



लाल बहादुर शास्त्री पैरामेडिकल काउंसिल उत्तर प्रदेश

Head Office: 2<sup>nd</sup> Floor Sunil Complex Near RG PG College Meerut

*Syllabus*  
*Dialysis Technician*  
*at the*  
**LBSPC**

**Exam: June & December**  
(To be implemented from 2023-24 session)

# **LAL BAHADUR SHASTRI PARAMEDICAL COUNCIL**

## **DIPLOMA IN DAILYSIS TECHNICIAN**

**DURATION: 02 YEARS**

### **SYLLABUS**

#### **FIRST YEAR**

#### **ABOUT COURSE:-**

It is the best implicated method of management in RENAL FAILURE patient.

#### **COURSE DURATION :-**

It is 2year DIPLOMA COURSE.

#### **ELIGIBILITY:**

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- Interested candidate must have passed 12<sup>th</sup> with Physics, Chemistry, Biology Or Physics, Chemistry, Math's with 40% marks by state board or any recognized board/university .
- Candidate must have completed age of 17 years as on 31<sup>st</sup> December of that year.

#### **SCHEDULE OF COURSE: -**

Whole schedule of course is divided into followings point:-

- Six hours of theoretical & practical training per day must be given; that means 36 hours per week.
- Total teaching classes (Theory +Practical) in one academic year are about 1500 hours (250 Days x 6 Hours)
- List of holidays should be as below:-

1. Sunday	52 Days
2. Annual Holidays	20 Days
3. Gazetted Holidays	20 Days
4. Other holidays	13 Days
5. Preparatory holidays	10 Days
<b>TOTAL</b>	<b>115 DAYS HOLIDAYS</b>

• **DETAIL OF SUBJECT & ITS TEACHING HOURS**

**FIRST YEAR :-**

<b><u>SUBJECTS</u></b>	<b><u>TEACHING HOURS</u></b>
1. HUMAN ANATOMY	240 Hrs
2. HUMAN PHYSIOLOGY	240 Hrs
3. GENERAL MICROBIOLOGY	80 Hrs
4. GENERAL PATHOLOGY	80 Hrs
5. GENERAL PHARMACOLOGY	80 Hrs
6. BASICS OF DIALYSIS TECHNIQUE	80 Hrs
7. PRACTICAL CLASSES	300 Hrs
<b>TOTAL</b>	<b>1100 Hrs</b>

**SECOND YEAR :-**

<b><u>SUBJECTS</u></b>	<b><u>TEACHING HOURS</u></b>
1. GENERAL MEDICINE	250 Hrs
2. GENERAL SURGERY	250 Hrs
3. CLINICAL NEPHROLOGY	200 Hrs
4. DIALYSIS MANAGEMENT	300 Hrs
5. PRACTICAL	500 Hrs
<b>TOTAL</b>	<b>1500 Hrs</b>

**SCHEME OF EXAMINATION :**

**FIRST YEAR :-**

<b>PAPER</b>	<b>SUBJECTS</b>	<b>MARK</b>	<b>INTERNAL ASSESSMENT MARKS</b>	<b>TOTAL MARKS</b>	<b>PASS MARKS</b>	<b>DURATION OF EXAMINATION</b>
FIRST	HUMAN ANATOMY &PHYSIOLOGY, MICROBIOLOGY	75	25	100	50	3 HOURS
SECOND	PATHOLOGY, PHARMACOLOGY & BASICS OF DAILYSIS	75	25	100	50	3 HOURS
THIRD	ORAL & PRACTICAL	75	25	100	50	-----

**SECOND YEAR -**

<b>PAPER</b>	<b>SUBJECTS</b>	<b>MARK</b>	<b>INTERNAL ASSESSMENT</b>	<b>TOTAL MARKS</b>	<b>PASS MARKS</b>	<b>DURATION OF EXAMINATION</b>
FIRST	GENERAL MEDICINE & SURGERY	75	25	100	50	3 HOURS
SECOND	CLINICAL NEPHROLOGY & DAILYSIS MANAGEMENT	75	25	100	50	3 HOURS
THIRD	ORAL & PRACTICAL	75	25	100	50	-----

