

SAURASHTRA UNIVERSITY

RAJKOT

(ACCREDITED GRADE "A" BY NAAC)



FACULTY OF PHARMACY

Syllabus for

CERTIFICATE COURSE IN DIALYSIS TECHNIQUE

Choice Based Credit System

With Effect From: 2012-13

PROGRAM OUTCOMES

CERTIFICATE COURSE IN DIALYSIS TECHNIQUE (CCDT)

PO1: It enables the students completed 10+2 in any stream to enroll in this practical based course with intense practical training in dialysis.

PO2: Basic Theoretical Science:

It includes various subjects like Human Anatomy and physiology, Management of Dialysis, Haemodialysis and peritoneal dialysis which enables every student of any stream to understand basics of course.

PO3: Specific and Practical Based Approach

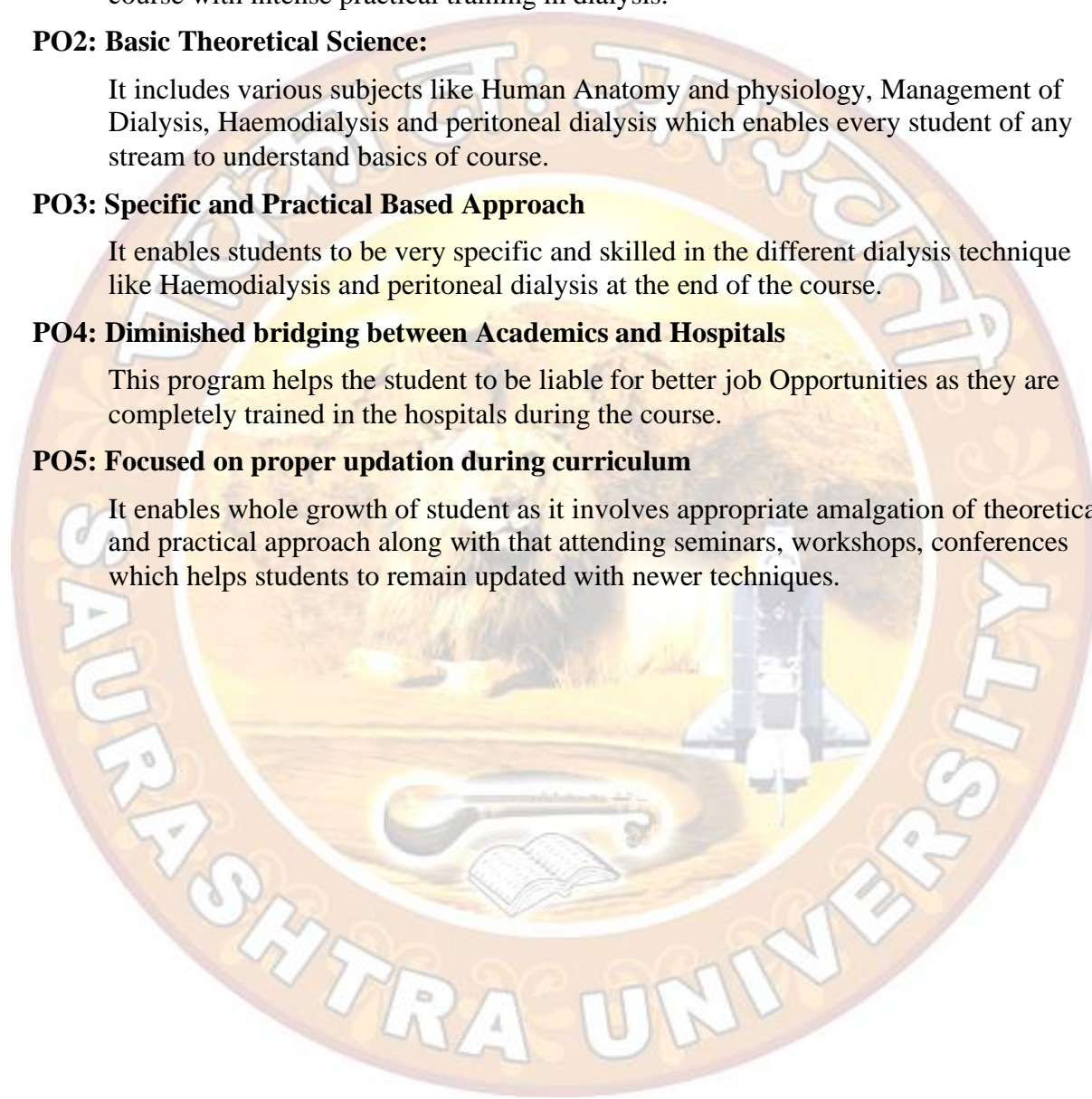
It enables students to be very specific and skilled in the different dialysis technique like Haemodialysis and peritoneal dialysis at the end of the course.

