



PARAMEDICAL COUNCIL OF INDIA

DIPLOMA IN DIALYSIS TECHNICIAN

(D.D.T.)

SYLLABUS

PARAMEDICAL COUNCIL OF INDIA

Ch. No.157/1, Near Laxmi Nagar, Metro Station Gate No 1, Vikas Marg, Delhi-92

DIPLOMA IN DIALYSIS TECHNICIAN

COURSE DURATION:-

- It is 2 years + 6 months internship full time

Diploma Course.ELIGIBILITY:-

- Candidate must have passed 12th with Physics, Chemistry, Biology or Physics, Chemistry, Math's with 35% marks in Intermediate exams. (From UP board or any other recognized board).
- Candidate must have completed age of 17 years of age as on 31st December of admission year. There is no maximum age limit for the admission.

FIRST YEAR

- 1) ANATOMY & PHYSIOLOGY
- 2) MICROBIOLOGY
- 3) DIALYSIS TECHNIQUE
- 4) PATHOLOGY, PHARMACOLOGY

SECOND YEAR

- 1) CLINICAL NEPHROLOGY
- 2) DIALYSIS MANAGEMENT
- 3) GENERAL SURGERY
- 4) GENERAL MEDICINE

FIRST PAPER: SYLLABUS COVERS

1. Anatomy & Physiology

1. The Human Body - Definitions, sub-divisions of Anatomy, Terms of location and position, fundamental planes, vertebrate structure of man, organization of the body cells, Tissues.
2. The Skeletal System - Types of bones, structure and growth of bones, Division of the skeleton Appendicular skeleton, axial skeleton name of all the bones and their parts. Joints classification, types of movements with examples.
3. Anatomy of the respiratory System - Organs of respiratory, Larynx, trachea, bronchial tree, Respiratory portion, Pleurae and lungs, Brief knowledge of parts and position.

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4. Anatomy of Circulatory System - Heart Size, position coverings, chambers, Blood supply, venous supply, the blood vessels, general plan of circulation, pulmonary circulation, Names of arteries and veins and their position - lymphatic system general plan.
5. Anatomy of the Digestive System - Components of digestive system, Alimentary tube, anatomy of organs of digestive tube, mouth, tongue, tooth, salivary glands, liver, biliary apparatus, pancreas, names and position and brief functions.
6. Anatomy of the Nervous System - Central nervous system, The Brain, hind brain, midbrain, fore brain, brief structure, locations, and peripheral nervous system, Spinal cord, Anatomy, functions, reflex - Arc, meninges. Injuries to spinal cord and brain.
7. Anatomy of the endocrine system - Name of all endocrine glands their position, hormones, and their functions- pituitary, thyroid, parathyroid, adrenal glands, gonads & islets of pancreas.
8. Anatomy of Excretory system and reproductive system - Kidneys location, gross structure, excretory ducts, urethras, urinary bladder, urethra, Male reproductive system, Testis, duct system, Female reproductive system, Ovaries Duct system, accessory organs.
9. Blood - Definitions, composition, properties and function of Blood, Haemogram (RBC, WBC, Platelet count, HB concentrations), Function of plasma proteins Haemopoiesis, Blood Group - ABO and RH grouping, Coagulation & Anticoagulants, Anemia causes effects & treatment, Body fluid compartments, composition, Immunity Lymphoid tissue, Clotting factors, mechanism of blood clotting, Disorders of white blood cells, Disorders of platelets, Disorders of clotting.
10. Cardio vascular system - Function of cardiovascular system, Structure of cardiovascular system, Cardiac cycle, functional tissue of heart & their function, Cardiac output, E.C.G., blood pressure, Heart Rate.

2. MICROBIOLOGY

1. Structure and function: The structure of prokaryotic cells, including the cell wall, cell membrane, and cytoplasmic matrix.
2. Staining: The principles, methods, and types of staining, including simple, differential, Gram, acid fast, and capsule staining.
3. Sterilization: The principles, types, and techniques of sterilization, including physical and chemical methods
4. Culture media: The types of culture media and the cultivation of aerobic and anaerobic bacteria.