# **LAL BAHADUR SHASTRI PARAMEDICAL COUNCIL**

## **DIPLOMA IN DIALYSIS TECHNICIAN**

**DURATION: - 2 YEAR**

### **SYLLABUS**

#### **FIRST YEAR**

1. HUMAN ANATOMY
2. HUMAN PHYSIOLOGY
  
3. GENERAL MICROBIOLOGY
4. GENERAL PATHOLOGY
5. GENERAL PHARMACOLOGY
6. BASICS OF DIALYSIS TECHNIQUE
7. PRACTICAL CLASSES

#### **SECOND YEAR**

##### SUBJECTS

1. GENERAL MEDICINE
2. GENERAL SURGERY
3. CLINICAL NEPHROLOGY
4. DIALYSIS MANAGEMENT
5. PRACTICAL

## FIRST YEAR

### PAPER - 1

#### HUMAN ANATOMY,PHYSIOLOGY & MICROBIOLOGY

SL NO.	COURSE CONTENT OF FIRST YEAR	NO. OF PERIODS	NO. OF HRS
		45 min. each	
	<b><u>HUMAN ANATOMY</u></b>		
<b>1</b>	<b><u>UNIT :-1</u></b>		
	• Definition & branches of Anatomy	2	
	• Introduction of anatomical terms	2	5
	• Organization of cell, tissue, organ & system.	2	
<b>2</b>	<b><u>UNIT :- 2</u></b>		
	• Skeletal system :-		
	Bones :- Definition, structure ,function & types	3	
	• Detail study of structure of regional bone	32	43
	• Joint :- Definition ,classification, structure, movements	8	
<b>3</b>	<b><u>UNIT :-3</u></b>		
	• Muscular System :-		
	Definition, structure ,function & types	5	12
	• Different muscular position & action.	7	
<b>4</b>	<b><u>UNIT :-4</u></b>		
	• CARDIOVASCULAR SYSTEM:- .		
	Heart ,its position ,structure	6	
	Conduction system ,nerve supply & blood supply	5	
	• Blood Vessels :- Structure, differences ,	6	27
	Position of chief vessels ,function	3	
	• Circulation of blood :- systemic, pulmonary ,portal	6	
<b>5</b>	<b><u>UNIT :- 5</u></b>		
	• Respiratory System:-		
	Structure , Position & function of respiratory organs	12	12
<b>6</b>	<b><u>UNIT :-6</u></b>		
	• Digestive System :-		
	Structure , Position & function of digestive organs	20	20
<b>7</b>	<b><u>UNIT: - 7</u></b>		
	• Urinary System :-.		
	Position , structure of organs of urinary system	7	6
<b>8</b>	<b><u>UNIT :-8</u></b>		
	<b><u>Nervous System:-</u></b>		
	• Introduction, classification, structure of nervous system	28	28
<b>9</b>	<b><u>UNIT :- 9</u></b>		
	• Sense Organs :-		
	Structure of :-		
	Ear	3	
	Eye	2	

	Nose	2	10
	Tongue	2	
	Skin	2	
<b>10</b>	<b><u>UNIT :- 10</u></b>		
	· FEMALE REPRODUCTIVE SYSTEM:-		
	External & Internal organs	10	10
	· MALE REPRODUCTIVE SYSTEM :-		
	External & Internal organs	10	10
<b>11</b>	<b>PRACTICAL</b>	70	60
	<b><u>HUMAN PHYSIOLOGY</u></b>		
<b>1</b>	<b><u>UNIT :-1</u></b>	2	
	· Definition & introduction of Physiology	2	5
	· Organization of cell, tissue, organ & system.	2	
<b>2</b>	<b><u>UNIT :- 2</u></b>		
<b>3</b>	· Connective Tissues ,:- its type ,function	8	8
	<b><u>UNIT :-3</u></b>		
	· Muscular System :-		
	Definition, structure ,function & types	40	40
<b>4</b>	<b><u>UNIT :-4</u></b>		
	· CARDIOVASCULAR SYSTEM:- ,.		
	Heart ,its position ,structure	6	
	Conduction system ,nerve supply & blood supply	5	
	· Blood Vessels :- Structure, differences ,	6	27
	Position of chief vessels ,function.	3	
	· Lymphatic system	6	
	· Circulation of blood :- systemic, pulmonary ,portal	6	46
	· Cardiac output ,Stroke Volume ,Blood Pressure .	8	
	Pulse Rate ,Cardiac cycle	6	
	· Blood :- Detail description ,Blood Group & Rh Factor	10	
<b>5</b>	<b><u>UNIT :- 5</u></b>		
	· Respiratory System:-		
	Respiration ,physiology	5	9
	Lung volume & lung capacity	4	
<b>6</b>	<b><u>UNIT :-6</u></b>		
	· Digestive System: -		
	Process of Mastication, Deglutition,	4	
	Digestion & absorption.	6	20
	· Metabolism of food constituents	10	
<b>7</b>	<b><u>UNIT: - 7</u></b>		
	· Urinary System: -		
	Physiology of blood filtration, micturition.	8	
	· Regulation of body temperature.	8	30
	· Fluid & electrolyte balance .	14	
<b>8</b>	<b><u>UNIT :-8</u></b>		

