SUMANDEEPVIDYAPEETH

(Declared as Deemed to be University under Section 3 of the UGC Act 1956)

Accredited NAAC 'A++' Grade with 3.61 CGPA out of 4

Conferred with UGC-Category-1 status

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CURRICULUM

BACHELOR OF SCIENCE (B.SC)

IN RENAL DIALYSIS TECHNOLOGY

2018

INTRODUCTION

Scope

The quality of paramedical care has improved tremendously in the last few decades due to the advances in technology, thus creating fresh challenges in the field of healthcare. It is now widely recognized that health service delivery is a team effort involving both clinicians and non-clinicians, and is not the sole duty of physicians and nurses. Professionals that can competently handle sophisticated machinery and advanced protocols are now in high demand. In fact, diagnosis is now so dependent on technology, that paramedical and healthcare professionals are vital to successful treatment delivery.

Effective delivery of healthcare services depends largely on the nature of education, training and appropriate orientation towards community health of all categories of health personnel, and their capacity to function as an integrated team, with a range of skills and expertise, play key roles within the National Health Service, working autonomously, in multi-professional teams in various settings. All of them are first-contact practitioners and work across a wide range of locations and sectors within acute, primary and community care.

Learning goals and objectives for paramedical healthcare professionals

The learning goals and objectives of the undergraduate and graduate education program will be based on the performance expectations. They will be articulated as learning goals (why we teach this) and learning objectives (what the students will learn). Using the framework, students will learn to integrate their knowledge, skills and abilities in a hands-on manner in a professional healthcare setting. These learning goals are divided into nine key areas, though the degree of required involvement may differ across various levels of qualification and professional cadres.

Program outcomes

After completing this programme, learner will be able to

1. Demonstrate pre- dialysis patient assessment and understand the knowledge about renal failure (ARF & CRF) and its management.
2. To practice independently on dialyzer extracorporeal blood circuit priming and setting up the machine for dialysis procedure.
3. To manifest aseptic cannulation of AVF/AVG and initiation of aseptic acute vascular access catheter care and dialysis initiation as well as machine disinfection methods.
4. To upgrade knowledge on alarm processing, continuous monitoring of patient and machine during procedure

Ethics and accountability

Students will understand core concepts of clinical ethics and law so that they may apply these to their practice as healthcare service providers. Program objectives should enable the students to:

1. Describe and apply the basic concepts of clinical ethics to actual cases and situations .

2. Recognize the need to make health care resources available to patients fairly, equitably and without bias, discrimination or undue influence.
3. Demonstrate an understanding and application of basic legal concepts to the practice.
4. Employ professional accountability for the initiation, maintenance and termination of patient-provider relationships
5. Demonstrate respect for each patient's individual rights of autonomy, privacy, and confidentiality .

Commitment to professional excellence

The student will execute professionalism to reflect in his/her thought and action a range of attributes and characteristics that include technical competence, appearance, image, confidence level, empathy, compassion, understanding, patience, manners, verbal and non-verbal communication, an anti-discriminatory and non-judgmental attitude, and appropriate physical contact to ensure safe, effective and expected delivery of healthcare.

Eligibility for admission:
He/she has passed the Higher Secondary (10+2) Science or a duly constituted Board with pass marks in Physics, Chemistry, Biology

Duration of the course:
Duration of the course is 3 years and 3 months internship.

Attendance:
A candidate has to secure minimum 80% attendance in overall with at least-
1. 75% attendance in theoretical
2. 80% in Skills training (practical) for qualifying to appear for the final examination.

No relaxation, whatsoever, will be permissible to this rule under any ground including indisposition etc.

Assessment:
Assessments should be completed by the academic staff, based on the compilation of the student's theoretical & clinical performance throughout the training programme. To achieve this, all assessment forms and feedback should be included and evaluated. Student must attain at least 50% marks in each Theory, Internal assessment and Practical independently / separately for each individual subject.