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- 5.Preservation: The methods of preserving microorganisms, including slant culture, stab culture, soil culture, and mineral oil overlaying.
- 6.Viruses: The structure of important animal, plant, and bacterial viruses, and the isolation and propagation of animal viruses.
- 7.Immunology: The principles of immunology.
- 8.Molecular genetics: The study of molecular genetics.
9. Recombinant DNA technology: The study of recombinant DNA technology.
10. Some core subjects in the Microbiology course syllabus are Microbial physiology, Genetic engineering, Bioinstrumentation, Immunology, Molecular biology, General Microbiology, Introduction to Data Structure, Computer Biology & Bioinformatics, Industrial Microbiology and Bi-Statistics among others.

3. DIALYSIS TECHNIQUE

1. Body fluids, homeostasis & fluid balance, Physics of diffusion, osmosis, type of dialysis & technician, principles & procedure of haemodialysis, principles & procedure of peritoneal dialysis.
2. Instruments & equipments used in dialysis, composition of dialysis (for haemo & peritoneal dialysis), type of dialyzers & their care, details about various type of access (I J V, femoral & A-V fistula), record keeping.
3. Dialysis equipment: Dialysis systems and equipment, including dialyzer extracorporeal blood circuit priming.
4. Dialysis equipment and systems: Dialysis system and equipment, and dialysis machine maintenance methods.
5. Anatomy and physiology: Human anatomy and physiology, excretory system, and applied physiology of dialysis therapy.
6. Dialysis procedures: Aseptic cannulation, dialysis initiation, and aseptic decannulation.
7. Patient care: Patient care and basic nursing, including communication and documentation.
8. Infection control: Universal precautions and infection control, including hand washing, sterilization, and disinfection.
9. Vascular access: Cannula system, cannula implantation, and cannula complications.
10. Dialysis modalities: Hemodialysis, peritoneal dialysis, and other dialysis modalities.

4. PATHOLOGY, PHARMACOLOGY

1. Topics may include the definition of pathology, causes of cell injury, reversible and irreversible injury, pathologic calcification, and cellular adaptations.

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2. Topics may include the chemistry of blood and hemoglobin, enzymes, bioenergetics, metabolism, nutrition, vitamins, minerals, detoxification, molecular biology, organ function tests, and immunology.
3. Topics may include drug therapy for disorders such as tuberculosis, leprosy, leukemia, solid tumors, lymphomas, psoriasis, respiratory, urinary, gastrointestinal tract infections, endocarditis, fungal and HIV infection, rheumatoid arthritis, glaucoma, menstrual disorders, and menopause.
4. Topics may include the pharmacology of diuretics, antidiuretics, urinary antiseptics, cholinergics, anticholinergics, acidifiers, and alkalinizers.

SECOND PAPER: SYLLABUS COVERS

1. CLINICAL NEPHROLOGY

1. Kidney disease and hypertension: Topics include glomerulonephritis, nephrotic syndrome, and hypertension.
2. Fluid, electrolyte, and acid-base disorders: Topics include the pathophysiology of these disorders and the management of fluid and electrolyte imbalances.
3. Dialysis: Topics include dialysis strategies, vascular access, and the medical management of dialysis patients.
4. Renal transplantation: Topics include donor and recipient issues, transplantation immunobiology, and immunosuppression for renal transplantation.
5. Biostatistics and clinical epidemiology: Topics include biostatistics and clinical epidemiology.
6. Ethics, psychosocial, economics, and management of renal diseases: Topics include the ethics, psychosocial, economics, and management of renal diseases.
7. Recent advances in nephrology: Topics include recent advances in the field of nephrology.

