UNIVERSITY OF JAMMU

(NAAC ACCREDITED A + GRADE UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

NOTIFICATION
(20/Jul/Adp/16)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Competent Bodies, has been pleased to authorize the adoption of Regulations & Curriculum governing the degree of **Bachelor of Science in Renal Dialysis Technology (B.Sc. Renal Dialysis Technology)** from the Academic Session **2020-21 onwards** as given in the **Annexure-I & II.**

The Regulations & Curriculum of the course is available on the University Website: www.jammuuniversity.ac.in.

Sd/-
DEAN ACADEMIC AFFAIRS

No. F.Acd/III/20/ 1247-1252
Dated:07/08/**2020**

Copy for information & necessary action to:-

1. Dean Faculty of Medical Sciences
2. Principal, GMC, Jammu
3. C.A to the Controller of Examinations
4. Assistant Registrar (Exams/Confidential)
5. Incharge University Website

Sumita Sharma 5/8/2020
Deputy Registrar (Academic)
5/8 Cont 4/8/20

Regulations & Curriculum For Bachelor of Science Degree Courses In

B.Sc Renal Dialysis Technology

Courses offered in Allied Health Sciences :

1. B.Sc Medical Lab Technology.
2. B.Sc Radiography.
3. B.Sc Cardiac Care Technology
4. B.Sc Operation Theatre.
5. B.Sc Respiratory Care Technology.
6. B.Sc Anesthesia Technology.
7. B.Sc Neuro Sciences Technology.
8. B.Sc Renal Dialysis.

A. INTRODUCTION

B.Sc (Allied Health Sciences) course is aimed at training students to prepare them as qualified physician assistants who will be able to meticulously assist the concerned specialist in handling the various illnesses. This program is a taught course that covers relevant topics and specialized areas of knowledge as opted. The aim of this B.Sc Program is to provide a through training to the candidates through formal lectures and or seminars and practical programs which culminate in a internship course that finally prepares the student for the rigors of the medical world.

B. SHORT TITLE AND COMMENCEMENT

These Regulations shall be called the "Regulations for B.Sc (Allied Health Sciences) Course". These regulations shall be deemed to have come into force from the academic year _____. These regulations are subject to modifications as may be approved by the concerned faculty / Board of studies from time to time.

C. ELIGIBILITY FOR ADMISSION

a) A candidate seeking admission to the Bachelor of Science Degree Courses in the Allied Health Sciences course from Sl.No. 1 to 8 shall have passed the 10 + 2 examination or equivalent examination from a recognized Board / University with Physics, Chemistry & Biology as principle subjects of study.

(MR. J. C FRANK).

(SONAM SHARMA)

b) Lateral entry to second year for allied health science courses for candidates who have passed diploma program from the Government Boards and recognized by Jammu and Kashmir State Paramedical Council and shall have passed 10+2 with Physics, Chemistry & Biology as principal subjects and these students are eligible to take admission on lateral entry system only in the same subject studied at diploma level.

NOTE:

a. The candidate shall have passed individually in each of the principal subjects.
b. Candidates who have completed diploma or vocational course through Correspondence shall not be eligible for any of the courses mentioned above.
c. A candidate should have completed the age of 17 Years as on 31st December of the year of admission.

D. DURATION OF THE COURSE

Duration shall be for a period of three and half years including six months of Internship.

E. MEDIUM OF INSTRUCTION

The medium of instruction and examination shall be in English.

F. SCHEDULE OF EXAMINATION

The University shall conduct two examinations annually at an interval of not less than 4 to 6 months as notified by the university from time to time. A candidate who satisfies the requirement of attendance, progress and conduct as stipulated by the university shall be eligible to appear for the university examination. Certificate to that effect shall be produced from the head of the institution along with the application for examination and the prescribed fee.

G. SCHEME OF EXAMINATION

There shall be three examinations one each at the end of 1 st , 2nd and 3rd year.

ELIGIBILITY FOR THE EXAMINATION :

The Examination each year shall be open to :

a) A regular student who produces the following certificates signed by the Head of the Department / Principal of the College :

i. Certificate of good character.

ii. Certificate that the student attended the required number of lectures as prescribed under statutes.

iii. Certificate that the student has qualified the sessionals / Clinicals etc.

b) A candidate who has otherwise eligible to appear in the Examination in the particular year but :

i. Could not appear due to genuine reason (to be certified by an appropriate authority.

ii. Was unable to pass the examination in any paper (s).

H. ATTENDANCE

Every candidate should have attended at least 80% of the total number of classes conducted in an academic year from the date of commencement of the term to the last working day as notified by university in each of the subjects prescribed for that year separately in theory and practical. Only such candidates are eligible to appear for the university examinations in their first attempt. A candidate lacking in prescribed percentage of attendance in any subjects either in theory or practical in the first appearance will not be eligible to appear for the University Examination in that subject .The discretionary power of condonation of shortage of attendance to appear for University Examination rests with the University.

CONDONATION :

Not with standing anything contrary contained in any provision of these statutes where any candidate falls short of attendance in any year it may be condoned after sufficient cause is shown by him/her in writing in this regard :

a) By the Head of the Department / Principal of the College up to maximum of 5% of the total lectures delivered in all the papers. In addition to this a maximum of 5% of the total lectures delivered may also be condoned by the Vice-Chancellor.

Provided that np condition in shortage shall be permitted by the Vice-Chancellor unless endorsed and recommended by the Head of the Department / Principal of the College.

PARTICIPATION IN SPORTS EVENTS :

i. Not with standing anything contrary contained in these statutes, where a candidate participates in any one or more of the activities as specified in the University statutes, he/she may be treated as present on all working days not exceeding 30 days in one academic year.

ii. The Candidate participating in such event must produce a copy of certificate to the Head of the Department / Principal of the College within seven days from the end of the event, failing which no such benefit shall be given.

iii. The authority competent to issue the candidate participation certificate shall bring to the notice of the Head of the Department, name, roll no. of the candidate and the date(s) on which the activities were conducted within a week's period from the end of the event.

I. INTERNAL ASSESSMENT (IA)

Theory - 20 marks.

Practical - 10 marks. [Lab work- 06 marks and Record-04 marks]

There shall be a minimum of two periodical tests preferably one in each term in theory and practical of each subject in an academic year. The average marks of the two tests will be calculated and reduced to 20. The marks of IA shall be communicated to the University at least 15 days before the commencement of the University examination. The University shall have access to

the records of such periodical tests.

The marks of the internal assessment must be displayed on the notice board of the respective colleges with in a fortnight from the date test is held.

If a candidate is absent for any one of the tests due to genuine and satisfactory reasons, such a candidate may be given a re-test within a fortnight.

*** There shall be no University Practical Examination in First year.**

J. CURRICULUM

Subject and hours of teaching for Theory and Practicals

The number of hours of teaching theory and practical, subject wise in first year, second year and third year are shown in Table-I, Table-II and Table-III

Main and Subsidiary subjects are common in first year for all the courses in Allied Health Science.

The number of hours for teaching theory and practical for main subjects in first, Second and Third year are shown in Table-I, II and III.

Table – I Distribution of Teaching Hours in First Year Subjects

Main Subjects

S.No	Subject	Theory No. of Hours	Practical No. of Hours	Total No. of Hours.
1	Human Anatomy	70	20	90
2	Physiology	70	70	90
3	Biochemistry	70	20	90
4	Pathology – [Clinical Pathology, Hematology & Blood Banking	70	20	90
5	Microbiology	70	20	90
	Total	350	100	450

The classes in main and subsidiary subjects are to be held from Monday to Thursday. On Fridays and Saturdays students shall work in hospitals in the respective specialty or department chosen by them

Subsidiary Subjects

English 25 Hours

Health-Care 40 Hours

Hospital posting – 470 Hours Fri day 9am - 1pm and 2pm - 4-30 pm
Saturday 9am - 1pm

Table – II Distribution of Teaching Hours in Second Year Subjects

Main Subjects

S.No	Subject	Theory No. of Hours	Practical No. of Hours	Clinical posting	Total No. of Hours.
1	Applied Anatomy & Physiology related to dialysis technology	80 (40+40)	30 (15+15)	-	110
2	Pharmacology related to dialysis technology	40	10	-	50
3	Concepts of renal disease & its management	50	100	630	780
4	Applied aspects of pathology & microbiology	80 (40+40)	30(15+15)		110
	Total	**250**	**170**	**630**	**1050**

Subsidiary Subjects

Sociology	20 Hours
Constitution of India	10 Hours
Environmental Science &Health	10 Hours
Nutrition	20 Hours
Basics in Renal Dialysis Technology	20 Hours

Table – III Distribution of Teaching Hours in Second Year Subjects

Main Subjects

S.No	Subject	Theory No. of Hours	Practical No. of Hours	Clinical posting	Total No. of Hours.
1	Applied dialysis technology Paper –I	125	100	300	525
2	Applied dialysis Technology Paper – II	125	100	300	525
	Total	**250**	**200**	**600**	**1050**

Subsidiary Subjects

Ethics, Database Management	50 Hours
Research & Biostatistics	20 Hours
Computer application	10 Hours
Basic Sciences	35 Hours

*** There shall be no University Practical Examination in First year.**

K SCHEME OF EXAMINATION

There shall be three examinations, one each at the end of I, II and III year. The examination for both main and subsidiary subjects for all courses in Allied Health Sciences shall be common in the first year. Distribution of Subjects and marks for First Year, Second year & Third year University theory and practical Examinations are shown in the Table - IV, V & VI.