Course of Instruction:

Course Name	Course Code	Theory (In hrs.) (Class and lab)	Practical (In hrs.) (Clinical)	Total (in Hours)
First Year - Total Hours 600				
Anatomy	BRDT101	60	40	100
Physiology	BRDT102	60	40	100
Biochemistry	BRDT103	60	40	100
Pathology	BRDT104	60	40	100
Microbiology	BRDT105	60	40	100
Health Care	BRDT106	60	40	100
Total		**360**	**240**	**600**
Second Year - Total Hours 340				
Concepts of renal disease & its management	BRDT201	60	40	100
Applied aspects of pathology& microbiology	BRDT202	60	40	100
Applied anatomy & physiology related to dialysis technology	BRDT203	60	40	100
Pharmacology related to dialysis technology	BRDT204	40	-	40
Total		**220**	**120**	**340**
Third Year - Total Hours 200				
Applied dialysis technology	BRDT301	60	40	100
Advance dialysis technology	BRDT302	60	40	100
Total		**120**	**80**	**200**
Internship (Integrated Practice) - 3 months				

Scheme of Examination:

First Year				
SUBJECT CODE	**SUBJECTS**	**EXAMINATION PATTERN**		
		Internal	Final	TOTAL
BRDT101	Anatomy	20	80	100
BRDT102	Physiology	20	80	100
BRDT103	Biochemistry	20	80	100
BRDT104	Pathology	20	80	100
BRDT105	Microbiology	20	80	100
Total		**100**	**400**	**500**
Second Year				
BRDT201	Concepts of renal disease & its management	20	80	100
BRDT202	Applied aspects of pathology & microbiology	20	80	100
BRDT203	Applied anatomy & physiology related to dialysis technology	20	80	100
BRDT204	Pharmacology related to dialysis technology	20	80	100
Third Year				
BRDT301	Applied dialysis technology	20	80	100
BRDT302	Advance dialysis technology	20	80	100

1ST YEAR B.SC. RENAL DIALYSIS TECHNOLOGY

BRDT101 ANATOMY (60 HOURS)

Unit 1- Organization

1.1 Terms, terminology, planes
1.2 Tissues of the body (General) Epithelial tissue
1.3 Glands, mucous membrane.

Unit 2 - Skeletal system

2.1 Cartilage
2.2 Bones
2.3 Ossification, blood supply
2.4 Joints
2.5 Synovial joint

Unit 3 - Muscular tissue

3.1 Muscle classification – I
3.2 Muscle – II

Unit 4 - Nervous system

4.1 Neuron, Neuroglia
4.2 Spinal cord & Spinal nerves
4.3 Parts of brain & major functions
4.4 Cranial nerves
4.5 Autonomic nervous system

Unit 5 - Sensory organs

5.1 Nose & Olfaction
5.2 Tongue

Unit 6 - Circulation & Lymphatic

6.1 Systemic, Pulmonary, Portal
6.2 Heart, chambers, valves
6.3 Coronary circulation, Venous drainage, applied
6.4 Major branches of aorta, major veins, pulse
6.5 Femoral and Axillary artery
6.6 Diaphragm
6.7 Lymphoid tissue classification, structure I
6.8 Lymphoid tissue classification, structure II
6.9 Lymphatic drainage, lymphatic trunks

Unit 7 - Respiratory system

7.1 Larynx, Trachea
7.2 Pleura & lung & structure

7.3 Bronchopulmonary segments, Para nasal sinuses

Unit 8 - Digestive system

8.1 Pharynx, Esophagus
8.2 Stomach, Duodenum
8.3 Liver, Gall bladder, Pancreas
8.4 Jejunum, Ileum, Appendix
8.5 Colon, Rectum, Anal canal

Unit 9 - Urinary system)

9.1 Kidney
9.2 Ureter, Urinary bladder
9.3 Prostate, Urethra

Unit 10 - Endocrine system

10.1 Thyroid, Parathyroid
10.2 Suprarenal
10.3 Pituitary Pancreas**,**

Unit 11 - Reproductive system

11.1 Female reproductive system
11.2 Male reproductive

PRACTICALS: (40 HOURS)