PO4: Diminished bridging between Academics and Hospitals

This program helps the student to be liable for better job Opportunities as they are completely trained in the hospitals during the course.

PO5: Focused on proper updation during curriculum

It enables whole growth of student as it involves appropriate amalgamation of theoretical and practical approach along with that attending seminars, workshops, conferences which helps students to remain updated with newer techniques.

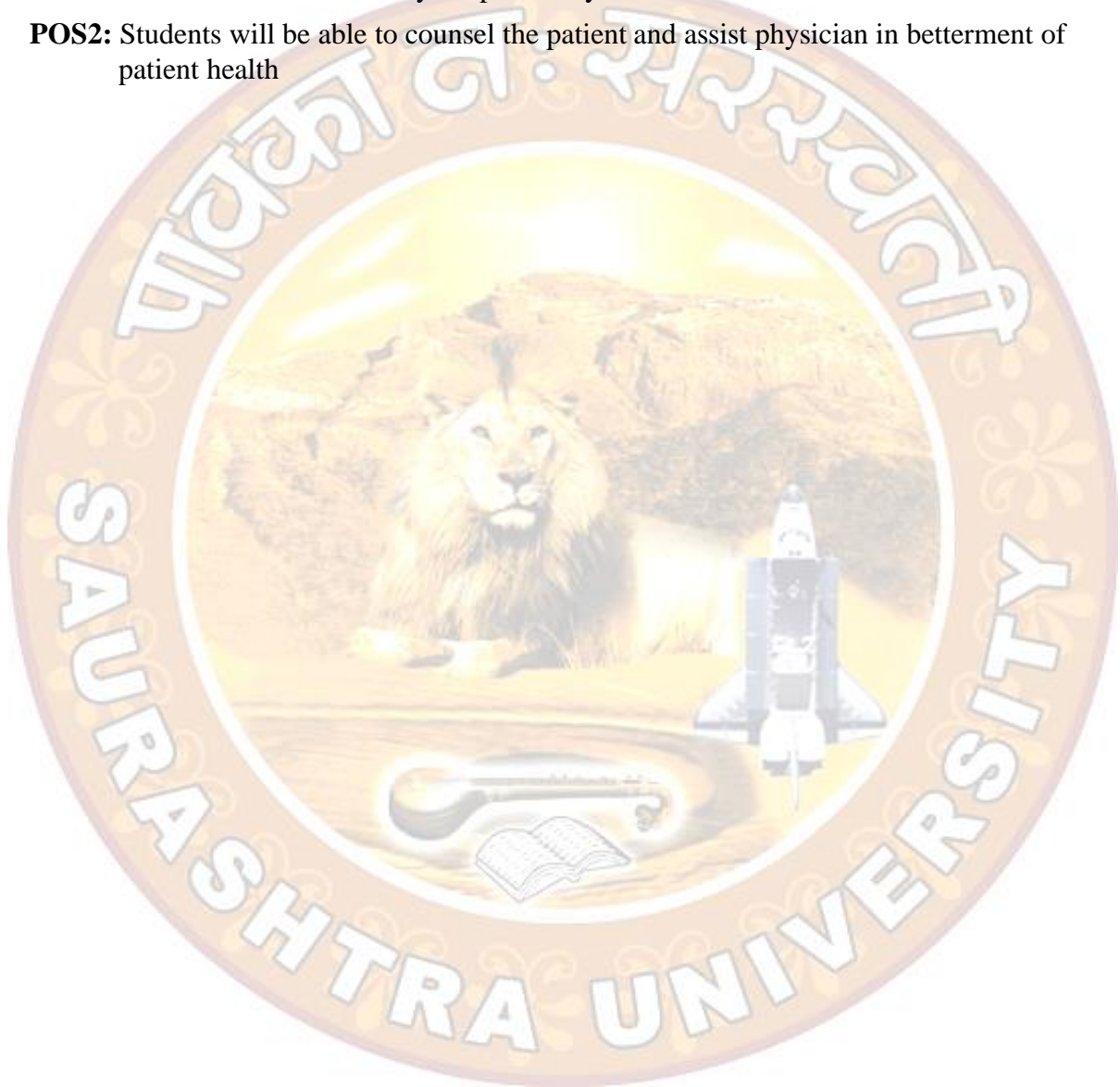


PROGRAM SPECIFIC OUTCOMES
CERTIFICATE COURSE IN DIALYSIS TECHNIQUE (CCDT)

POS1: Students will be able to assist physician and healthcare team on peritoneal dialysis and hemodialysis

POS2: Students will be able to understand medical terminology and procedures related to critical care unit of kidney hospital/dialysis unit

POS2: Students will be able to counsel the patient and assist physician in betterment of patient health



**Course Structure and Scheme of Examination
For Certificate Course in Dialysis Technique (CCDT)**

Subject Code	Title of the Course	Course Credits	No. of Hrs. Per Week	Weightage for Internal Examination	Weightage for Yearly End Examination	Total Marks	Duration of Yearly end Exam in hrs.
CCDT-101	Anatomy and Pathophysiology of kidney (Theory)	NA	06	20	80	100	3
CCDT-102	Management of dialysis (Theory)	NA	08	20	80	100	3
CCDT-103	Haemodialysis and peritoneal dialysis (Theory)	NA	04	20	80	100	3
CCDT-104	Practical (Haemodialysis and Peritoneal Dialysis procedures)	NA	24	20	80	100	3
Total						400	

**Certificate Course in Dialysis Technique (CCDT)
Anatomy and Pathophysiology of kidney (Theory)
(CCDT-101)**

Course Outcome:

- CO1:** Write detailed note on anatomy and physiology of nephron
- CO2:** Write detailed note on physiology of urine formation.
