physical set-up of unit.
26. Have knowledge of various drugs, their doses, route of administration used for patients.
27. Provide complete physical, spiritual, emotional support and promote the health status of the patient and the family members.
28. Able to maintain healthy and good communication skills with patients and their family members and with other health team.
29. .Give health education to patients and family members

2. Course outline:

Unit No.	Unit name	Unit Content	Time Needed
1	**care of patient with chronic renal diseases and undergoing peritoneal dialysis**	• The students will assess the patient properly. • The students will recognize the treatment options, decision to start dialysis and withdrawal of dialysis.	
2	**Participation in the preparation of peritoneal dialysis**	• The student will participate in pre dialysis patient education, assessment. • The students will recognize the basics of peritoneal dialysis and urea kinetic modeling. • The student will recognize mechanisms of solute transport. • Dialysate, solution types clearance.	
3	**Participate in dose calculation and administration of medication**	• Intra peritoneal medication • Anemia correction • Sampling • Drugs used for anticoagulation, monitoring of anticoagulation, calculation. • Various protocols	
4	**Acute and Chronic peritoneal dialysis**	• The students will participate in preparation for acute renal failure(indications, prescription) • Adequacy, chronic HD prescription Chronic indications for peritoneal dialysis, residual renal function, clearance targets and, dry weight, complications, access.	
5	**Complications**	• The student will Participate in providing nursingcare for patient with complications, causes and management • Acute complication • Chronic complication • Contraindication • Nursing care • Drug use • Anemia	

Unit No.	Unit name	Unit Content	Time Needed

Teaching Methodology:

Demonstrations in the clinical area of all skills required for caring for adults patients.

- Bedside teaching
- Case study
- Personal and Group Tutorials Practice placements
- Directed reading and study including online reading list Case studies and discussion
- Video films related to cases in hospitals

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30	--/--/----
reports and Projects	20	--/--/----
Final exam	50	
Total	**100%**	

References:

8. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Management of Clinical Problems, Single Volume, (10th Ed.) Elsevier.
9. Scott, J Gilbert.,Danial E,wiener(2022).primer on kidney disease: national kidney foundation,(8th edition).
10. Nicola Thomas(2019).Renal Nursing.(5th Edition).
11. Capriotti,T(2021).Pathophysiology made incredibly visual,(6th edition).
12. Lewis, Dirks (2022). Clinical companion to medical surgical nursing. (12th Ed.) Elsevier

6. Hinkle, J. Cheever, K. (2022). Brunner &Suddarth's Textbook of Medical-Surgical Nursing (15th Ed).Lippincott Williams & Wilkins

7.LeMone, P., Burke, K., Bauldoff, G., Gubrud, P. (2019) Medical-Surgical Nursing: Clinical Reasoning in Client Care (7th Edition) (Medical Surgical Nursing – Lemone (6th Ed.)Pearson

Para- Medical Program	
Specialization	**Artificial kidney technician**
Course Number	**020821236**
Course Title	**Pediatric dialysis**

Credit Hours	**3**
Theoretical Hours	**1**
Practical hours	**6**

Course description:

This course focuses on the health care needs of pediatric and adolescent clients suffering from common acute and chronic renal disorders. Building on the foundations of previous courses the student will examine the impacts of altered health states and care for clients and their families for patient who undergoing dialysis. This course introduced the student to appropriate scientific knowledge which enables them to develop their own unique clinical and educational approach to care of children; this is achieved through utilizing the nursing process, developmental theories, new trends and the latest approaches in the management and caring of children. The course encourages students to utilize knowledge synthesis, problem solving techniques, critical thinking, and family centered approached in the provision of empowered care.

Course objectives:

Intended Learning Outcomes

Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

1. Define acute and chronic renal failure and other diseases in children and will understand current accepted classification schemes of staging for severity.

2. Critically explore the forms of therapy available for the management of acute and chronic renal failure in the critical care setting.
3. Demonstrate critical awareness of the holistic care and management of the renal patient receiving hemodialysis or peritoneal dialysis treatments.
4. Understand the unique challenges of providing acute and chronic renal replacement therapy for neonates, infants, and small children including choices of access, flow rates, extracorporeal circuit and dialyzer sizes.
5. How to calculate dialyzer and extracorporeal circuit size, blood flow rate, and dialysate flow rate and temperature and ultrafiltration rate for patients of different sizes and different ages, including the newborn and infant.
6. Compare /contrast the different types of PD catheters in terms of shape, cuff(s), placement for all pediatric age groups (neonates, infants, children, adolescents).
7. Participate in dose calculation and administration of medication
8. Assist in the implementation of a nursing care plan for a child undergoing hemodialysis
9. Participate in managing and caring of the urgent cases.
10. Analyze the physiological differences between children and adults
11. Safety handling to the machine
12. Initiate and end the hemodialysis properly.
13. Follow the suitable calculations depending on the child target weight.
14. Do comprehensive health assessment,
15. Adhere to aseptic technique during hemodialysis access procedures.
16. Manage the complications of hemodialysis depending on implementation of nursing care plan.