First year examination:

The University examination for 1st year shall consist of only theory examination and there shall be no University Practical Examination.

Second & Third year examination:

The University examination for 2nd and 3rd year shall consist of Written Examination & Practical.

Written Examinations consists of :

04 papers in the 2nd Year

02 papers in the 3rd Year.

Practical examination:

Two practical examinations, at the end 2nd Year and one practical examination at the end of the 3rd year.

Table – IV Distribution of Subjects and marks for First Year University theory Examination.

A	Main Subject *	Written Paper		Internal Assessment	Total
		Duration	Marks	Theory (Marks)	Marks
1	Basic Anatomy [Including Histology]	3 Hours	80	20	100
2	Physiology	3 Hours	80	20	100
3	Biochemistry	3 Hours	80	20	100
4	Pathology	3 Hours	80	20	100
5	Microbiology	3 Hours	80	20	100
B	**Subsidiary Subject * ***				**Total**
1	English	3 Hours	80	20	100
2	Health Care	3 Hours	80	20	100

Note * IA = Internal Assessment

Main Subjects shall have University Examination.

** Subsidiary subjects: Examination for subsidiary

Subjects shall be conducted by respective colleges.

Table – V Distribution of Subjects and marks for Second Year Examination.

Paper	Subjects	Theory				Praticals			
		Theory	Viva-Voca	IA	Sub Total	Practicals	IA	Sub total	Grand Total
I	Concepts of renal disease & its management	100	30	20	150	80	20	100	250
2	Applied aspects of pathology & Microbiology	100	30	20	150	80	20	100	250
3	Applied anatomy & physiology related to dialysis technology	80	-	20	100	No Practicals			100
4	Pharmacology related to dialysis technology	80	-	20	100	No Practicals			100

Distribution of Subsidiary Subjects and marks for Second Year Examination.

A	Main Subject *	Written Paper		Internal Assessment	Total
		Duration	Marks	Theory (Marks)	Marks
1	Ethics, Database Management	3 Hours	80	20	100
2	Research & Biostatistics	3 Hours	80	20	100
3	Computer Application	3 Hours	80	20	100
4	Basic Sciences	3 Hours	80	20	100

** Subsidiary subjects: Examination for subsidiary Subjects shall be conducted by respective colleges.

L BOARD OF EXAMINERS FOR PRACTICALS:

i. Subject to the provisions of these statutes and regulations made thereunder, there shall be a Board of Examiners to conduct viva- voce at the end of every year to evaluate the understanding and comprehension of a candidate in subject(s) taught during that year.

ii. The Board of examiners shall consist of
   a. Dean of the Faculty or his/her nominee.
   b. Head of the Department / Principal of the College.
   c. External Examiners(s)

iii. The external examiner shall be chosen out of the panel recommended by the Head of the Department / Principal of the College and approved by the Vice-Chancellor.

iv. The quorum for the conduct of examination by the Board of Examiners shall be at least 2 including External Examiners.

M APPOINTMENT AND ELIGIBILITY OF EXAMINERS:

No person shall be appointed as an examiner in any of the subjects of the professional examinations leading to the award of the degree unless :

a) He / She has at least five years teaching experience in the subject concerned in a College affiliated to a recognized University as a Faculty member.

b) If of the rank of an Associate Professor or equivalent and above, with the requisite qualification and experience as given in above sub – clause

   a. Provided that when an Associate Professor or equivalent and above are not available, an Assistant Professor of 5 Years standing as an Assistant Professor with requisite Qualification and Experience in the subject may be appointed as examiner.

c) There shall be at least four examiners for upto 100 Students, out of whom not less than 50% must be external examiners. Of the four examiners, the senior – most internal examiner will act as the Chairman and Co-Coordinator of the whole examination programme so that uniformity in the matter of assessment of candidate is maintained. Where candidates appearing are more than 100, two additional examiners (One external and one Internal) for every additional 50 or part thereof appearing , appointed. However, for students upto 50 there shall be two examiners one external and one internal.

d) Notwithstanding the number of candidates registered for the examination, one external examiner and one internal examiner who shall be the senior of the two internal examiners, in case of more than 100 students, will set and assess one question paper each (Where there are two papers in a subject) or one part of a question paper (where there is only one question paper in the subject). Senior most internal examiner of affiliated College shall be Chairman of the board of paper setters and act as moderator by rotation for one year.

e) The external examiner shall ordinarily be an in-service teacher in the subject or an allied subject from any college affiliated to a recognized University (Other than Jammu University) Post Graduate Institute.

f) External examiners (s) shall rotate after two years.

g) In the case of non-availability of an examiner in a subject, a retired teacher with requisite qualification and teaching

experience may be appointed either as external or internal examiner within seven years of super annuation.

h) The Practical / Clinical and oral examination in each subject shall be conducted jointly by the external and internal examiner(s) and the award sheet containing the marks of practical and / or clinical (including the internal assessment) shall be compiled and signed by all the external and internal examiner(s) before it is submitted to the University by the senior-most internal examiner of each affiliated college.

i) Award sheet containing marks of theory along with duly evaluated and signed answer scripts shall be submitted to the University separately by each examiner.

j) External examiner(s) shall rotate after two years.

k) External examiners shall not be from the same University.

l) Interpretation , if any shall be determined by the Vice-Chancellor in consultation with the Dean, Faculty of Medical Sciences and the decision taken shall be final and binding on all concerned.

N PASS CRITERIA

First year examination.

a. **Main Subjects:** A candidate is declared to have passed in a subject, if he/she secures, 50% of marks in University Theory exam and internal assessment added together.

b. **Subsidiary Subjects:** The minimum prescribed marks for a pass in subsidiary subject shall be 35% of the maximum marks prescribed for a subject. The marks obtained in the subsidiary subjects shall be communicated to the University before the Commencement of the University examination.

Second and Third year Examination

a. **Main Subjects:** A candidate is declared to have passed the Examination in a subject if he/she secures 50% of the marks in theory and 50% in practical separately. For a pass in theory, a candidate has to secure a minimum of 40% marks in the University conducted written examination, and 50% in aggregate in the University conducted written examination, internal assessment and Viva-Voce added together and for pass in Practical, a candidate has to secure a minimum of 40% marks in the university conducted Practical/Clinical examination and 50% in aggregate i.e.University conducted

Practical/Clinical and Internal Assessment.In the third year a candidate is declared to have passed only if he/she passes all the two theory papers and one practical examination in a single attempt failing which where in the candidate fails in one or more theory papers and /or practical examination he/she will have to re appear for all the two theory papers and the practical examination in the subsequent attempt.

b. **Subsidiary Subjects:** The minimum prescribed marks for a pass in subsidiary subject shall be 35% of the maximum marks prescribed for a subject. The marks obtained in the subsidiary subjects shall be communicated to the University before the commencement of the University examination.

O CARRY OVER BENEFIT

First year examination:

A candidate who fails in any two of the five main subjects of first year shall be permitted to carry over those subjects to second year. However, he/se must pass the carry over subjects before appearing for second year examination; otherwise he/she shall not permitted to proceed to third year.

Second year examination.

A candidate is permitted to carry over any one main subject to the third year but shall pass this subject before appearing for the third year examination

P ELIGIBILITY FOR THE AWARD OF DEGREE

A candidate shall have passed in all the subjects of first, second and third year to be eligible for award of degree.