1. Human skeleton
2. Organ systems
3. Organs – 1
4. Organs – 2
5. Organs – 3
6. Organs – 4
7. Organs – 5
8. Types of Cartilages
9. Bones -1
10. Bones -2
11. Bones -3
12. Histology of compact bones
13. Muscles of body as functional groups
14. Histology of types of muscles

BRDT102 PHYSIOLOGY (60 HOURS)

Unit 1 - General Physiology

1.1 Introduction to cell physiology,

1.2 transport across cell membrane
1.3 Homeostasis, Body Fluid compartment & measurement

Unit 2 - Blood

2.1 Introduction - composition and function of blood
2.2 Plasma proteins
2.3 Resd blood cells.
2.4 Hemoglobin
2.5 WBC
2.6 Platelets
2.7 Homeostasis
2.8 Blood Group

Unit 3 - Nerve - Muscle Physiology

3.1 Resting membrane potential &Action potential
3.2 Types of muscle& Mechanism of Muscle Contraction
3.3 Neuromuscular Junction
3.4 Neuron and neuroglia
3.5 Properties of nerve fibre
3.6 Secretion & Composition & function of CSF

Unit 4 - GIT

4.1 Movement of GIT
4.2 Deglutition & Mechanism of Vomiting
4.3 Digestive Juices in upper digestive tract
4.4 Digestive juices in lower digestive tract

Unit 5 - Excretory system

5.1 Kidneys-structure, function
5.2 Glomerular filtration rate
5.3 Counter current mechanism of concentration of urine,
5.4 micturition, Diuretics
5.5 Artificial kidney, renal function tests
5.6 Skin
5.7 Regulation of body Temperature

Unit 6 - Respiratory system

6.1 Mechanism of Breathing
6.2 Hypoxia
6.3 O2 and CO2 transport
6.4 Pulmonary volume & Capacities

Unit 7 - Cardio Vascular System

7.1 Introduction to CVS & general principles of circulation
7.2 Properties of Cardiac muscle
7.3 Cardiac cycle, heart sounds, Pulse
7.4 Cardiac output, Heart rate ,BP ,ECG
7.5 Coronary circulation, Cutaneous circulation-Triple response ,Shock
7.6 Effects of exercise on CVS and Respiratory system

Unit 8 - Lymphatic System

Unit 9 - Endocrine System

9.1 Hormones of pituitary, Thyroid
9.2 Parathyroid Gland
9.3 Hormones of Adrenal Gland & Pancreas

Unit 10 - Reproductive System

10.1 Introduction to reproductive system, Puberty
10.2 Male reproductive system,
10.3 Female reproductive system,
10.4 Physiological changes during pregnancy, pregnancy tests, parturition & lactation
10.5 Male & Female contraceptive methods
10.6 Special senses
10.7 Vision
10.8 Audition
10.9 Olfaction
10.10 Gustation

PRACTICALS: (40 HOURS)

1. Introduction and Laboratory guidelines
2. Demonstration of estimation of Hemoglobin
3. Practical of estimation of Hemoglobin
4. Practical of BT & CT
5. Practical of Blood Grouping
6. ESR & PCV
7. Blood Pressure
8. Pulse
9. Revision
10. Heart rate & heart sound
11. Breathing rate & breathing sound
12. Identification of blood cells by peripheral smear. RBC, WBC, Platelets.
13. Revisions

BRDT103 BIOCHEMISTRY (60HOURS)