B. Intellectual skills

1. Utilize the nursing process as a frame work to follow-up care of the client with acute and chronic health disorders.
2. Discuss the clinical indications, client preparation and other related nursing implications for common tests and procedures.

C. Subject specific skills

1. Develop an individualized teaching plan to the client and family.

Course outline:

Unit No.	Unit name	Unit Content	Time
1	**Introduction and differences in pediatric**	• Identify Special health care needs for infants, children and adolescents with renal disorder.	
2	**Acute renal failure in pediatric**	• Mention Signs and symptoms, causes, medical management. • Implementation of good Nursing care.	
3	**Chronic renal failure**	• The student will be able to calculate GFR. • Mention the causes, medical management.	

Unit No.	Unit name	Unit Content	Time
		• Implementation of care process.	
4	**Common renal diseases in pediatric**	• The student will be able to discuss the pathophysiology of this syndrome, etiology, medical management. • Implementation of nursing process according to the syndrome -Refluxes -Urinary tract infections -Oxalosis -Poly cystic kidney -Nephritic syndrome	
5	**Vascular access**	• Peripheral vascular access. • Central vascular access (types). • Arterio-venouse fistula, Arterio-venouse graft. • Cannulation. • Differences between children and adults. • Pre and post care. • Complications and nursing care. • Preparing for hemodialysis, using disinfection programs, alarms and remedial action.	
6	**Pediatric hemodialysis**	• Identify the principles of hemodialysis, definition and the process the procedure. • Dealing with hemodialysis complications accurately (anemia, hyperkalemia, seizure, hypertension, air embolism. • Management of infectious diseases and improve the nursing care plan. • Sampling in aseptic technique. • Anti-coagulation, medications and nursing care. • Pre dialysis care, post dialysis care. • Compare between adult and pediatric dialysis. • Dialysis for neonate. • Dialysis in acute sitting. The appropriate size of Dialyzers and dialysis lines for the child. • Extra corporeal blood volume calculations. • Blood bump speed calculations	
7	**Pediatric Peritoneal dialysis**	• Identify the principles of peritoneal dialysis, definition and the process the procedure. • Dealing with peritoneal dialysis complications accurately. • Medications and contraindication and nursing care. • Pre dialysis care, post dialysis care.	
8	**Psychosocial care**	• Psychosocial complications of chronic illness.	

Unit No.	Unit name	Unit Content	Time
		• Health education.	
9	**Pediatric renal transplant**	• Donor selection. • The choice between living and cadaveric donors. • Transplantation before and after dialysis. • Surgical procedure. • Nursing management.	

Teaching Methodology:

Discussions and lecture Presentations, videos, animations, Cases.

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

34. 1. Nicola Thomas, (2019).Renal Nursing.(4th Edition).
35. Edgar V.Lerma,Matthew R.Weir(2016).Principles and practice of dialysis,(fifth Edition) Wolters Kiuwer.
36. Judith Z. Kallenbach C.f.Gutch , Martha H. Stoner,Anna L.Corea ,(2020).Review of hemodialysis for nurses and dialysis personnel,(9th Edition).

4. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2019). Medical-Surgical Nursing: Assessment and Care of Clinical Problems, Single Volume, (10th Ed.) Elsevier .

5. Hockenberry, M.,&Wilson,D.(2020).Wong Essentials of Pediatric Nursing.(8th Ed.),St Louis,MO:Mosby Elesvier.

Para- Medical Program	
Specialization	**anesthesia**
Course Number	**020801122**
Course Title	**Cardiopulmonary resuscitation**
Credit Hours	**2**
Theoretical Hours	**1**
Practical hours	**3**

Course Description:

This course is designed to provide students with basic knowledge regarding CPR . this course will concentrate on the various steps governing CPR weather basic life support or advance one , it also explains the role of certain medication in the process of CPR , it also defines some of the conditions that need immediate concern and explains the neonatal resuscitation.

