



EXAM SCHEME AND SYLLABUS
(Applicable for the batches admitted from the Academic Session
2023-24 onwards)

Diploma in Dialysis Technician
(DDT, 2 Year Diploma Programme)

FACULTY OF PARAMEDICAL SCIENCE & ALLIED HEALTH SCIENCE

Chirayu University
Bhopal, MP 462030, India

AIMS: The aim of Diploma in Dialysis Technician program is designed to equip students with the knowledge and skills required to become competent professionals in the field of renal or kidney dialysis.

OBJECTIVES:

1. Technical Proficiency: Develop technical skills in operating and maintaining dialysis machines, water treatment systems, and other equipment used in the dialysis process.
2. Patient Care: Train students to provide high-quality care to patients undergoing dialysis treatments, including monitoring vital signs, recognizing complications, and ensuring patient comfort and safety.
3. Medical Knowledge: Provide a solid foundation in medical sciences related to nephrology, renal anatomy and physiology, kidney diseases, and the principles of dialysis. This knowledge is crucial for understanding the rationale behind dialysis treatments.
4. Infection Control: Emphasize the importance of infection prevention and control measures in the dialysis setting to minimize the risk of infections for both patients and healthcare providers.
5. Clinical Experience: Offer practical, hands-on training through clinical rotations or internships in dialysis units. This allows students to apply theoretical knowledge in real-world scenarios and gain exposure to different types of dialysis procedures.
6. Team Collaboration: Foster teamwork and effective communication skills, as dialysis technicians often work alongside nurses, nephrologists, and other healthcare professionals in multidisciplinary teams.
7. Ethics and Professionalism: Instill ethical principles and professional conduct in dealing with patients, respecting their rights, maintaining confidentiality, and upholding the highest standards of integrity.
8. Problem-Solving Skills: Develop critical thinking and problem-solving abilities to handle challenges that may arise during dialysis procedures or in the dialysis unit.
9. Patient Education: Equip students with the skills to educate patients and their families about the dialysis process, dietary restrictions, and self-care measures to empower patients to actively participate in their treatment.
10. Continuing Education: Encourage a commitment to continuous learning, staying updated on advancements in dialysis technology, and participating in professional development opportunities.
11. Certification and Accreditation: Prepare students for relevant certification and ensure that the program meets accreditation standards set by the Council.

These aims and objectives collectively aim to produce skilled and compassionate dialysis technicians who play a vital role in the care of individuals with renal failure. The emphasis is on a combination of theoretical knowledge, technical proficiency, and a patient-centered approach to healthcare.

COURSE STRUCTURE:

Diploma in Dialysis Technician (DDT) is 2 Year Diploma Programme.

DURATION OF THE PROGRAM:

1. DDT I YEAR
2. DDT II YEAR

TEACHING DAYS: Each academic year shall consist of 160 teaching days.

SYLLABUS AND SCHEME OF EXAMINATION:

Syllabus and Scheme of examination will be the same for both first and second year.

**SCHEME OF EXAMINATION:
PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN
FIRST YEAR DIPLOMA IN DIALYSIS TECHNICIAN EXAMINATION**

S. No.	Paper	Subject	Max. Marks	Min. Passing Marks
1	Paper - I	Human Anatomy & Physiology	100	50
2	Paper - II	Dialysis-1	100	50
3	Paper - III	Dialysis-2	100	50
4	Paper - IV	Dialysis-3	100	50

(There shall be Institutional /College level theory examination as per university notification, marks to be send to University for internal assessment purposes of university examination)

**SCHEME OF EXAMINATION FOR 2ND YEAR (UNIVERSITY EXAMINATION):
PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN**

There shall be university examination at the end of 2nd year curriculum of Paramedical Diploma in Dialysis Technician

S. No.	Paper	Subject	Theory	Internal Assessment	Practical	Total
1	Paper - I	Human Anatomy & Physiology	100	100	100	300
2	Paper - II	Dialysis-1	100	100	100	300
3	Paper - III	Dialysis-2	100	100	100	300
4	Paper - IV	Dialysis-3	100	100	100	300
Total			400	400	400	1200

N.B.- 1. First year institutional /college level theory examination's awarded marks would be consider as Internal assessment marks and candidate have to get min. 50% marks in university theory examination in addition to Internal assessment marks i.e. 100 marks collectively for passing the examination.