1. Introduction and scope of Clinical Biochemistry

2. Functioning Clinical Laboratory: - Role of Medical Laboratory technologist, Code of Ethics.
3. Laboratory Safety including Biomedical waste disposal
4. Reagents: - Preparation, Formulation, storage, safety and uses.
5. Collection and Preservation of Sample/specimen & anti-coagulants
6. Chemistry of Body fluids: - Blood, CSF, Urine, Milk, Bile, Gastric Juice and Saliva.
7. Buffers of Body system and pH regulation.
8. Glassware's & plastic ware's used in laboratory and its calibration, cleaning, care and maintenance.
9. Biophysics: -Osmosis, Dialysis, Viscosity, Surface tension, Colloids and Sedimentation, Osmotic Pressure and osmolality.
10. Blood buffers and pH regulation.
11. Cell biology:- Prokaryotic and Eukaryotic, cell organelles, subcellular fraction and its function
12. Chemistry and Biomedical Importance of :
13. Carbohydrate
14. Proteins
15. Lipids
16. Nucleic acid.
17. Enzymes:
18. Vitamins
19. Minerals
20. Chemistry of Body fluids: - Blood, CSF, Urine, Milk, Bile, Gastric Juice and Saliva.

PRACTICALS: (40 HOURS)

1. To demonstrate glassware's, apparatus and plastic wares used in laboratory.
2. Preparation of different percentage solutions
3. Preparation of normal and molar solutions. (0.1 N NaOH, 0.2N HCl, 0.1 M H2SO4).
4. Reactions of Carbohydrate
5. Reactions of Protein: - Precipitation and Color reaction.
6. Analysis of Normal Urine:- Physical, Chemical and Microscopic
7. Analysis of abnormal Urine:- Physical, Chemical and Microscopic
8. Qualitative analysis of Saliva.
9. Qualitative analysis of Milk
10. Qualitative analysis of Bile.
11. Qualitative analysis of CSF.
12. Qualitative analysis of Gastric juice.

BRDT104 PATHOLOGY (60 HOURS)

Unit 1 - Histo Pathology

1.1 Introduction to Histo Pathology
1.2 Receiving of Specimen in the laboratory
1.3 Grossing Techniques
1.4 Mounting Techniques – various Mountants
1.5 Maintenance of records and filing of the slides.
1.6 Use & care of Microscope
1.7 Various Fixatives, Mode of action, Preparation and Indication. Section Cutting
1.8 Tissue processing for routine paraffin sections

1.9 Decalcification of Tissues.
1.10 Staining of tissues - H& E Staining
1.11 Bio-Medical waste management

Unit 2 - Clinical Pathology

2.1 Introduction to Clinical Pathology
2.2 Collection, Transport, Preservation, and Processing of various clinical Specimens
2.3 Urine Examination – Collection and Preservation of urine. Physical, chemical, Microscopic
2.4 Examination
2.5 Examination of CSF and other body fluids.
2.6 Sputum Examination.
2.7 Examination of feces

Unit 3 – Hematology

3.1 Introduction to Hematology
3.2 Normal constituents of Blood, their structure and function.
3.3 Collection of Blood samples
3.4 Various Anticoagulants used in Hematology
3.5 Various instruments and glassware used in Hematology, Preparation and use of glassware
3.6 Laboratory safety guidelines
3.7 SI units and conventional units in Hospital Laboratory
3.8 Hb, PCV
3.9 ESR
3.10 Normal Hemostasis
3.11 Bleeding Time, Clotting Time, Prothrombin Time, Activated Partial Thromboplastin Time.

Unit 4 - Blood Bank

4.1 Introduction
4.2 Blood grouping and Rh Types
4.3 Cross matching

PRACTICALS: (40 HOURS)

1. Urine Examination.
2. Physical
3. Chemical
4. Microscopic
5. Blood Grouping Rh typing.
6. Hb Estimation, Packed Cell Volume[PCV], Erythrocyte Sedimentation rate{ESR]
7. Bleeding Time, Clotting Time.
8. Histopathology – Section cutting and H &E Staining.