Course objectives :

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

Upon the completion of this course, the student will be able to:

1. know the basic knowledge of how CPR is done.

2. know the conditions that need immediate concern and explains the neonatal resuscitation.

Course outline:

Unit No.	Topics	Unit Content	Time Needed
1	**Cardio respiratory arrest**	• cause of arrest •principles of resuscitation - Basic life support - Advance cardiac life support • drug used in CPR • termination of CPR • Outcome and further management • D.N.R	
2	**shock**	• types • clinical picture • management	
3	**oxygen**	• cascade • hypoxia • oxygen therapy - indication - methods - hazards	
4	**Drowning and near drowning**		
5	**Neonatal resuscitation**		

Method of teaching

Lectures, Discussion, Presentation. Videos, animations

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework and Projects	20%	
Total	**100%**	

References:

1. clinical anesthesiology , 4th edition.
2. A practice of anesthesia , wylie and Churchill-davidsons, 7th edition

Para- Medical Program	
Specialization	**Artificial kidney Technician**
Course Number	**020821222**
Course Title	**Infection Control and quality assurance**
Credit Hours	**2**
Theoretical Hours	**1**

Practical hours	**3**

Course description

This course describes the prevention of patients and staff from acquiring infections specific to the dialysis unit, infection control incorporates policies and procedures that include surveillance and monitoring activities for water treatment, bacterial contamination and transmission of blood born and other infectious diseases.

Course objectives:

Intended Learning Outcomes

Upon the completion of this course the student will be able to:

A. Knowledge & Understanding

1. Review strategies to prevent bloodstream infections in patients on dialysis.
2. Discuss patient perspectives on prevention of bloodstream infections
3. Discuss risk factors, clinical manifestations, medical management, and methods to prevent or reduce the transmission of common infections in hemodialysis patients.
4. Discuss risk factors, clinical manifestations, medical management, and methods to prevent or reduce the transmission of Multi-Drug Resistant Organisms.

5. Analyze the importance of good infection control procedures / practices within renal settings 6.Identify how different blood borne viruses are transmitted.
7. Relate the patients' role in infection prevention.
8. Participate in managing and caring of a patient with infectious disease.

B. Intellectual skills

1. Utilize the nursing process as a frame work as a role in infection prevention.

C. Subject specific skills

1. Develop an individualized teaching plan to the client and family.

Course outline:

Unit No.	Unit name	Unit Content	Time
1	**Standard precautions**	• Infection control and universal precautions • Standard precautions, Introduction to infection control practices. • Receiving a new patient in the hemodialysis unit correctly. • Isolation methods. • Need for infection control, • Burden of hospital acquired infection. • Introduction to universal precautions • Personal protective equipment • Contact precaution, air borne precaution • Droplet precaution • Protection from contamination • Cleaning and disinfecting • Employee Health Policy • Record and report infection control procedures.	
2	**Hand washing**	• Adherence to the steps of hand washing correctly. • Hand washing.	
3	**Hepatitis**	• The way of transmission, serology screening, and vaccination. • Isolation • Vaccination	
4	**Waste disposal**	• Classify the wastes according to infection control policies. • Classifications. • Infection control and sterilization • Principles and Practice of Biomedical waste management	
5	**Multi-Drug Resistant Organisms**	• Way of transmission. • Medical managements and the nursing care. • Infection spread prevention. • Common pathogens and their route of transmission- HIV AIDS and its spread.	
6	**Needle stick safety**	• Prevent accidental exposure to blood borne diseases.	
7	**Infection control and sterilization**	• Morphology of microorganisms. • Sterilization and Disinfection. • Microbiology of vascular access infection (femoral, jugular, subclavian catheters). • Sampling methodologies for culture & sensitivity. •	

Unit No.	Unit name	Unit Content	Time
8	**Sterilization and disinfection procedures in dialysis**	• External cleansing of the machine and other surfaces in the unit. • Architecture of the dialysis unit.	
	Quality assurance in dialysis	• Standards of practice. • Various risks to quality and safety. • Recommendations.	

Teaching Methodology:

Discussions and lecture Presentations, videos, animations, cases.