	· Nervous System:-		
	Introduction, classification,	7	
	Structure & function of nervous system	21	28
9	<b><u>UNIT :- 9</u></b>		
	· Sense Organs :- Ear ,Eye ,Nose ,Skin Tongue :-		
	Structure & function of		
	Ear	3	
	Eye	2	
	Nose	2	10
	Skin	2	
	Tongue	2	
10	<b><u>UNIT :- 10</u></b>		
	· FEMALE REPRODUCTIVE SYSTEM:-		
	Menstrual cycle ,function	8	
	· MALE REPRODUCTIVE SYSTEM :-		15
	External & Internal organs	7	
11	<b><u>UNIT :- 11</u></b>		
	· Endocrine System :- .		
	Structure & function of Pituitary, Pancreas gland	10	
	Thyroid ,Parathyroid Gland	5	23
	Thymus & Suprarenal Gland	8	
	<b><u>GENERAL MICROBIOLOGY</u></b>		
1	· Definition, Role , Scope & branch of Microbiology .	8	8
2	· Bacteriology :- Shape ,Size & structure of bacteria	8	8
3	· Infection:-		
	Definition ,source & mode of transmission of infection	12	12
4	· Immunity: - Types in detail, Immunization schedule.	18	18
5	· Sterilization & Disinfectant	18	18



<b>PAPER -2</b>			
<b>GENERAL PATHOLOGY , PHARMACOLOGY &amp; DIALYSIS MANAGEMENT</b>			
	<b>GENERAL PATHOLOGY</b>		
1	· Definition, Role , Scope & branch of Pathology .	6	6
2	· Inflammation-its stage & sign.	14	14
3	· Derangement of body fluid .	12	12
4	· Shock.	8	8
5	· Introduction of Hemorrhage, Thrombosis, Embolism.	6	6
	<b>GENERAL PHARMACOLOGY</b>		
1	· Definition, Role, Scope of Pharmacology.	6	6
2	· General Pharmacokinetics & Pharmacodynamics	4	4
3	· Diuretics	6	6
4	· Antidiuretics	3	3
5	· Antibiotics	8	8
	<b>BASICS OF DIALYSIS MANAGEMENT</b>		
1	• Function of Kidney, Nephron, glomerulus tubules. GFR, Urinary bladder, urethra		
2	• <b>BASIC CHEMISTRY OF BODY FLUID &amp; ELECTROLYTES :-</b>		
	Metric system , Atom ,Compound, Molecules .	2	2
	Atomic Weight& Number ,Molecular Weight	3	3
	Ion, ionic bonding,solution,concentration of solution	2	2
	electrolyte, conductivity, moles (S.I. Unit), Molarity	3	3
	Normality, osmolality, molality, Hydrogen ion- conc.	2	2
	pH ,acids ,buffer	2	2
3	Body fluid, Homeostasis, fluid balance.	4	4
4	• Types of Dialysis	4	4
5	• Basic principles of haemodialysis, indication .	3	3
6	Osmosis, Diffusion, Ultra filtration	4	4
7	• Dialysate :-		
8	Composition of dialysate-for haemodialysis	3	3
9	Composition of peritoneal dialysis	3	3
10	• Dailyzers :- function ,dialyser membrane :- how they work	8	8
11	• Principle of Peritoneal Dialysis: - indication , .	6	6
12	Dialysate		
13	Types of PD & their individual indication	8	8
14	Instruments required for hemodialysis	2	2
	Instruments required for Peritoneal dialysis	2	2
15	• Cannulas,Shunts,AV fistula	3	3
16	• Role of Dialysis technician.	3	3
17	• Normal values of Plasma Constituent	3	3
	PRACTICAL IN DIALYSIS UNIT ,ANATOMY LAB	300 HRS	300 HRS