- CO3:** Write detailed note on Aetiology, Clinical Manifestation and diagnosis of chronic and acute renal failure
- CO4:** Write detailed note on Renal Anemia
- CO5:** Explain impact of diabetes on end stage renal failure and steps to prevent it.
- CO6:** Write detailed note on various stages of renal failure
- CO7:** Give various drugs to treat hypertension associated with end stage renal failure.

Course Content

UNIT-I:

- Anatomy & Physiology
- Normal kidney structure & function including Renal Blood flow, Tubular function, Urinary Track & Bladder measuring of renal function

UNIT-II:

- Derangement of kidney function
- Aetiology
- Clinical manifestation
- Diagnosis of Acute & Chronic Renal Failure
- Electrolytes, minerals & metabolism defect with disease manifestation

UNIT III:

- Renal Hormones Vit. D₃, EPO, Renal Anemia

UNIT-IV:

- End Stage Renal Disease, Diabetes & Hypertension – basics with necessary prescriptions schedule follow – up.

REFERENCES:

1. Pharmacological Basis of Therapeutics-Goodman and Gilman
2. Pharmacology-Rang and Dale
3. Basic and Clinical Pharmacology – Bertam G. Katzung
4. Pharmacology and Toxicology- Kale S.R.
5. Human anatomy and physiology by R. K. Goyal (BS Shah Prakashan)
6. Save your Kidney book by Dr. Sanjay Pandya

Certificate Course in Dialysis Technique (CCDT)
Management of dialysis (Theory)
(CCDT-102)

Course outcome:

- CO1:** Write in detail about Dialysis preparation
- CO2:** Write down application and advantages of Haemodialysis over peritoneal dialysis.
- CO3:** Write down the role of anticoagulant in dialysis process.
- CO4:** Write detailed note on heparin.
- CO5:** Explain in detail precautionary diet and medication for patient on dialysis.
- CO6:** Write detailed note on Vascular Access Parameters of Dialysis.