BRDT105 - MICROBIOLOGY (60 HOURS)

Unit 1: General Microbiology

1.1 History: Louis Pasteur, Robert Koch
1.2 Microscope: Parts, function and its types

1.3 Morphology of bacteria: classification of microorganisms, bacteria cell, staining of bacteria-Gram and ZN stain
1.4 Physiology of bacteria: Growth and nutrition of bacteria, Growth curve
1.5 Sterilization and disinfection: Dry heat, moist heat sterilization, filtration, Radiation, disinfectants use in hospital
1.6 Culture media: simple and complex media, preparation and its use
1.7 Culture methods: aerobic and anaerobic
1.8 Identification of bacteria: catalase test, coagulase test, oxidase test, Urease test, IMViC TESTS

Unit-2: Immunology

2.1 Infection
2.2 Immunity
2.3 Antigen
2.4 Antibody

Unit 3: Collection, transport and processing of clinical specimens:

3.1 Throat swab
3.2 Sputum
3.3 Urine
3.4 Pus
3.5 Blood
3.6 CSF

Unit 4: Health care associated Infections: Sources, Method of transmission and Prevention

Unit 5: Principle and Practices of Biomedical waste management:

PRACTICALS: (40 HOURS)

1. Microscope: parts function, focus, care and handling
2. Hanging drop preparation
3. Performance of Gram's stain
4. Performance of ZN stain
5. Culture media preparation: Nutrient agar, Blood agar, Chocolate agar, NA slant, MacConkey agar
6. Functioning of Autoclave and Hot air oven
7. Visit to hospital for the demonstration of Biomedical Waste Management
8. Aseptic practices in laboratory and safety precautions.

BRDT106 – HEALTH CARE (60 HOURS)

Unit 1 - Introduction to Health

1.1 Definition of Health,

1.2 Determinants of Health,

1.3 Health Indicators of India,

1.4 Health Team

1.5 Concept.

1.6 National Health Policy

1.7 National Health Programmes (Briefly Objectives and scope) Population of India and Family welfare programme in India.

Unit 2 - Introduction to Nursing

2.1 What is nursing? Nursing principles.

2.2 Inter-Personnel relationships.

2.3 Bandaging:

2.4 Basic turns;

2.5 Bandaging extremities;

2.6 Triangular Bandages and their application.

2.7 Nursing Position,

2.8 Bed making,

2.9 prone,

2.10 lateral,

2.11 dorsal,

2.12 dorsal re-cumbent,

2.13 Fowler's positions,

2.14 comfort measures,

2.15 Aids and rest and sleep.

Unit 3 - Lifting and Transporting Patients:

3.1 Lifting patients up in the bed.

3.2 Transferring from bed to wheel chair.

3.3 Transferring from bed to stretcher.

Unit 4 - Bed Side Management:

4.1 Giving and taking Bed pan,

4.2 Urinal:

4.3 Observation of stools,

4.4 urine.

4.5 Observation of sputum,

4.6 Understand use and care of catheters,

4.7 enema giving.

Unit 5 - Methods of Giving Nourishment:

5.1 Feeding,

5.2 Tube feeding,

5.3 drips,

5.4 transfusion Care of Rubber Goods

5.5 Recording of body temperature,

5.6 respiration and pulse,

5.7 Simple aseptic technique,

5.8 sterlization and disinfection.

5.9 Surgical Dressing:

5.10 Observation of dressing procedures.

Unit 6 - First Aid:

6.1 Syllabus as for Certificate Course of Red Cross Society of St. John's Ambulance Brigade.

Each student shall undergo training in Skill Simulation Laboratory for learning certain basic clinical skills like IV/IM injection, setting IVline, Cardio-pulmonary resuscitation (CPR), and Life support skills in the beginning of second year, for duration of continuous four days. (Board of Studies letter No.:FPMS/SV/BOS-MIN/0006/2016-17, dated 19/01/2017, and vide notification of Board of Management resolution Ref.:No. SVDU/R/2017-18/5056, dated 09/01/2018).