2. University Practical examination of 100 max. marks is inclusive of viva and candidate should get separate 50% marks i.e. 50 marks to get pass.

SYLLABUS & SCHEME OF EXAMINATION
PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN
PAPER-I: HUMAN ANATOMY & PHYSIOLOGY
SCHEME OF EXAMINATION

Paper	Subject	Theory	Internal Assessment	Practical	Total
Paper - I	Human Anatomy & Physiology	100	100	100	300

INSTRUCTION FOR THE PAPER SETTER

The University theory examination shall be of 100 marks and question paper setter will be Asst. Professor, Anatomy/ Physiology, who shall be on the panel of examiners, 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiners (Asst. Professor, Anatomy/ Physiology) - one internal Examiner ; from the institute /college and one from other college /institute of the university from the panel of University examiners.

The pattern of University theory examination will be as under for **100 Max. Marks in question paper** and distribution of marks for questions will be as under

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions Answer to be given in 50-60 words	02	20
5 short answer Questions Answer to be given in 250-300 words	10	50
2 essay type Questions Answer to be given in 450-500 words	15	30
Total Marks		100

PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN

PAPER-I: HUMAN ANATOMY & PHYSIOLOGY

Theory hours: 60hrs

Practical hours: 40hrs

SYLLABUS CONTENTS:

Normal anatomical structure, & Functions (Physiology) of the following systems.

1- Structure and function RENAL SYSTEM (Anatomy & Physiology)

2. The structure of a cell.– Normal anatomical structure

3. The circulatory system (Heart– & Blood Vessels)

4. The Respiratory system

5. The Digestive system Liver & Pancreas Lymphatic system

6. Reproductive system – Male & Female

7. Endocrine system

8. Central nervous system (Brain & Spinal cord)

9. BLOOD

SYLLABUS & SCHEME OF EXAMINATION
PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN

Paper – II : Dialysis-1

SCHEME OF EXAMINATION

Paper	Subject	Theory	Internal Assessment	Practical	Total
PAPER- II	Dialysis-1	100	100	100	300

INSTRUCTION FOR THE PAPER SETTER

The University theory examination shall be of 100 marks and question paper setter will be Asst. Professor, Medicine/Nephrology , who shall be on the panel of examiners, 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiners (Asst. Professor, Medicine/Nephrology) - one internal Examiner ; from the institute /college and one from other college /institute of the university from the panel of University examiners.

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Total Marks		100

PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN

Paper – II : Dialysis-1

Theory hours:60 hrs

Practical hours:40hrs.

SYLLABUS CONTENTS:

RENAL DISEASE

BRIEF DESCRIPTION OF RENAL DISEASES & THEIR MANEGMENT

1. Brief description of acute renal Failure.
2. Chronic renal Failure
3. Urinary Tract Infection.
4. Acute Nephritis,
5. Nephrotic Syndrome.
6. DIABETIC
7. HIGH BLOOD PRESSURE
8. Glomerulonephritis
9. NSAID's LONG TERM EFFECTS ON KIDNEY
10. SOME TEST LIKE BUN, creatinine, and glomerular filtration rate (GFR).

SYLLABUS & SCHEME OF EXAMINATION
PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN

PAPER III: Dialysis-2

SCHEME OF EXAMINATION

Paper	Subject	Theory	Internal Assessment	Practical	Total
PAPER- III	Dialysis-2	100	100	100	300

INSTRUCTION FOR THE PAPER SETTER

The University theory examination shall be of 100 marks and question paper setter will qualified examiner of Medicine/Nephrology - M.D. Medicine, who shall be on the panel of examiners, 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiners of Medicine/Nephrology - M.D. Medicine - one internal Examiner; from the institute /college and one from other college /institute of the university from the panel of University examiners.