2. DIALYSIS MANAGEMENT

1. Dialysis equipment and management: This includes the management of dialysis equipment and techniques.
1. Dialysis management tubulo-interstitial disease: This includes the management of tubulo-interstitial disease.
2. Effects of drugs on the kidney: This includes the effects of drugs on the kidney.
3. History of dialysis: This includes the history of dialysis.

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4. Principles and types of dialysis: This includes the principles and types of dialysis.
5. Precautions before and after dialysis: This includes precautions to be taken before and after dialysis.
6. Vascular access for dialysis: This includes vascular access for dialysis.
7. Complications and management of complications during dialysis: This includes complications and management of complications during dialysis.
8. Anticoagulation: Principles and problems: This includes the principles and problems of anticoagulation.

3. GENERAL SURGERY

1. Imaging modalities: X-ray, angiography, MRI, ultrasound, CT, and PET.
2. Pre-operative management: Assessing a patient's fitness for surgery and anesthesia, and managing associated medical conditions.
3. Infection: The body's response to infection, sources of surgical infection, and principles of asepsis and antisepsis.
4. Nutritional requirements: The nutritional needs of surgical patients, and how to provide nutritional support.
5. Organ transplantation: The immunological basis of organ transplantation
6. Skin tumors: Classifying skin tumors and differentiating between them.
7. Occlusive arterial disease: The etiopathogenesis, clinical features, investigations, and principles of treatment
8. Surgical anatomy: The surgical anatomy of the liver, thyroid, inguinal canal, anal canal, and venous system of the leg.
9. Hypovolemic shock: The pathophysiology and management of hypovolemic shock.
10. Carcinoma stomach: The pathology, clinical presentation, and surgical management of carcinoma stomach.

4. GENERALMEDICINE

1. General medicine covers a wide range of conditions affecting the internal organs of the body - the heart, the lungs, the liver and gastro-intestinal tract, the kidneys and urinary tract, the brain, spinal column, nerves, muscles and joints.

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2. Community health: Home and community medicine treats patients in their everyday environment, with a focus on close communication.
3. Gastrointestinal tract: Topics include the gastrointestinal tract, general physiology, and body fluids.
4. Anesthesiology: Topics include applied physiology, muscle function, applied anatomy, clinical pharmacology, and general anesthesia.
5. Dermatology: A specialty that has evolved from general medicine, and deals with diseases of the skin, hair, nails, sexually transmitted infections, and leprosy.
6. Cardiology: Deals with the diagnosis and treatment of heart disease.
7. Pulmonology: Focuses on the respiratory system, including the lungs and airways.
8. Microbiology: The study of microorganisms and their impact on the environment.

BOOK

1. **LAB TECH ANATOMY AND PHYSIOLOGY** – BY DR. N. MURGESH
2. **LAB TECH COMMUNITY HEALTH** – BY DR. N. MURGESH
3. **LAB TECH GENERAL BIOCHEMISTRY** – BY DR. DINESH KUMAR SHUKLA,
DR. N. MURGESH
4. **LAB TECH CLINICAL BIOCHEMISTRY** - BY DR. DINESH KUMAR SHUKLA,
DR. N. MURGESH
5. **LAB TECH CLINICAL PATHOLOGY** - BY DR. N. MURGESH
6. **LAB TECH HISTOPATHOLOGY & CYTOPATHOLOGY** –
BY DR. DINESH KUMAR SHUKLA, DR. N. MURGESH
7. **LAB TECH HAEMATOLOGY** - BY DR. DINESH KUMAR SHUKLA, DR. N. MURGESH
8. **LAB TECH BLOOD BANKING** - BY DR. N. MURGESH
9. **LAB TECH MICROBIOLOGY I** - BY DR. DINESH KUMAR SHUKLA, DR. N. MURGESH
10. **LAB TECH MICROBIOLOGY II** - BY DR. DINESH KUMAR SHUKLA, DR. N. MURGESH