Distribution of Type of Questions and Marks for various Subjects

Subjects having Maximum Marks = 100		
Type of Question	**Number of Questions**	**Marks for each question**
Essay Type	2	10
Short Essay Type	12 (10 x 5)	5
Short Answer Type	12 (10 x 5)	3

Subjects having Maximum Marks = 80		
Type of Question	**Number of Questions**	**Marks for each question**
Essay Type	2	10
Short Essay Type	8 (6 x 5)	5
Short Answer Type	12 (10 x 3)	3

Subjects having Maximum Marks = 60		
Type of Question	**Number of Questions**	**Marks for each question**
Essay Type	2	10
Short Essay Type	7 (5 x 5)	5
Short Answer Type	7 (5 x 3)	3

Subjects having Maximum Marks = 50		
Type of Question	**Number of Questions**	**Marks for each question**
Essay Type	2	10
Short Essay Type	5 (3 x 5)	5
Short Answer Type	7 (5 x 3)	3

Members of Board of Studies

Dr Sunanda Raina	Convener	
Smt.Shakuntla Sharma	Member	
Mr. J.C. Frank	Member	
Smt Munni Dhar	Member	
Smt.Sonam Sharma	Member	
Smt.Rafiqa Bashir	Member	
Smt. Rajni Sharma	Member	

B.SC RENAL DIALYSIS TECHNOLOGY

COURSE CODE FOR B.SC RENAL DIALYSIS TECHNOLOGY COURSE

YEAR	COURSE TITLE	COURSE CODE
FIRST YEAR	Human Anatomy	BRDT101
	Physiology	BRDT102
	Biochemistry	BRDT103
	Pathology – [Clinical Pathology, Hematology & Blood Banking	BRDT104
	Microbiology	BRDT105
	English	BRDT106
	Health Care	BRDT107
SECOND YEAR	Applied Anatomy & Physiology related to dialysis technology	BRDT201
	Pharmacology related to dialysis technology	BRDT202
	Concepts of renal disease & its management	BRDT203
	Applied aspects of pathology & microbiology	BRDT204
	Sociology	BRDT205
	Constitution of India	BRDT206
	Environmental Science & Health	BRDT207
	Nutrition	BRDT208
	Basics in Renal Dialysis Technology	BRDT209
THIRD YEAR	Applied dialysis technology Paper –I	BRDT301
	Applied dialysis Technology Paper – II	BRDT302
	Research & Biostatistics	BRDT303
	Computer Application	BRDT304
	Basic Sciences	BRDT305
	Ethics, Database Management	BRDT306

First Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE: Human Anatomy
COURSE CODE: BRDT101
DURATION OF EXAMINATION: 3 HOURS

ANATOMY

No. of theory classes : 70 hours
No. of practical classes : 20 hours

1. **Introduction:** human body as a whole
   Theory:
   Definition of anatomy and its divisions
   Terms of location, positions and planes
   Cell and its organelles
   Epithelium-definition, classification, describe with examples, function
   Glands- classification, describe serous & mucous glands with examples
   Basic tissues - classification with examples
   Practical: Histology of types of epithelium
   Histology of serous, mucous & mixed salivary gland

2. **Locomotion and support**
   Theory:
   Cartilage - types with example & histology
   Bone - Classification, names of bone cells, parts of long bone, microscopy of compact bone, names of all bones, vertebral column, intervertebral disc, fontanelles of fetal skull
   Joints - Classification of joints with examples, synovial joint (in detail for radiology)
   Muscular system: Classification of muscular tissue & histology
   Names of muscles of the body
   Practical: Histology of the 3 types of cartilage
   Demo of all bones showing parts, radiographs of normal bones & joints
   Histology of compact bone (TS & LS)
   Demonstration of all muscles of the body
   Histology of skeletal (TS & LS), smooth & cardiac muscle

3. **Cardiovascular system**
   Theory:
   Heart-size, location, chambers, exterior & interior
   Blood supply of heart
   Systemic & pulmonary circulation
   Branches of aorta, common carotid artery, subclavian artery, axillary artery, brachial artery, superficial palmar arch, femoral artery, internal iliac artery
   Peripheral pulse
   Inferior venacava, portal vein, portosystemic anastomosis
   Great saphenous vein
   Dural venous sinuses
   Lymphatic system- cisterna chyli & thoracic duct
   Histology of lymphatic tissues
   Names of regional lymphatics, axillary and inguinal lymph nodes in brief
   Practical: Demonstration of heart and vessels in the body

Histology of large artery, medium sized artery & vein, large vein
Microscopic appearance of large artery, medium sized artery & vein, large vein pericardium
Histology of lymph node, spleen, tonsil & thymus
Normal chest radiograph showing heart shadows
Normal angiograms

4. **Gastro-intestinal system**
   Theory:
   Parts of GIT, Oral cavity (lip, tongue (with histology), tonsil, dentition, pharynx, salivary glands, Waldeyer's ring)
   Oesophagus, stomach, small and large intestine, liver, gall bladder, pancreas
   Radiographs of abdomen

5. **Respiratory system**
   Parts of RS, nose, nasal cavity, larynx, trachea, lungs, bronchopulmonary segments
   Histology of trachea, lung and pleura
   Names of paranasal air sinuses
   Practical: Demonstration of parts of respiratory system.
   Normal radiographs of chest
   Histology of lung and trachea

6. **Peritoneum**
   Theory: Description in brief
   Practical: Demonstration of reflections

7. **Urinary system**
   Kidney, ureter, urinary bladder, male and female urethra
   Histology of kidney, ureter and urinary bladder
   Practical: demonstration of parts of urinary system
   Histology of kidney, ureter, urinary bladder
   Radiographs of abdomen-IVP, retrograde cystogram

8. **Reproductive system**
   Theory:
   Parts of male reproductive system, testis, vas deferens, epididymis, prostate (gross & histology)
   Parts of female reproductive system, uterus, fallopian tubes, ovary (gross & histology)
   Mammary glad - gross
   Practical: demonstration of section of male and female pelves with organs in situ
   Histology of testis, vas deferens, epididymis, prostate, uterus, fallopian tubes, ovary
   Radiographs of pelvis - hysterosalpingogram

9. **Endocrine glands**
   Theory:
   Names of all endocrine glands in detail on pituitary gland, thyroid gland, parathyroid gland, suprarenal glad - (gross & histology)
   Practical: Demonstration of the glands

Histology of pituitary, thyroid, parathyroid, suprarenal glands

10. **Nervous system**

Theory:

Neuron
Classification of NS
Cerebrum, cerebellum, midbrain, pons, medulla oblongata, spinal cord with spinal nerve (gross & histology)
Meninges, Ventricles & cerebrospinal fluid
Names of basal nuclei
Blood supply of brain
Cranial nerves
Sympathetic trunk & names of parasympathetic ganglia
Practical: Histology of peripheral nerve & optic nerve
Demonstration of all plexuses and nerves in the body
Demonstration of all part of brain
Histology of cerebrum, cerebellum, spinal cord

Sensory organs:

Theory:

Skin: Skin-histology
Appendages of skin
Eye: Parts of eye & lacrimal apparatus
Extra-ocular muscles & nerve supply
Ear: parts of ear- external, middle and inner ear and contents
Practical: Histology of thin and thick skin
Demonstration and histology of eyeball
Histology of cornea & retina

Embryology:

Theory:

Spermatogenesis & oogenesis
Ovulation, fertilization
Fetal circulation
Placenta

Internal Assessment

Theory - Average of two exams conducted.	20
Practicals: Record & Lab work*	10

* There shall be no University Practical Examination and internal assessment marks secured in Practicals need not be sent to the University.

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Human Anatomy
COURSE CODE: BRDT101
DURATION OF EXAMINATION: 3 HOURS

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Anatomy shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE: Physiology
COURSE CODE: BRDT102
DURATION OF EXAMINATION: 3 HOURS

PHYSIOLOGY

Theory 70 hours
Practical 20hours

Introduction - composition and function of blood
Red blood cells - Erythropoiesis , stages of differentiation function , count physiological Variation.
Haemoglobin -structure , functions , concentration physiological variation
Methods of Estimation of Hb
White blood cells - Production , function, life span, count, differential count
Platelets - Origin, normal count, morphology functions.
Plasma Proteins - Production, concentration , types, albumin, globulin, Fibrinogen, Prothrombin functions.
Haemostasis & Blood coagulation
Haemostasis - Definition, normal haemostasis, clotting factors, mechanism of clotting, disorders of clotting factors.
Blood Bank
Blood groups - ABO system, Rh system
Blood grouping & typing
Crossmatching
Rh system - Rh factor, Rh in compatibility.
Blood transfusion - Indication, universal donor and recipient concept.
Selection criteria of a blood donor. transfusion reactions Anticoagulants - Classification, examplesand uses
Anaemias : Classification - morphological and etilogical. effects of anemia on body
Blood indices - Colour index, MCH, MCV, MCHC
Erythrocyte sedementation Rate (ESR) and Paced cell volume
Normal values, Definition . determination, Blood Volume -Normal value ,determination of blood volume and regulation of blood volume Body fluid - pH, normal value, regulation and variation
Lymph - lymphoid tissue formation, circulation, composition and function of lymph