Exams and method of evaluation:

Exams	Percentage	Date
Midterm Exam	30%	--/--/----
Final Exam	50%	--/--/----
Homework ,project	20%	
Total	**100%**	

References:

37. Nicola Thomas,(2014).Renal Nursing.(4th Edition).
38. Edgar V.Lerma,Matthew R.Weir(2016).Principles and practice of dialysis,(fifth Edition) Wolters Kiuwer.
39. Judith Z. Kallenbach C.f.Gutch , Martha H. Stoner,Anna L.Corea ,(2016).Review of hemodialysis for nurses and dialysis personnel,(9th Edition).
40. Lewis, S.,Bucher, L., Heitkemper, M., Harding, M., Kwong, J. (2017). Medical-Surgical Nursing: Assessment and Care of Clinical Problems, Single Volume, (10th Ed.) Elsevier
41. Infection control manual procedures and polices (Royal Medical Services).

Para- Medical Program	
Specialization	**Artificial kidney Technician**
Course Number	**020821242**
Course Title	**Field training**
Credit Hours	**3**
Theoretical Hours	**0**

Course description

This course aims to prepare practitioners working in hemodialysis Units for their role within renal health care. They will have the opportunity to develop and critically evaluate specialist hemodialysis skills and knowledge in order to deliver high quality compassionate care to patients undergoing hemodialysis treatment. There will be emphasis on the wider context of care such as shared-decision making, social issues and the co-ordination of outside agencies. In consultation with the clinical instructor, and the assigned preceptor, the student will assess, plan, implement, and evaluate client's progress in different clinical settings with a focus on a professional nursing role. This course is designed to ease the transition from student nurse to professional nurse

Course Objectives

Upon completion of this course the student will be able to:

1. Integrate knowledge from previous nursing courses in the practice of nursing.
2. Utilize research findings to improve nursing care to individuals, families and communities.
3. Serve as a change agent with clients and colleagues to meet changing health needs.
4. Demonstrate clinical competence across the lifespan within the scope of the dialysis Nurse
5. Demonstrate an ability to use effective communication and collaboration skills with patients, families, and the health care team.
6. Use effective decision-making skills when developing a patient's plan of care and when delegating patient care.
7. Demonstrate accountability for the ethical, legal, and professional responsibilities related to dialysis nursing practice.
8. Identify safety risks to self, patients, families, and others and implement measures to prevent injury.
9. Implement measures to prevent nosocomial infections.
10. Integrate professional role concepts into the care of patients.
11. Understand the national classification and how they relate to practice.
12. Understand what is expected of them regarding their clinical competence.
13. Demonstrate understanding of how the competency document will improve clinical practice.
14. Communication with doctors, colleagues and other staffs. Non-verbal communication, Inter-personnel relationships, patient contact techniques, communication with patients and their relatives.
15. Importance of documentation, initial and follow up notes; documentation of therapy, procedures.

16. Critically appraise and compare protocols and the management of care for hemodialysis clients and families locally, nationally and internationally to achieve clinical effectiveness.
17. Critically evaluate and reflect on the professional role of the hemodialysis nurse within the inter-disciplinary settings and other members of the multi-disciplinary team to gain a more insightful perspective.

Teaching/Learning strategies:

1. The student will be distributed to clinical settings related to MoH.
2. Each student will assume full responsibilities of a graduate dialysis nurse, but under the supervision of the faculty clinical instructor and /or preceptor.
3. The faculty member will cooperate with the preceptor to plan and provide learning situations to meet students training objectives.

The Clinical instructor and/ or preceptor will:

4. Act as clinical role model of the professional nurse.
5. Guide and support the student's transition, and his/her role, into the culture and expectations of the clinical practice unit.
6. Interpret learning activities to colleagues.
7. Demonstrate the use of sound clinical judgment in each clinical situation, including access and use of evidence-based practice data.
8. Introduce clinical situations of increasing complexity at a mutually agreeable pace for development of student.
9. Communicate effectively so that the student's learning is supported.
10. Provide constructive feedback about the student's clinical reasoning and skill acquisition.
11. Integrate effective skills in teamwork, negotiation and conflict resolution into the student's clinical experience.
12. Integrate ethical standards and practices into the clinical experience.
13. Meet regularly with faculty and students to discuss progress and to develop additional learning activities as needed. The frequency of visits must meet the minimum standard set by the faculty.
14. Serve as liaison to faculty from the clinical setting, facilitating problem-solving when issues arise.

Assignments and forms:
-Daily log,
-Quality Improvement Assignment.
- Competency checklist.
- Preceptor evaluation (from students), Students evaluation (from preceptor).
- Clinical area evaluation.
-
Other forms used by the faculty and fulfill the course objectives.

Exams and method of evaluation:

Exams	**Percentage**	**Date**
Clinical performance		
Clinical training assignments		
Homework and Projects		
Final written Exam		--/--/----
Total	**100%**	