**SECOND YEAR****PAPER - 1**

<b>GENERAL MEDICINE &amp; GENERAL SURGERY</b>			
<b>SL. NO.</b>	<b>COURSE CONTENT</b>	<b>NO. OF PERIODS</b>	<b>NO. OF HOURS</b>
1	<b>UNIT-1</b>		
	INFECTIOUS & COMMUNICABLE DISEASES :-		
	Typhoid fever, Malaria, Tetanus, Diphtheria, Leprosy	12	
	Mumps, Measles, Cholera, Rubella	8	35
	Gonorrhoea, Syphilis, AIDS , .	10	
	Rheumatic fever	5	
2	<b>UNIT-2</b>		
	METABOLIC DISORDER :-		
	Diabetes, Obesity, Gout.	7	7
3	<b>UNIT :-3</b>		
	• DISEASES OF ENDOCRINE SYSTEM :-		
	Hyper & Hypo -secretion of Thyroid ,Parathyroid Gland	3	7
	Hypo & hypersecretion of Pituitary & Adrenal Gland.	4	
4	<b>UNIT :-4</b>		
	• DISEASES OF NERVOUS SYSTEM :-		
	Headache, Meningitis, Encephalitis, Poliomyelitis, Parkinsonism, Epilepsy	11	11
	CVA ,Tumor.	5	5
5	<b>UNIT :-5</b>		
	• DISEASES OF GIT :-		
	Gastric ulcer ,Peptic Ulcer , Gastritis .Hiatus Hernia , ,	5	
	Hepatitis , Cirrhosis of liver , Hepatic coma	6	22
	Pancreatitis , Enteritis , Colitis , Splenomegaly	7	
	Cholecystitis ,Cholelithiasis .	4	
6	<b>UNIT :-6</b>		
	• DISEASES OF BLOOD :-		
	Anemia , Leukaemia , Haemophilia .	5	8
	Agranulocytosis, Hodgkin's disease	3	
7	<b>UNIT :-7</b>		
	• DISEASES OF CARDIOVASCULAR SYSTEM :-		
	Pericarditis,Myocarditis ,endocarditis	4	
	IHD , Valvular disorders ,	8	
	Cardiac arrhythmia ,Heart block ,	5	22
	Cardiac arrest , Cardiac failure	5	
8	<b>UNIT :-8</b>		
	• DISEASES OF EAR NOSE & THROAT :-		
	Otitis , Otosclerosis , Furunculosis , Fungal infections ,	8	
	Injury , Wax, Mastoiditis , Otosclerosis.	10	
	Menier's disease , Deafness.	4	35

	Laryngitis , Pharyngitis , Tonsillitis Allergic rhinitis.	6	
	Rhinitis , Deformed nasal septum , Sinusitis , Adenoids ,	7	
9	<b><u>UNIT :-9</u></b>		
	• DISEASES OF RESPIRATORY SYSTEM :-		
	Tuberculosis ,Pneumonia ,	6	
	Pleural effusion , Pleurisy , Empyema,	6	22
	COPD.	10	
10	<b><u>UNIT :-10</u></b>		
	• DISEASES OF EYE:-		
	Conjunctivitis , Dacryocystitis , Glaucoma ,	6	
	Cataract , Retinal detachment.	4	10
2	<b><u>GENERAL SURGERY</u></b>		
1	• WOUND	4	4
2	• ULCER	4	4
3	• BURN	9	9
4	• SKIN GRAFT	4	4
5	• ORTHOPAEDIC CONDITIONS :- ,		
	Sprain, Dislocation,	2	
	Fracture ,Amputation	18	
	Arthritis, Osteomyelitis , Ankylosing spondylitis	7	51
	Congenital deformities , Bone graft	20	
	Cervical spondylosis , Lumbar spondylosis ,	4	
6	• Gynaecological & obstetric conditions .	30	30
7	• Other surgical conditions : -		
	Pneumonectomy, Lobectomy	4	
	Hysterectomy ,Mastectomy	4	10
	Cholelithectomy etc	2	