Cardiovascular system
Heart - Physiological Anatomy, Nerve supply
Properties of Cardiac muscle, Cardiac cycle-systole,diastole. Intraventricular pressure curves.
Cardiac Output - only definition
Heart sounds Normal heart sounds Areas of auscultation.
Blood Pressure - Definition, normal value, clinical measurement of blood pressure.
Physiological variations, regulation of heart rate, cardiac shock, hypotension, hypertension.
Pulse - Jugalar, radial pulse, Triple response
Heart sounds - Normal heart sounds, cause characteristics and signification. Heart rate
Electrocardiogram (ECG) -significance.
Digestive System - Physiological anatomy of Gastro intestinal tract, Functions of digestive system
Salivary glands Stucture and functions. Deglutination -stages and regulation
Stomach - structure and fuctions

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Physiology
COURSE CODE: BRDT102
DURATION OF EXAMINATION: 3 HOURS

Gastric secretion - Composition function regulation of gastric juice secretion
Pancrease - structure, function, composition, regulation of pancreatic juice
Liver - functions of liver
Bile secretion, composition, function regulation of bile secretion .Bilirubin metabolism types of bilirubin, Vandernberg reaction, Jaundice- types, significance.
Gall bladder - functions
Intestine - small intestine and large intestine Small intestine -Functions- Digestive, absorption ,movements.
Large intestine - Functions, Digestion and absorption of Carbohydrates,Proteins, Fats,Lipids.Defecation

Respiratory system

Functions of Respiratory system, Physiological Anatomy of Respiratory system, Respiratory tract, Respiratory Muscles, Respiratory organ-lungs, Alveoli, Respiratory membrane, stages of respiration.
Mechanism of normal and rigorous respiration. Forces opposing and favouring expansion of the lungs. Intra pulmonary pleural pressure, surface tension, recoil tendency of the wall. H

Transportation of Respiratory gases :

Transportation of Oxygen : Direction, pressure gradient, Forms of transportation, Oxygenation of Hb. Quantity of Oxygen transported.

Lung volumes and capacities

Regulation of respiration what? Why? How? Mechanisms of Regulation, nervous and chemical regulation. Respiratory centre. Hearing Brier, Reflexes.
Applied Physiology and Respiration : Hypoxia, Cyanosis, Asphyxia, Dyspnea, Dysbarism, Artificial Respiration, Apnoea.
Endocrine System - Definition Classification of Endocrine glands & their Harmones Properties of Harmones .
Thyroid gland hormone - Physiological, Anatomy, Hormone scerated, Physiological function, regulation of secretion. Disorders - hypo and hyper secretion of hormone
Adrenal gland, Adrenal cortex physiologic anatomy of adrenal gland, Adrenal cortex, cortical hormones - functions and regulation
Adrenal medulla - Hormones , regulation and secretion. Functions of Adrenaline and nor adrenaline
Pituitary hormones - Anterior and posterior pituitary hormones, secretion ,function
Pancreas - Hormones of pancreas
Insulin - secretion, regulation ,function and action
Diabetes mellitus - Regulation of blood glucose level
Parathyroid gland - function, action ,regulation of secretion of parathyroid hormone.
Calcitonin - function and action
Special senses
Vision - structure of eye. Function of different parts.
Structure of retina
Hearing structure and function of can mechanism of hearing
Taste - Taste buds functions . Smell physiology, Receptors.

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Physiology
COURSE CODE: BRDT102
DURATION OF EXAMINATION: 3 HOURS

Nervous system

Functions of Nervous system, Neurone structure, classification and properties. Neuroglia, nerve fiber, classification ,conduction of impulses continuous and saltatory. Velocity of impulse transmission and factors affecting. Synapse - structure, types, properties. Receptors - Definition, classification ,properties. Reflex action - unconditioned properties of reflex action. Babinski's sign. Spinal cord nerve tracts. Ascending tracts, Descending tracts - pyramidal tracts - Extrapyramidal tracts. Functions of Medulla, pons, Hypothalamic disorders. Cerebral cortex lobes and functions, Sensory cortex, Motor cortex,Cerebellum functions of Cerebellum.Basal ganglion-funtions. EEG.

Cerebro Spinal Fluid(CSF) : formation, circulation, properties, composition and functions lumbar puncture.

Autonomic Nervous System : Sympathetic and parasympathetic distribution and functions and comparison of functions.

Excretory System

Excretory organs

Kidneys: Functions of kidneys structural and functional unit nepron, vasarecta, cortical and juxtamedullary nephrons - Comparision, Juxta Glomerular Apparatus -Structure and function. Renal circulation peculiarities.

Mechanism of Urine formation : Ultrafiltration criteria for filtration GFR, Plasma fraction, EFP, factors effecting EFR. Determination of GFR selective reabsorption - sites of reabsorption, substance reabsorbed, mechanisms of reabsorption Glucose, urea.

H + Cl aminoacids etc. TMG, Tubular lead, Renal threshold % of reabsorption of different substances, selective e secretion.

Properties and composition of normal urine, urine output. Abnormal constituents in urine , Mechanism of urine concentration.

Counter - Current Mechanisms : Micturition, Innervation of Bladder, Cysteurethrogram.

Diuretics : Water, Diuretics, osmotic diuretics, Artificial kidney Renal function tests - plasma clearance Actions of ADH, Aldosterone and PTH on kidneys. Renal function tests

Reproductive system

Function of Reproductive system, Puberty, male reproductive system. Functions of testes, spermatogenesis site, stages, factors influencing semen. Endocrine functions of testes Androgens - Testosterone structure and functions. Female reproducive syustem. Ovulation, menstrual cycle. Physiological changes during pregnancy, pregnancy test. Lactation : Composition of milk factors controlling lactation.

Muscle nerve physiology

Classification of muscle, structure of skeletal muscle, Sarcomere contractile proteins, Neuromuscular junction. Transmission across, Neuromuscular junction. Excitation contraction coupling. Mechanism of muscle contraction muscle tone, fatigue Rigour mortis

Skin -structure and function

Body temperature measurement, Physiological variation, Regulation of body Temperature by physical chemical and nervous mechanisms .Role of Hypothalamus, Hypothermia and fever.

Practicals

Haemoglobinometry

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Physiology
COURSE CODE: BRDT102
DURATION OF EXAMINATION: 3 HOURS

White Blood Cell count
Red Blood Cell count
Determination of Blood Groups
Leishman's staining and Differential WBC count
Determination of packed cell Volume
Erythrocyte sedimentation rate [ESR]
Calculation of Blood indices
Determination of Clotting Time, Bleeding Time
Blood pressure Recording
Auscultation for Heart Sounds
Artificial Respiration
Determination of vital capacity

Internal Assessment

Theory - Average of two exams conducted.	20
Practicals: Record & Lab work*	10

* There shall be no University Practical Examination and internal assessment marks secured in Practicals need not be sent to the University.

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Physiology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

BIOCHEMISTRY

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE: Biochemistry
COURSE CODE: BRDT103
DURATION OF EXAMINATION: 3 HOURS

No. Theory classes : 70hours
No. of practical classes : 20 hours

Theory:

Specimen collection :
Pre-analytical variables
Collection of blood
Collection of CSF & other fluids
Urine collection
Use of preservatives
Anticoagulants

1. **Introduction to Laboratory apparatus**
   Pipettes- different types (Graduated, volumetric, Pasteur, Automatic etc.,)
   Calibration of glass pipettes
   Burettes, Beakers, Petri dishes, depression plates.
   Flasks - different types)Volumetric, round bottmed, Erlemeyer conical etc.,)
   Funnels - different types (Conical, Buchner etx.,)
   Bottles - Reagent bottles - graduated and common, Wash bottles - different type Specimen bottles etc.,

2. **Measuring cylinders, Porcelain dish**
   Tubes - Test tubes, centrifuge tubes, test tube draining rack
   Tripod stand, Wire gauze, Bunsen burner.
   Cuvettes, significance of cuvettes in colorimeter, cuvettes for visible and UV range, cuvette holders Racks - Bottle, Test tube, Pipette
   Dessicator, Stop watch, rimers, scissors
   Dispensers - reagent and sample
   Any other apparatus which is important and may have been missed should also be covered
   Maintenance of lab glass ware and apparatus:
   Glass and plastic ware in Laboratory
   *use of glass: significance of boro silicate glass ; care and cleaning of glass ware, different cleaning solutions of glass
   * care and cleaning of plastic ware, different cleaning solutions

3. **Instruments (Theory and demonstration) Diagrams to be drawn**
   Water bath: Use, care and maintenance
   Oven & Incubators : Use, care and maintenance.
   Water Distilation plant and water deionisers. Use, care and maintenance
   Refrigerators, cold box, deep freezers - Use, care and maintanance
   Reflux condenser : Use, care and maintenance
   Centrifuges (Theory and demonstration) Diagrams to be drawn
   Definition, Principle, svedberg unit, centrifugal force, centrifugal field rpm, ref. Conversion of G to rpm and vice versa.