2nd YEAR B.SC.RENAL DIALYSIS TECHNOLOGY

BRDT203 Applied Anatomy & Physiology Related to Dialysis Technology

(60HOURS)

Unit 1 - Applied Anatomy

1.1 Basic Anatomy of Urinary System

1.2 Structural Anatomy of Kidney, Bladder, Ureter, Urethra, Prostate

1.3 Histology of Kidney

1.4 Blood Supply of Kidney

1.5 Development of Kidney in Brief

1.6 Anatomy of Peritoneum Including Concept of Abdominal Hernias

1.7 Anatomy of Vascular System

1.8 Upper Limb Vessels - Course, Distribution, Branches, Origin &Abnormalities

1.9 Neck Vessels - Course, Distribution, Branches, Origin & Abnormalities

1.10 Femoral Vessels - Course, Distribution, Branches, Origin & Abnormalities.

Unit 2 - Physiology

2.1 Mechanism of Urine Formation

2.2 Glomerular Filtration Rate (GFR)

2.3 Clearance Studies

2.4 Physiological Values – Urea, Creatinine, Electrolytes, Calcium, Phosphorous, Uric Acid, Magnesium, Glucose

2.5 24 Hours Urinary Indices – Urea, Creatinine, Electrolytes, Calcium, Magnesium

2.6 Physiology of Renal Circulation

2.7 Factors Contributing & Modifying Renal Circulation

2.8 Autoregulation

2.9 Hormones Produced by Kidney & Physiologic Alterations In Pregnancy

2.10 Haemostasis – Coagulation Cascade, Cogulation Factors, Auto Regulation, BT, CT, PT, PTT, Thrombin Time.

Unit 3 - Acid Base Balance

3.1 Basic Principles & Common Abnormalities Like Hypokalemia,

3.2 Hyponatremia,

3.3 Hyperkalemia,

3.4 Hypernatremia,

3.5 Hypocalcemia,

3.6 Hypercalcemia,

3.7 Ph, etc.

3.8 Basic Nutrition in Renal Diseases.

BRDT204 Pharmacology Related to Haemo & Peritoneal Dialysis **(60 Hours)**

1. Fluid Therapy with Special Emphasis in Renal Diseases
2. Diuretics – Classification, Actions, Dosage, Side Effects& Contraindications
3. Anti-hypertensives – Classification, Actions, Dosage, Side Effects& Contraindications, Special Reference During Dialysis, Vasopressors, Drugs Used in Hypotension
4. Drugs & Dialysis – Dose& Duration of Administrations of Drugs
5. Dialysable Drugs – Phenobarbitone, Lithium, Methanol Etc.
6. Vitamin D & Its Analogues, Phosphate Binders, Iron, Folic Acid& Other Vitamins of Therapeutic Value
7. Erythropoietin in Detail
8. Heparin Including Low Molecular Weight Heparin
9. Protamine Sulphate
10. Formalin,
11. Sodium Hypochlorite,
12. Hydrogen Peroxide – Role as Dis infactants & Adverse Effects of Residual Particles Applicable to Formalin
13. Haemo dialysis Concentrates – Composition & Dilution (Acetate & Bicorbonates)
14. Peritoneal Dialysis Fluid in Particular Hypertonic Solutions – Composition.
15. Potassium Exchange Resins with Special Emphasis on Mode of Administration.

BRDT201 Concepts of Renal Diseases (60 Hours)

1. Clinical Manifestations Evaluation & Management of The Following Diseases
2. Acute Renal Failure
3. Nephrotic Syndrome – Primary &Secondary
4. Nephritic Syndrome
5. Uti – Urinary Tract Infections
6. Asymptomatic Urinary Abnormalities
7. Chronic Renal Failure
8. Renal Stone Diseases
9. Obstructive Uropathies
10. Congenital & Inherited Renal Diseases
11. Tumors of Kidney
12. Pregnancy Associated Renal Diseases
13. Renal Vascular Disorders & Hypertension Associated Renal Diseases.