	<b><i>PAPER :-2</i></b>		
	<b><i>CLINICAL NEPHROLOGY &amp; DIALYSIS MANAGEMENT</i></b>		
1	<b><u>CLINICAL NEPHROLOGY</u></b>		
1	• Various diagnostic procedure of renal diseases.	4	4
2	• Manifestation of renal diseases.	3	3
3	• Renal vascular disease.	4	4
4	• Glomerular disease.	3	3
5	• Tubulo-interstitial disease.	3	3
6	• Congenital abnormalities of kidneys.	10	10
7	• Renal involvement in systemic diseases.	4	4
8	• Infectious conditions of Kidney & urinary tract.	16	16
9	• Obstruction of urinary tract .	8	8
10	• Effects of the drugs on the kidney.	3	3
11	• Tumours of Kidney & urinary tract.	8	8
12	• Hard water syndrome.	3	3
13	• Water ,fluid & electrolyte imbalance.	20	20

2	<b><u>DAILY SIS MANAGEMENT</u></b>		
1	• CONCEPT OF DAILY SIS:-		
	Meaning of Daily sis, Semi permeable membrane , types,	6	
	Selective diffusion dialysis, Artificial kidney & its use,	6	18
	Type of Daily sis, Dialyzers, Substituted membrane	6	
2	• HAEMODAILY SIS		
	function of semi permeable membrane in haemodialysis	2	
	Waste product removed by haemodialysis transport	2	
	Rate of mass transfer-Solute flux.	2	12
	Diffusive transport & its importance,	2	
	Clearance, Ultra filtration & hydrostatic gradient, TMP	4	
3	• Water for Daily sis procedure ,	2	2
4	Filtration ,Decantation ,Distillation	2	2
5	Softener, Deionizer	2	2
6	Reverse osmosis, Different impurities .	2	2
7	Role of charcoal, RO Plant.	2	2
8	Water used in Daily sis, Compare RO with DI.	5	5
9	• DIFFERENT TYPES OF DIALYZER –		
	Description, reuse, indication, care,	6	
	Factors improving performance,	6	
	Choosing Dialyzer, Priming Sterility, Washing	5	25
	Formalin-Use, hemofiltration,	4	
	haemoperfusion, aphresis,CAVH,CRRT.	4	
10	• DAILY SIS EQUIPMENT :-		
	Accessory equipments & functions, ,	4	
	Blood pump, Monitors of Temp., Flow ,Pressure	8	18
	Monitors of Daily sate concentration pH	4	
11	Chemicals used in daily sate-advantages & disadvantages	8	8
12	delivery system	6	6
13	• CARE ,ASSESSMENT PREPARATION :-		
	Pre- Daily sis assessment, preparation & care	3	
	Procedure & care for HD & PD	3	8
	Post Daily sis care.	2	
15	• COMPLICATION :-		
	Complications during & after dialysis, its management.	2	
	Potential problems during Daily sis, Prevention,	3	8
	Hypovolaemia& its management.	3	
18	• PERITONIAL DAILY SIS		
	Indication, Daily sate preparation, Procedure, Types	5	
	Care, complication-management,	3	
	Toxic substances added.	3	11
19	• RE-DAILY SIS ASSESSMENT	2	2
20	• Cannulas ,shunt, AV fistulas ,internal graft	6	6

21	Catheter-subclavian ,Jugular, Femoral ,Blood line etc.	6	6
22	Temporary vascular access	6	6
23	• Goal of Dialysis	4	4
24	• Anticoagulant ,Drug added in PD.	9	9
25	• Emergency drugs & injections	4	4
26	• Disinfection procedure of machines & instrument	4	4
27	• Clinical basics of IV Fluid , creatinin clearance.	4	4
28	• Role of dialysis technician	4	4