Different types of centrifuges
Use care and maintenance of a centrifuge
Laboratory balances [Theory & Practicals) Diagrams to be drawn
Manual balances: Single pan, double pan, trip balance
Direct read out electrical balances.
Use care and maintenance. Guideline to be followed and precautions to be taken while weighing
Weighing different types of chemicals, liquids. Hygroscopic compounds etc.
Colorimeter and spectrophotometer (Theory and Practicals) Diagrams to be drawn
Principle, Parts Diagram.
Use, care and maintenance.
pH meter (Theory & practicals) Diagrams to be drawn
principle, parts, Types of electrods, salt bridge solution.
Use, care and maintenance of Ph meter and electrodes
Guidelines to be followed and precautions to be taken while using pH meter

4. Safety of measurements

5. Conventional and SI units

6. Atomic structure

Dalton's theory, Properties f electrons, protons, neutrons, and nucleus, Rutherford's model of atomic structure, Bohr's model of atomic structure, orbit and orbital, Quantum numbers, Heisenberg's uncertainly principle.
Electronic configuration - Aufbau principle, Pauli's exclusion principle, etc.,m
Valency and bonds - different types of strong and weak bonds in detail with examples
Theory & Practicals for all the following under this section
Molecular weight, equivalent weight of elements and compounds, normality molarity
Preparation of molar solutions (mole/litre solution) eg: 1 M Nacl, 0.15 M NaCL
1 M NaOH, 0.1 M HCl, 0.1 M H2S04 etc.,

Preparation of normal solutions. eg., IN Na2C03, O IN Oxalic acid, 0.1 N HCl, 0.1N H2504, 0.66 N H2S04 etc.,
Percent solutions. Preparation of different solutions - v/v w/v (solids, liquids and acids)
Conversion of a percent solution into a molar solution

Dilutions

Diluting solutions: eg. Preparation of 0.1 N NaCl from 1 N NaCl from 2 NHCl etc., Preparing working standard from stock standard, Body fluid dilutions, Reagent dilution techniques, calculating the dilution of a solution, body fluid reagent etc.,
Saturated and supersaturated solutions.
Standard solutions. Technique for preparation of standard solutions eg: Glucose, urea, etc.,
Significance of volumetric flask in preparaing standard solutions. Volumetric flasks of different sizes, Preparation of standard solutions of deliquesent compounds (CaCl2, potassium carbonate, sodium hydroxide etc.,)

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Biochemistry
COURSE CODE: BRDT103
DURATION OF EXAMINATION: 3 HOURS

Preparation of standards using conventional and SI units
Acids, bases, salts and indicators.
Acids and Bases: Definition, physical and chemical properties with examples. Arrehenius concept of acids and bases, Lowery - Bronsted theory of acids and bases classification of acids and bases. Different between bases and alkali, acidity and basicity, monoprotonic and polyprotonic acids and bases
Concepts of acid base reaction, hydrogen ion concentration, Ionisation of water, buffer, Ph value of a solution, preparation of buffer solutions using Ph meter.
Salts: Definition, classification, water of crystallization - definition and different types, deliquescent and hygroscopic salts
Acid- base indicators: (Theory and Practicals)
Theory - Definition, concept, mechanism of dissociation of an idicator, colour change of an indicator in acidic and basic conditions, use if standard buffer solution and indicators for Ph determinations, preparatin and its application, list of commonly used indicators and their Ph range, suitable pH indicators used in different titrations, universal indicators
Practicals - Titration of a simple acid and a base (Preparation of standard solution of oxalic acid and using this solution finding out the normality of a sodium hydroxide soslution . Acid to be titrated using this base) Calculation of normality of an acid or a base after titration, measurement of hydrogen ion concentration

Quality control : Accuracy
Precision
Specificity
Sensitivity
Limits of error allowable in laboratory
Percentage error

Normal values and Interpretations
Special Investigations: Serum Electrophoresis
Immunoglobulins
Drugs: Digitoxin, Theophyllines
Regulation of Acid Base status:
Henderson Hasselback Equations
Buffers of the fluid
pH Regulation
Disturbance in acid Base Balance
Anion Gap
Metabolic acidosis
Metabolic acidosis
Metabolic alkalosis
Respiratory acidosis
Respiratory alkalosis
Basic Principles and estimation of Blood Gases and pH
Basic principles and estimation of Electrolytes
Water Balance
Sodium regulation
Bicarbonate buffers

Nutrition, Nutritional support with special emphasis on parental nutrition.
- Calorific Value
- Nitrogen Balance
- Respiratory Quotient
- Basal metabolic rate
- Dietary Fibers
- Nutritional importance of lipids, carbohydrates and proteins
- Vitamins

PRACTICALS

Analysis of Normal Urine
Composition of urine
Procedure for routine screening
Urinary screening for inborn errors of metabolism
Common renal disease
Urinary calculus

Urine examination for detection of abnormal constituents
Interpretation and Diagnosis through charts
Liver Function tests
Lipid Profile
Renal Function test
Cardiac markers
Blood gas and Electrolytes

4. **Estimation of Blood sugar, Blood Urea and electrolytes**

5. **Demonstration of Strips**
   Demonstration of Glucometer

Internal Assessment

Theory - Average of two exams conducted.	20
Practicals: Record & Lab work*	10

* There shall be no University Practical Examination and internal assessment marks secured in Practicals need not be sent to the University.

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Biochemistry shall be as given under.

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Biochemistry
COURSE CODE: BRDT103
DURATION OF EXAMINATION: 3 HOURS

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE: Pathology
COURSE CODE: BRDT104
DURATION OF EXAMINATION: 3 HOURS

PATHOLOGY

Histo Pathology ,Clinical Pathology, Haematology and Blood Banking
Theory - 70 hours
Practical - 20 hours

HistoPathology - Theory

- Introduction to Histo Pathology
- Receiving of Specimen in the laboratory
- Grossing Techniques
- Mounting Techniques - various Mountants
- Maintenance of records and filing of the slides.
- Use & care of Microscope
- Various Fixatives, Mode of action, Preparation and Indication.
- Bio-Medical waste management
- Section Cutting
- Tissue processing for routine paraffin sections
- Decalcification of Tissues.
- Staining of tissues - H& E Staining
- Bio-Medical waste management

Clinical Pathology - Theory

- Introduction to Clinical Pathology
- Collection, Transport, Preservation, and Processing of various clinical specimens
- Urine Examination - Collection and Preservation of urine.
  Physical, chemical, Microscopic Examination
- Examination of body fluids.
- Examination of cerebro spinal fluid (CSF)
- Sputum Examination.
- Examination of feces

Haematology - Theory

- Introduction to Haematology
- Normal constituents of Blood, their structure and function.
- Collection of Blood samples
- Various Anticoagulants used in Haematology
- Various instruments and glassware used in Haematology, Preparation and use of glassware
- Laboratory safety guidelines
- SI units and conventional units in Hospital Laboratory
- Hb,PCV
- ESR
- Normal Haemostasis
  Bleeding Time, Clotting Time, Prothrombin Time, Activated Partial Thromboplastin Time.

Blood Bank
Introduction

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Pathology
COURSE CODE: BRDT104
DURATION OF EXAMINATION: 3 HOURS

Blood grouping and Rh Types
Cross matching

PRACTICALS

- Urine Examination.
- Physical
- Chemical
- Microscopic
- Blood Grouping Rh typing.
- Hb Estimation,Packed Cell Volume[PCV], Erythrocyte Sedimentation rate-[ESR]
- Bleeding Time, Clotting Time.
- Histopathlogy - Section cutting and H &E Staining.[For BSc MLT only]

Internal Assessment

Theory - Average of two exams conducted.	20
Practicals: Record & Lab work*	10

* There shall be no University Practical Examination and internal assessment marks secured in Practicals need not be sent to the University.