BRDT202 Applied Aspects of Pathology & Microbiology (60 Hours)

Unit 1 - Pathology

1.1 Congenital Abnormalities of Urinary System

1.2 Classification of Renal Diseases

1.3 Glomerular Diseases – Causes, Types & Pathology

1.4 Tubulo interstitial Diseases

1.5 Renal Vascular Disorders

1.6 End Stage Renal Diseases – Causes &Pathology

1.7 Pathology of Kidney in Hypertension, Diabetes Mellitus, Pregnancy

1.8 Pathology of Peritoneum – Peritonitis – Bacterial, Tubular &Sclerosing Peritonitis Dialysis Induced Changes

1.9 Pathology of Urianry Tract Infections

1.10 Pyelonephritis &Tuberculous Pyelonephritis.

Unit 2 - Microbiology

2.1 Hepato trophic Viruses in Detail – Mode of Transfusion, Universal Precautions, Vaccinations

2.2 Human Immunodeficiency Virus (HIV), Mode of Transfusion, Universal Precautions

2.3 Oppurtunistic Infections

2.4 Microbiology of Urinary Tract Infections

2.5 Microbiology of Vascular Access Infection (Femoral, Jugula, Subclavian Catheters)

2.6 Sampling Methodologies for Culture &Sensitivity.

Unit 3 - Basics of Dialysis Technology

3.1 Indications of Dialysis

3.2 Types of Dialysis

3.3 Principles of Dialysis –Definition

3.4 Haemo dialysis Apparatus – Types of Dialyser & Membrane

3.5 Types of Vascular Access for Haemo dialysis

3.6 Introduction to Haemo dialysis Machine

3.7 Priming of Dialysis Apparatus

3.8 Diastereomer

3.9 Common Complications of Haemo dialysis

3.10 Monitoring of Patients During Dialysis.

Unit 4 - Nutrition

4.1 Definition

4.2 Food Pattern and Its Relation to Health

4.3 Factors Influencing Food Habits, Selection and Foodstuffs

4.4 Superstitions, Culture, Religion, Income, Composition Of Family, Age, Occupation, Special Grouped

4.5 Food Selection, Storage &Preservation

4.6 Prevention of Blood Adulteration.

Unit 5 - Classification of Nutrients

5.1 Macronutrients and Micronutrients

5.2 Proteins – Types, Sources, Requirements and Deviancies Proteins

5.3 Carbohydrates Sources, Requirements &Deficiency

5.4 Fats – Types, Sources, Requirements and Deficiency of Fats

5.5 Water – Sources of Drinking Water, Requirements, Preservation Of Water

5.6 Minerals – Types, Sources, Requirements Deficiencies Minerals

5.7 Vitamins - Types, Sources, Requirements Deficiencies of Vitamins.

3rd YEAR B.SC. RENAL DIALYSIS TECHNOLOGY

BRDT301 Applied Dialysis Technology **(60Hours)**

Unit 1 - Indications of Dialysis

1.1 History & Types of Dialysis

Unit 2 - Theory of Haemo dialysis –

2.1 Diffusion,

2.2 Osmosis,

2.3 Ultrafiltration & Solvent Drag.

Unit 3 - Hemo dialysis Apparatus –

3.1 Types of Dialyzer& Membrane,

3.2 Dialysate

3.3 Physiology of Peritoneal Dialysis

3.4 Vascular Access for Hemo dialysis & Associated Complications.

Unit 4 - Peritoneal Access Devices –

4.1 Types of Catheter,

4.2 Insertion Techniques & Associated Complications.

Unit 5 - Dialysis Machines –

5.1 Mechanism of Functioning & Management

5.2 Haemo dialysis Machine

5.3 Peritoneal Dialysis Machine

5.4 Complications of Dialysi

Unit 6 - Haemo dialysis –

6.1 Acute & Long-Term Complications

Unit 7 - Peritoneal Dialysis –

7.1 Mechanical &Metabolic Complications

7.2 Biochemical Investigations Required for Renal Dialyses

7.3 Adequacy of Dialysis

7.4 Haemo dialysis

7.5 Peritoneal Dialysis

7.6 Peritoneal Equilibrations test (PET)

7.7 Anticoagulation

7.8 Peritonitis & Exit Site Infection

7.9 Withdrawal of Dialysis Criteria

7.10 Acute Dialysis

7.11 Chronic Dialysis.

BRDT302 Advance Dialysis Technology **(60Hours)**

1. Dialysis in Special Situations
2. Patients with Congestive Cardiac Failure
3. Advanced Liver Disease
4. Patients Positive for HIV,
5. Hbsag & Hcv
6. Failed Transplant
7. Positioning Cases
8. Pregnancy
9. Dialysis in Infants &Children