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Total Marks		100

PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN

PAPER III: DIALYSIS-2

Theory hours:60 hrs

Practical hours:40hrs.

SYLLABUS CONTENTS:

- 1- History of dialysis
- 2- Principles and types of dialysis.
3. Precaution before and after dialysis.
- 4- Vascular access for dialysis.
- 5- Complication and management of complication during dialysis.
- 6- Anticoagulation: Principles and problems.
7. Roll of hormone like vitamin-D , erythropoietin, rennin enzyme.

SYLLABUS & SCHEME OF EXAMINATION
PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN

PAPER- IV: DIALYSIS-3
SCHEME OF EXAMINATION

Paper	Subject	Theory	Internal Assessment	Practical	Total
PAPER- IV	DIALYSIS-3	100	100	100	300

INSTRUCTION FOR THE PAPER SETTER

The University theory examination shall be of 100 marks and question paper setter will qualified examiner of Medicine/Nephrology - M.D. Medicine, who shall be on the panel of examiners, 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiners of Medicine/Nephrology - M.D. Medicine - one internal Examiner; from the institute /college and one from other college /institute of the university from the panel of University examiners.

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Total Marks		100

PARAMEDICAL DIPLOMA IN DIALYSIS TECHNICIAN

Paper - IV: DIALYSIS-3

Theory hours:60 hrs

Practical hours:40hrs.

SYLLABUS CONTENTS:

1. Haemodialysis Machine: Working Principles and maintenance.
2. Initiation of dialysis Hemodialysis.
3. Physiological principle and urea kinetic Modeling.
4. Haemodialysis Apparatus.
5. Vascular access for Haemodialysis.
6. Acute Haemodialysis prescription.
7. Chronic Haemodialysis prescription.
8. Complication during Haemodialysis.
9. Use of dialysis and Hem perfusion in treatment of poisoning.
10. Water Treatment Plant: Working Principles and maintenance.
11. Assessment of adequacy of dialysis.
12. Reuse of dialysis.
13. Sterile techniques in dialysis.
14. Emergencies in dialysis.

PERITONEAL DIALYSIS

1. Physiology of peritoneal dialysis.
2. Apparatus of peritoneal dialysis.
3. Peritoneal access devices
4. Acute peritoneal dialysis prescription.
5. Adequacy of peritoneal dialysis chronic peritoneal Dialysis.
6. Prescription assessing peritoneal Ultra filtration.
7. Solute transport and volume status.
8. Peritonitis and exit site infection.

PRACTICAL DEMONSTRATION

1. Nutrition
2. Practical Demonstration of peritoneal Dialysis.
3. Practical Demonstration of Hemodialysis.
4. Practical Demonstration of (continuous ambulatory peritoneal Dialysis) C.A.P.D.

Book References

Anatomy & Physiology

- I. Text book of Anatomy – B.D. Chaurasia
- II. Text book of Anatomy- Vishram singh 2nd Edit
- III. Essential of medical physiology – K sembulingam
- IV. Text book of physiology – A.K. Jain
- V. Text book of physiology – G.K. Pal

Dialysis Technician

- I. Replacement of renal functions by dialysis Drukker & Person.
- II. Dialysis Therapy: Nissenson and Fine: Mosbey Publications.
- III. Textbook on Dialysis by John T. Dugirdas.
- IV. Haemodialysis for Nurse by Robert Uldall.
- V. Chinmay's Paramedical Handbook for technician
- VI. Text book Dialysis Therapy- Dr. Jigar Shrimali
- VII. Basic Clinical Handbook for Technician and Nurses – O Scar M. Cairoli
- VIII. Paramedical Handbook – P Arun Jyothi, M. Arya Bhushan