Course Content

UNIT-I:

- Dialysis – The concept, Brief history, definition, mechanism
- Haemodialysis / Peritoneal Dialysis – Basics

UNIT-II:

- Vascular access parameters
- Dialysis preparation-Water treatment

UNIT-III:

- Dialysis treatment – Operation
- Hygiene & maintenance technical data & specifications
- Anticoagulation
- Heparin, alternative to heparin, Regional, No heparin dialysis
- Dialyzer's Reuse, Rinsing

UNIT-IV:

- Renal diet, diet on dialysis
- Medications – when on dialysis

REFERENCES:

1. Pharmacological Basis of Therapeutics-Goodman and Gilman
2. Pharmacology-Rang and Dale
3. Basic and Clinical Pharmacology – Bertam G. Katzung
4. Pharmacology and Toxicology- Kale S.R.
5. Human anatomy and physiology by R. K. Goyal (BS Shah Prakashan)
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**Certificate Course in Dialysis Technique (CCDT)
Haemodialysis and peritoneal dialysis (Theory)
(CCDT-103)**

Course Outcome:

- CO1:** Explain in detail about various complication of dialysis
- CO2:** Write in detail about Urea Kinetic modelling
- CO3:** Explain in detail history and concept of Peritoneal Dialysis.
- CO5:** Explain in detail history and concept of Haemodialysis
- CO4:** Note on Plasmapheresis Replacement Technique
- CO5:** Explain in detail about CAPD.

Course Content

UNIT-I: Emergency in dialysis unit with clinical orientation

- Complication of Haemodialysis
- Access Related complication
- Dialyzer related complication
- Dialysates related complication
- Anticoagulant related complication
- Machine / Blood pump
- Associated complication
- Special type of complication
- Management of hygiene in dialysis unit
- Access care
- Anticoagulation

UNIT-II: Source of Haemodialysis

1. Duration, Index & clearance
2. Middle molecule, urea clearance
3. Urea kinetic modeling, dialysis adequacy & clinical assessment

UNIT III: Continuous Dialysis

1. Continuous AV hemofiltration
2. Continuous Veno – venous hemofiltration
3. Continuous Slow Haemodialysis
4. Continuous Haemodiafiltration
5. Plasmapheresis replacement, Fluid, Anticoagulation various filters

UNIT-IV: Peritoneal Dialysis

- History, P.Catheter, Dialysate Fluid, Insertion procedure drainage complication, complete peritoneal dialysis done (CAPD).

UNIT-IV:

- Preparation of surgical trays / emergency & upkeep trays used in dialysis.

REFERENCES:

1. Human anatomy and physiology by R. K. Goyal (BS Shah Prakashan)
2. Save your Kidney book by Dr. Sanjay Pandya



Certificate Course in Dialysis Technique (CCDT)
Haemodialysis and Peritoneal Dialysis procedures and clinical evaluation
(Practical)
(CCDT-104)

Course outcome:

CO1: How to set up Dialysis unit.

CO2: How to document and record the details

CO3: How to actually conduct Haemodialysis.

CO4: How to set up Peritoneal Dialysis

CO5: How to maintain proper hygiene in dialysis unit.

Course content

1. Practical Demonstration of

- Documentation & Records
- Ideal Body weight upkeep
- A Haemodialysis Unit
- Demineralization plant
- Machine
- Initial of dialysis
- Conduction of dialysis
- Dialysis closure
- Washing, Cleaning, Reuse
- Maintenance of hygiene in dialysis unit
- Access – Care
- Anti-coagulation

2. Actual participation in dialysis procedures including clinical evaluation of the patient.

- Actual conduction of Haemodialysis
- Actual conduction of peritoneal dialysis
- Dialysis procedure and in-depth knowledge with steps & further practical related to Management of dialysis.

REFERENCES:

1. Human anatomy and physiology by R. K. Goyal (BS Shah Prakashan)
2. Save your Kidney book by Dr. Sanjay Pandya