10. Dialyzer Reuse
11. Special Dialysis Procedures
12. Continuous Therapies hemodialysis
13. Different Modalities of Peritoneal Dialysis
14. Hemodiafiltration
15. Hemoperfusion
16. Sled
17. Mars
18. Plasmapheresis
19. Special Problems in Dialysis Patients
20. Psychology &Rehabilitation
21. Diabetes
22. Hypertension
23. Infections
24. Bone Diseases
25. Aluminum Toxicity
26. Recent Advances hemodialysis
27. Nocturnal Dialysis
28. Online Dialysis
29. Daily Dialysis
30. Telemedicine in Dialysis Practice
31. Water Treatment System
32. Renal Anemia Management
33. Chronic Dialysis.

Practical Schedule

1. Setting up Dialysis Machine for Dialysis
2. A V Cannulation

3. A V Fistula/A V Graft Cannulation
4. Initiation of Dialysis through Central Venous Catheters Like Internal Jugular, Femoral &Subclavian Vein
5. Packing & Sterilization Dialysis Trays
6. Closing of Dialysis
7. Preparation of Concentrates Depending on The Situations
8. Reuse of Dialysis Apparatus
9. Isolated Ultrafiltration
10. Performance of Peritoneal Dialysis Exchange Manually
11. Setting up Of Automated Peritoneal Dialysis Equipment
12. First Assistant in Minor Procedures
13. Skin Suturing
14. Redemonstrations.

Internship (Integrated Practice) - 3 months

The internship time period provides the students the opportunity to continue to develop confidence and increased skill in clinical delivery of services. Students will demonstrate competence in beginning and intermediate procedures. Students will observe the advanced and specialized procedures. The student will complete the clinical training by practicing all the skills learned in classroom and clinical instruction. The students are expected to work for minimum 6 hours per day and this may be more depending on the need and the healthcare setting.

CODE OF PROFESSIONAL CONDUCT
INTRODUCTION

1. The Code of Professional Conduct is designed and set out as guidance for the clinical practitioner within the relationship that exists with every patient receiving health care.
2. Essential to that relationship is the patient's trust in the practitioner. This trust hangs upon the patient's assurance of being the practitioner's first concern during their clinical encounter, and upon the patient's confidence that the care received will be competent, whether in diagnosis, therapy or counseling.

STANDARD OF PRACTICE AND CARE

Patients are entitled to the highest standard of practice and care. The essential elements of this are professional competence, good relationships with patients and colleagues and observance of professional ethical obligations.

In providing care you must therefore:

1. Recognize the limits of your professional competence.
2. Be willing to consult colleagues
3. Keep clear, accurate and contemporaneous patient records which report the relevant findings.
4. Keep colleagues informed.
5. Pay due regard to the efficacy and the prudent use of resources.
6. Be competent, truthful, and accurate, when reporting on investigations.
7. Be competent when giving or arranging treatment.

Patient's rights

1. Listen to patients and respect their views.
2. Treat patients politely and considerately.
3. Respect patients' privacy and dignity.
4. Give information to patients in a way they can understand.
5. Respect the right of patients to be fully involved in decisions about their care.
6. Respect the right of patients to refuse treatment or to take part in teaching or research, reporting the refusal to the person requesting the procedure.
7. Respond to complaints promptly and constructively.
8. Ensure that your views about a patient's life style, culture, beliefs, race, colour, sex, sexuality, age, social status, or perceived economic worth, do not prejudice the service you give.

CONFIDENTIALITY

Patients have a right to expect that you will not pass on any personal information which you learn in the course of your professional duties, unless they agree