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Pathology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE: Microbiology
COURSE CODE: BRDT105
DURATION OF EXAMINATION: 3 HOURS

MICROBIOLOGY

Objective : This course introduces the principles of Microbiology with emphasis on applied aspects of Microbiology of infectious diseases particularly in the following areas Principles & practice of sterilization methods.

Collection and despatch of specimens for routine microbiological investigations.
Interpretation of commonly done bacteriological and serological investigations.
Control of Hospital infections
Biomedical waste management
Immunization schedule

Theory - 70 hours

1. Morphology — 4 hours
   Classification of microorgaisms, size, shape and structure of bacteria. Use of microscope in the study of bacteria.

2. Growth and nutrition — 4 hours
   Nutrition, growth and multiplications of bacteria, use of culture media in diagnostic bacteriology.

3. Sterilisation and Disinfection — 4 hours
   Principles and use of equipments of sterlization namely Hot Air oven, Autoclave and serum inspissrator. Pasteurization, Anti septic and disinfectants.
   Antimicrobial sensitivity test

4. Immunology — 6 hours
   Immunity Vaccines, Types of Vaccine and immunization schedule Principles and interpretation of commonly done serological tests namely Widal, VDRL, ASLO, CRP, RF & ELISA. Rapid tests for HIV and HbsAg(Technical details to be avoided)

5. Systematic Bacteriology — 20 hours
   Morphology, cultivation, diseases caused ,laboratory diagnosis including specimen collection of the following bacteria(the classification, antigenic structure and pathogenicity are not to be taught) Staphylocci, Streptococci, Pneumococci, Gonococci, Menigococci, C diphtheriae, Mycobacteria, Clostridia, Bacillus, Shigella, Salmonella, Esch coli, Klebsiella, Proteus,vibrio cholerae, Pseudomonas & Spirochetes

6. Parasitology — 10 hours
   Morphology, life cycle, laboratory diagnosis of following parasites
   E. histolytica, Plasmodium, Tape worms, Intestinal nematodes

7. Mycology — 4 hours
   Morphology, diseases caused and lab diagnosis of following fungi.
   Candida, Cryptococcus, Dermatophytes ,opportunistic fungi.

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Microbiology
COURSE CODE: BRDT105
DURATION OF EXAMINATION: 3 HOURS

8. Virology 10 hours
   General properties of viruses, diseases caused, lab diagnosis and prevention of following viruses, Herpes, Hepatitis, HIV, Rabies and Poliomyelitis.

9. Hospital infection Causative agents, transmission methods, investigation, prevention and control Hospital infection. 4 hours

10. Principles and practice Biomedical waste management 4 hours

Practical **20 hours**

Compound Microscope.

Demonstration and sterlization of equipments - Hot Air oven, Autoclave, Bacterial filters.
Demonstration of commonly used culture media, Nutrient broth, Nutrient agar, Blood agar, Chacolate agar, Mac conkey medium, LJ media, Robertson Cooked meat media, Potassium tellurite media with growth, Mac with LF & NLF, NA with staph
Antibiotic susceptibility test
Demonstration of common serological tests - Widal, VRDL, ELISA.
Grams stain
Acid Fast staining
Stool exam for Helminthic ova
Visit to hospital for demonstration of Biomedical waste mangement.
Anaerobic culture methods.

Internal Assessment

Theory - Average of two exams conducted.	20
Practicals: Record & Lab work*	10

* There shall be no University Practical Examination and internal assessment marks secured in Practicals need not be sent to the University.

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Microbiology shall be as given under.

ENGLISH

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE: English
COURSE CODE: BRDT106
DURATION OF EXAMINATION: 3 HOURS

COURSE OUTLINE

COURSE DESCRIPTION: This course is designed to help the student acquire a good command and comprehension of the English language through individual papers and conferences.

BEHAVIOURAL OBJECTIVES :

The student at the end of training is able to

1. Read and comprehend english language
2. Speak and write grammatically correct english
3. Appreciates the value of English literature in personal and professional life.

UNIT - I : INTRODUCTION :
Study Techniques
Organisation of effective note taking and logical processes of analysis and synthesis Use of the dictionary
Enlargement of vocabulary
Effective diction

UNIT - II : APPLIED GRAMMAR :
Correct usage
The structure of sentences
The structure of paragraphs
Enlargements of Vocabulary

UNIT - III : WRITTEN COMPOSITION :
Precise writing and summarising
Writing of bibliography
Enlargement of Vocabulary

UNIT - IV : READING AND COMPREHENSION :
Review of selected materials and express oneself in one's words. Enlargement of Vocabulary.

UNIT - V : THE STUDY OF THE VARIOUS FORMS OF COMPOSITION :
Paragraph, Essay, Letter, Summary, Practice in writing

UNIT - VI : VERBAL COMMUNICATION :
Discussions and summarization, Debates, Oral reports, use in teaching

Scheme of Examination
Written (Theory): Maximum Marks: -80 marks.

HEALTH CARE

First Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE: Health Care
COURSE CODE: BRDT107
DURATION OF EXAMINATION: 3 HOURS

Teaching Hours : 40

Introduction to Health

Definition of Health, Determinants of Health, Health Indicators of India, Health Team Concept.
National Health Policy
National Health Programmes (Briefly Objectives and scope)
Population of India and Family welfare programme in India

Introduction to Nursing

What is Nursing ? Nursing principles. Inter-Personnel relationships. Bandaging : Basic turns; Bandaging extremities; Triangular Bandages and their application.

Nursing Position, Bed making, prone, lateral, dorsal, dorsal re-cumbent, Fowler's positions, comfort measures, Aids and rest and sleep.

Lifting And Transporting Patients: Lifting patients up in the bed. Transferring from bed to wheel chair. Transferring from bed to stretcher.

Bed Side Management: Giving and taking Bed pan, Urinal : Observation of stools, urine. Observation of sputum, Understand use and care of catheters, enema giving.

Methods of Giving Nourishment: Feeding, Tube feeding, drips, transfusion

Care of Rubber Goods

Recording of body temperature, respiration and pulse,

Simple aseptic technique, sterlization and disinfection.

Surgical Dressing: Observation of dressing procedures

First Aid :

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

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Applied Anatomy & Physiology related to dialysis technology
COURSE CODE: BRDT201
DURATION OF EXAMINATION: 3 HOURS

APPLIED ANATOMY & PHYSIOLOGY RELATED TO DIALYSIS TECHNOLOGY PAPER 1

Applied Anatomy

1. Basic Anatomy Of Urinary System - Structural Anatomy Of Kidney, Bladder, Uretr, Urethra, Prostate
2. Histology Of Kidney
3. Blood Supply Of Kidney
4. Development Of Kidney In Brief
5. Anatomy Of Peritoneum Including Concept Of Abdominal Hernias
6. Anatomy Of Vasculat System
   - Upper Limb Vessels - Course, Distribution, Branches, Origin & Abnormalities
   - Neck Vessels - Course, Distribution, Branches, Origin & Abnormalities
   - Femoral Vessels - Course, Distribution, Branches, Origin & Abnormalities

PHYSIOLOGY

1. Mechanism Of Urine Formation
2. Glomurular Filtration Rate (gfr)
3. Clearance Studies
4. Physiological Values - Urea, Creatinine, Electrolytes, Calcium, Phosphorous, Uric Acid, Magnesium, Glucose 24 Hours Urinary Indices - Urea, Creatinine, Electrolytes, Calcium, Magnesium
5. Physiology Of Renal Circulation
   - Factors Contributing & Modifying Renal Circulation
   - Autoregulation
6. Hormones Produced By Kidney & Physiologic Alterations In Pregnancy
7. Haemostasis - Coagulation Cascade, Cogulation Factors, Auto Regulation, Bt, Ct, Pt, Ptt, Thrombin Time
8. Acid Base Balance - Basic Principles & Common Abnormalities Like Hypokalemia, Hyponatremia, Hyperkalemia, Hypernatremia, Hypocalcemia, Hypercalcemia, Ph, Etc.
9. Basic Nutrition In Renal Diseases

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 1st Year
COURSE TITLE : Applied Anatomy & Physiology related to dialysis tech.
COURSE CODE: BRDT201
DURATION OF EXAMINATION: 3 HOURS

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for APPLIED ANATOMY & PHYSIOLOGY RELATED TO DIALYSIS TECHNOLOGY PAPER 1 shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

NO PRACTICAL EXAMINATION

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Pharmacology related to dialysis technology
COURSE CODE: BRDT202
DURATION OF EXAMINATION: 3 HOURS

PHARMOCOLOGY RELATED TO HAEMO & PERITONEAL DIALYSIS PAPER II

1. IV fluid therapy with special emphasis in renal diseases
2. Diuretics - classification, actions, dosage, side efeects & contraindications
3. Anti hypertensives - classification, actions, dosage, side efeects & contraindications, special reference during dialysis , vasopressors, drugs used in hypotention
4. Drugs & dialysis - dose & duration of administrationc 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, sodium hypochlorite, hydrogen peroxide - role as disinfactants & adverse effects of residual particles applicable to formalin
11. Haemodialysis concentrates - composition & dilution (acetate & bicorbonates)
12. Peritoneal dialysis fluid in particular hypertonic solutions - composition
13. Potassium exchange resins with special emphasis on mode of administration

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 50 marks. Distribution of type of questions and marks for PHARMOCOLOGY RELATED TO HAEMO & PERITONEAL DIALYSIS PAPER II shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

NO PRACTICAL EXAMINATION

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Concepts of renal disease & its management
COURSE CODE: BRDT203
DURATION OF EXAMINATION: 3 HOURS

CONCEPTS OF RENAL DISEASES CLINICAL MANIFESTATIONS EVALUATION & MANAGEMENT OF THE

FOLLOWING DISEASES

1. Acute renal failure
2. Nephrotic syndrome - primary & secondary
3. Nephritic syndrome
4. Uti - urinary tract infections
5. Asymptomatic urinary abnormalities
6. Chronic renal failure
7. Renal stone diseases
8. Obstructive uropathies
9. Congenital & inherited renal diseases
10. Tumors of kidney
11. Pregnancy associated renal diseases
12. Renal vascular disorders & hypertension associated renal diseases

Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for CONCEPTS OF RENAL DISEASES PAPER III

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	10	20
SHORT ESSAY (SE)	8 (6 x 5)	5	30
SHORT ANSWER (SA)	12 (10 x 3)	3	30
TOTAL MARKS			80

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Applied aspects of pathology & microbiology
COURSE CODE: BRDT204
DURATION OF EXAMINATION: 3 HOURS

APPLIED ASPECTS OF PAHTOLOGY & MICROBIOLOGY
PAPER IV

Pathology **50 marks**

1. Congenital abnormalities of urinary system
2. Classification of renal diseases
3. Glomerular diseases - causes, typpes & pathology
4. Tubulointerstitial diseases
5. Renal vascular disorders
6. End stage renal diseases - causes & pathology
7. Pathology of kidney in hypertension, diabetes mellitus, pregnancy
8. Pathology of peritoneum - peritonitis - bacterial, tubular & sclerosing peritonitis dialysis induced changes
9. Pathology of urianry tract infections
10. Pyelonephritis & tuberculous pyelonephritis

Microbiology **50 marks**

1. Hepatotrophic viruses in detail - mode of transfusion, universal precautions, vaccinations
2. Human immunodeficiency virus (hiv), mode of transfusion, universal precautions
3. Oppurtunistic infections
4. Microbiology of urinary tract infections
5. Microbiology of vascular access infection (femoral, jugula, subclavian catheters)
6. Sampling methodologies for culture & sensitivity

Scheme of examination theory

There shall be one theory paper of three hours duration carrying 50 marks. Distribution of type of questions and marks for applied aspects of pahtology & microbiology

PAPER IV

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	10	20
SHORT ESSAY (SE)	12 (10 x 5)	5	50
SHORT ANSWER (SA)	12 (10 x 3)	3	30
TOTAL MARKS			100

Practical exam: 80 marks

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Sociology
COURSE CODE: BRDT205
DURATION OF EXAMINATION: 3 HOURS

SOCIOLOGY

Teaching Hours : 20

Course Description

This course will introduce student to the basic sociology concepts, principles and social process, social institutions [in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India will be studied.

Introduction :

Meaning - Definition and scope of sociology
Its relation to Anthropology, Psychology, Social Psychology
Methods of Sociological investigations - Case study, social survey, questionnaire, interview and opinion poll methods.
Importance of its study with special reference to health care professionals

Social Factors in Health and Disease:

Meaning of social factors
Role of social factors in health and disease

Socialization :

Meaning and nature of socialization
Primary, Secondary and Anticipatory socialization
Agencies of socialization

Social Groups:

1. Concepts of social groups, influence of formal and informal groups on health and sickness. The role of primary groups and secondary groups in the hospital and rehabilitation setup.

Family :

The family, meaning and definitions
Functions of types of family
Changing family patterns
Influence of family on individual's health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy

Community :

Rural community: Meaning and features - Health hazards to rural communities, health hazards to

tribal community.
Urban community - Meaning and features - Health hazards of urbanities

Culture and Health :

Concept of Health
Concept of culture
Culture and Health
Culture and Health Disorders

Social Change :

Meaning of social changes
Factors of social changes
Human adaptation and social change
Social change and stress
Social change and deviance
Social change and health programme
The role of social planning in the improvement of health and rehabilitation

Social Problems of disabled :

Consequences of the following social problems in relation to sickness and disability remedies to prevent these problems
Population explosion
Poverty and unemployment
Beggary
Juvenile delinquency
Prostitution
Alcoholism
Problems of women in employment

Social Security :

Social Security and social legislation in relation to the disabled

Social Work :

Meaning of Social Work
The role of a Medical Social Worker

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Constitution of India
COURSE CODE: BRDT206
DURATION OF EXAMINATION: 3 HOURS

INDIAN CONSTITUTION

Prescribed for the First Year students of all degree classes

Unit-I: Meaning of the team 'Constitution' making of the Indian Constitution 1946-1940.

Unit-II: The democratic institutions created by the constitution Bicameral system of Legislature at the Centre and in the States.

Unit-III: Fundamental Rights and Duties their content and significance.

Unit - IV: Directive Principles of States Policies the need to balance Fundamental Rights with Directive Principles.

Unit - V: Special Rights created in the Constitution for: Dalits, Backwards, Women and Children and the Religious and Linguistic Minorities.

Unit-VI: Doctrine of Separation of Powers legislative, Executive and Judicial and their functioning in India.

Unit - VII: The Election Commission and State Public Service commissions.

Unit - VIII: Method of amending the Constitution.

Unit - IX: Enforcing rights through Writs:

Unit - X: Constitution and Sustainable Development in India.

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Environmental Science & Health
COURSE CODE: BRDT207
DURATION OF EXAMINATION: 3 HOURS

ENVIRONMENT SCIENCE AND HEALTH

Introduction to Environment and Health

Sources, health hazards and control of environmental pollution
Water
The concept of safe and wholesome water.
The requirements of sanitary sources of water.
Understanding the methods of purification of water on small scale and large scale.
Various biological standards, including WHO guidelines for third world countries.
Concept and methods for assessing quality of water.
Domestic refuse, sullage, human excreta and sewage their effects on environment and health, methods and issues related to their disposal.
Awareness of standards of housing and the effect of poor housing on health.
Role of arthropods in the causation of diseases, mode of transmission of arthropods borne diseases, methods of control

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Nutrition
COURSE CODE: BRDT208
DURATION OF EXAMINATION: 3 HOURS

- Balanced diet (Definition)
- Caloric value ; Definition , Caloric values of carbohydrates, proteins and fats
- Total daily caloric requirements of an adult male and female,
- RDA (Definition, standard values for nutrients)
- Basal metabolic rate(BMR) ; Definition , Magnitude of BMR in men and women, Factors affecting BMR • Thermic effect/ SDA of food (Definition, values for major macronutrients)
- Carbohydrates ;. Daily dietary requirement. 2. Dietary fibers (Definition, functions, importance and their daily requirements)
- Proteins ;. Daily requirement, Biological value. a. Definition b. Protein used as a standard for this, Protein sources with high and low biological value , Mutual supplementation of proteins (Definition, examples).
- Fats ; Daily requirement , Essential fatty acids (Definition, functions, daily requirement and deficiency manifestations) , Saturated and unsaturated fatty acids (Definition, sources, examples).
- Malnutrition

Second Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 2nd Year
COURSE TITLE: Basics in Renal Dialysis Technology
COURSE CODE: BRDT209
DURATION OF EXAMINATION: 3 HOURS

Subsidiary subjects

BSC. RENAL DIALYSIS TECHNOLOGY
BASICS OF DIALYSIS TECHNOLOGY

1. Indications of dialysis
2. Types of dialysis
3. Principles of dialysis - definition
4. Haemodialysis apparatus - types of dialyser & membrane
5. Types of vascular access for haemodialysis
6. Introduction to haemodialysis machine
7. Priming of dialysis apparatus
8. Dialyser reuse
9. Common complications of haemodialysis
10. Monitoring of patients during dialysis

Nutrition

Introduction to science of nutrition

- Definition
- Food pattern and its relation to health
- Factors influencing food habits, selection and food stuffs
- Superstitions, culture, religion, income, composition of family, age, occupation, special group etc
- Food selection, storage & preservation
- Prevention of blood adulteration

Classification of nutrients

- Macronutrients and micronutrients
- Proteins - types, sources, requirements and defiencies of proteins
- Carbohydrates sources, requirements & deficiency
- Fats - types, sources, requirements and deficiency of fats
- Water - sources of drinking water, requirements, preservation of water
- Minerals - types, sources, requirements defficiencies of minerals
- Vitamins - types, sources, requirements defficiencies of vitamins

Planning diets

- Need for planning diets
- Concept of a balanced diet
- Food group & balanced diet
- Influence of age, sex, occupation & physiological state

- Recommended dietary intake in planning diet
- Steps in planning balanced diet
- Planning renal diet

Introduction to cookery

- Purposes and methods of cooking
- Effects of heat on cooking of foods
- Preparation of basic recipes - clear fluids
- Full fluids, vegetable preparation, egg recipes, fish and meat recipes, light puddings

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE: Applied Dialysis Technology Paper - I
COURSE CODE: BRDT301
DURATION OF EXAMINATION: 3 HOURS

MAIN SUBJECTS
APPLIED DIALYSIS TECHNOLOGY PAPER I

1. Indications of dialysis
2. History & types of dialysis
3. Theory of haemodialysis - diffusion, osmosis, ultrafilteration & solvent drag
4. Haemodialysis appratus - types of dialyser & membrane, dialysate
5. Physiology of peritoneal dialysis
6. Vascular access for haemodialysis & associated complications
7. Peritoneal access devices - types of catheter, insertion techniques & associated complications
8. Dialysis machines - mechanism of functioning & management
   - Haemodialysis machine
   - Peritoneal dialysis machine
9. Complications of dialysis
   - Haemodialysis - acute & long term complications
   - Peritoneal dialysis - mechanical & metabolic complications
10. Biochemical investigations required for renal dialyss
11. Adequacy of dialysis
    - Haemodialysis
    - Peritoneal dialysis
    - Peritoneal equilibriation test (pet)
12. Anti coagulation
13. Peritonitis & exit site infection
14. Withdrawal of dialysis criteria
    - Acute dialysis
    - Chronic dialysis

Scheme of examination theory

There shall be one theory paper of three hours duration carrying 100 marks. Distribution of type of questions and marks for applied dialysis technology paper i shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	14 (To attempt 12)	12 x 5	60
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 2	20
TOTAL MARKS			100

Practical examination

One common practical for all the three papers with equal weight age of marks i.e. 40 practical marks for each paper.

APPLIED DIALYSIS TECHNOLOGY
PAPER II

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE: Applied Dialysis Technology Paper - II
COURSE CODE: BRDT302
DURATION OF EXAMINATION: 3 HOURS

1. Dialysis in special situations
   - Patients with congestive cardiac failure
   - Advanced liver disease
   - Patients positive for hiv, hbsag & hcv
   - Failed transplant
   - Poisioning cases
   - Pregnency
2. Dialysis in infants & children
3. Dialyser reuse
4. Special dialysis procedures
   - Continuous therapies in haemodialysis
   - Different modalities of peritoneal dialysis
   - Haemodiafiltration
   - Haemoperfusion
   - Sled
   - Mars
5. Plasmapheresis
6. Special problems in dialysis patients
   - Psychology & rehabilitation
   - Diabetes
   - Hypertension
   - Infections
   - Bone diseases
   - Aluminium toxicity
7. Recent advances in haemodialysis
   - Nocturnal dialysis
   - Online dialysis
   - Daily diaysis
8. Telemedicine in dialysis practice
9. Water treatment system
10. Renal anaemia management
    - Chronic dialysis

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE : Applied dialysis Technology Paper - II
COURSE CODE: BRDT302
DURATION OF EXAMINATION: 3 HOURS

Scheme of examination theory

There shall be one theory paper of three hours duration carrying 100 marks. Distribution of type of questions and marks for applied dialysis technology paper ii shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	14 (To attempt 12)	12 x 5	60
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 2	20
TOTAL MARKS			100

Practical examination

One common practical for all the three papers with equal weight age of marks i.e. 40 practical marks for each paper.

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE : Applied dialysis Technology Paper - II
COURSE CODE: BRDT302
DURATION OF EXAMINATION: 3 HOURS

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 & sterilisation of 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. Cpr demonstrations

Scheme of examination for practicals

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE: Research & Biostatistics
COURSE CODE: BRDT303
DURATION OF EXAMINATION: 3 HOURS

BIO STATISTICS

Time Allotted: 20 Hours

Course Description:
Introduction to basic statistical concepts: methods of statistical analysis; and interpretation of data

Behavioural Objectives:

Understands statistical terms.
Possesses knowledge and skill in the use of basic statistical and research methodology.

Unit - I : Introduction
Meaning, definition, characteristics of statistics.
Importance of the study of statistics.
Branches of statistics.
Statistics and health science including nursing.
Parameters and estimates.
Descriptive and inferential statistics.
Variables and their types.
Measurement scales

Unit - II: Tabulation of Data
Raw data, the array, frequency distribution.
Basic principles of graphical representation.
Types of diagrams - histograms, frequency polygons, smooth frequency polygon, commulative frequency curve, ogive.
Normal probability curve.

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE : Research & Biostatistics
COURSE CODE: BRDT303
DURATION OF EXAMINATION: 3 HOURS

Unit - III : Measure of Central Tendency

Need for measures of central tendency
Definition and calculaton of mean - ungrouped and grouped
Meaning, interpretation and calculation of median ungrouped and grouped.
Meaning and calculation of mode.
Comparison of the mean, and mode.
Guidelines for the use of various measures of central tendency.

Unit - IV : Measure of Variability

Need for measure of dispression.
The range, the average deviation.
The variance and standard deviation.
Calculation of variance and standard deviation ungrouped and grouped.
Properties and uses of variance and SO

Unit -V : Probability and Standard Distributions.

Meaning of probability of standard distribution.
The Binominal distribution.
The normal distribution.
Divergence from normality - skewness, kurtosis.

Unit - VI : Samling Techniques

Need for sampling - Criteria for good samples.
Application of sampling in Community.
Procedures of sampling and sampling designs errors.
Sampling variation and tests of significance.

Unit - VII : Health Indicator

Importance of health Indicator.
Indicators of population, morbidity, mortality, health services.
Calculation of rates and rations of health.

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE: Computer Application
COURSE CODE: BRDT304
DURATION OF EXAMINATION: 3 HOURS

BASICS IN COMPUTER APPLICATIONS

The course enables the students to understand the fundamentals of computer and its applications.

Introduction to Data processing :

Features of computers, Advantages of using computers. Getting data into / out of computers. Role of computers. What is Data processing? Application areas of computers involved in Data processing. Common activities in processing. Types of Data processing, Characteristics of information. What are Hardware and Software?

Hardware Concepts :

Architecture of computers, Classification of computers, Concept of damage. Types of storage devices. Characteristics of disks, tapes, Terminals, Printers, Network. Applications of networking concept of PC System care, Floppy care, Data care.

Concept of Software.

Classification of software : System software. Application of software. Operating system. Computer system. Computer virus. Precautions against viruses. Dealing with viruses. Computers in medical electronics

Basic Anatomy of Computers
Principles of programming
Computer application - principles in scientific research ; work processing, medicine, libraries, museum , education, information system.

Data processing
Computers in physical therapy - principles in EMG, Exercise testing equipment, Laser.

Scheme of Examination for MEDICAL ELECTRONICS including COMPUTER APPLICATIONS

One Written (Theory) paper: Maximum Marks: -80 marks.

No Practical or Viva voce examination

Third Year Annual Examination to be held in the year 2022, 2023, 2024
CLASS: B.Sc Renal Dialysis Technology 3rd Year
COURSE TITLE: Basic Sciences
COURSE CODE: BRDT305
DURATION OF EXAMINATION: 3 HOURS

Subsidiary subjects
BASIC SCIENCE

1. Medical ethics & the relevent medico legal aspects
   - Responsibilities & duties
   - Ethical behaviour & conduct
   - Medico legal aspects and its relation to consumer protection act
2. biomedical waste & its managemnt
3. Cardio pulmonary resuscitation - basic cardiac life support & advanced cadiac life support
4. Critical care nephrology - management of renal failure in icu
5. Basic principles of blood transfusion & fluid therapy
6. Sterilisation - material & methods
7. Renal transplantation - principles, immunology, patients selection, surgical procedure, complications, post transplant evaluation & management