

DIALYSIS ASSISTANT CERTIFICATE COURSE: CURRICULUM

1. **COURSE TITLE:** Dialysis Assistant

2. **Category:** Certificate

3. **Duration –:**

Total – ~~09~~¹² Months

- 3 terms
 - a. 1st term – 1 month
 - b. 2nd term – 4 months
 - c. 3rd term – 4 months
- Plus Internship ~~3~~³ 1 month ✓

4. **Overall course objectives**

The role of the Dialysis Assistant is to assist the doctors, nurses and dialysis technicians in dialysis procedures, and maintain a safe and high quality environment in the dialysis department.

5. **Training Methodology**

This course will be a vocational course, which will involve students getting trained “On the Job Training (OJT)”. Therefore, the student is expected to shadow experienced nurses, dialysis technicians and doctors for majority of the day. During the OJT, time, they will:

- Observe topics and activities
- They will assist the staff as part of the learning process
- They will carry out processes under supervision of the mentor
- They will be rated and evaluated by their mentor
- A log book will be maintained
- They will be briefed & debriefed daily

The training program will be structured in 3 parts:

1. **Theory:** Classroom based: didactic
2. **Practical:** Demo based, either in a classroom or in the clinical area
3. **Clinical OJT:** as an apprentice, under supervision and mentorship of a senior

- 1st term - 4 weeks (144 hours): Fully Didactic and Demo Based
- 2nd term - 13 weeks (468 hrs)
- 3rd term - 13 weeks (468 hrs)

The 2nd and the 3rd term will consist of Didactic & Demo along with OJT component included. In the above two mentioned terms, students will be attending a 1 hour class daily and the rest 5 hours of the day will be dedicated to OJT. (780 hrs)

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To encourage the students to join, a basic stipend will be paid to the students, and by supporting the staff in the dialysis areas, the hospital /centre will save at least 30 % FTE cost.

6. Eligibility requirements

- a. Education - Class 12 with English, desirable: science subjects with Biology
- b. Marks – Minimum 50%
- c. Age - 17 - 25
- d. Language – English

- Preference given to students already in health services.

7. Teaching medium - English

8. Faculty requirements

- a. Qualifications – Dialysis Therapist/Technician/Technologist/Nurses – 6 years of Exp
- b. Student faculty ratio 6 Students : 1 Faculty
- c. Faculty - 1 full time/ part time (As per the work load)
- d. Other: as per course requirements (basic sciences, quality etc)
- e. Student faculty ratio 10 Students :1 Faculty (part time)

9. Recommended batch size

- a. Theory - 12
- b. Practical - 4
- c. Clinical areas - 2

10. Infrastructure requirements:

- a. Classrooms with capacity - Capacity for minimum 12 students.
- b. Teaching arrangements: AV, COMPUTER - White board, AV – optional,
- c. **Library** : Books and Journals
 - i. Core curriculum for dialysis technician – a comprehensive review of hemodialysis- 4th Edition – Multiple author
 - ii. Dialysis Technology- a manual for dialysis Technician – 3rd edition- By Philip M.Varughese, Jenoveva Orsini, Philip Andrysiak
 - iii. Dialysis Therapy by Allen R. Nissenson
- d. Equipment for demo/lab - Dialysis machine, Dialyzer reprocessor and reprocessing room, water treatment plant, Dialysis concentrate preparation room.
- e. Teaching manual – TBD

11. Affiliation or availability of practical training facilities in hospital/diagnostic centre etc.

- i. Minimum 6 dialysis stations
- ii. Dialyzer reprocessing unit / Reprocessing Area
- iii. Water treatment plant – Softener, ACF, R O etc.
- iv. Dialysis Concentrate preparation room

12. Assessment methodology

- a. Internal: Internal Assessment: 10%
- b. External: Exams: 90%
- c. Exam type – Written & Viva (practical)
- d. Marks:
 - i. Theory: 60
 - ii. Demo/ Practical: 90

- iii. OJT: 230
- iv. Internal Assessment: 20
- v. Total: 400

e. Marks for passing – Minimum aggregated marks of 50% (all combined)

Marks - Term wise - Break up		
Term 1	Term 2	Term 3
Theory – 10	Theory – 25	Theory – 25
Demo/ Practical – 20	Demo/ Practical – 35	Demo/ Practical – 35
	OJT – 110	OJT – 120
Internal assessment - 5	Internal assessment - 7	Internal assessment - 8

13. Teaching framework:

- a. Total Months: ¹² 9 months (1st August to ^{30th July} 30th April)
- b. Total weeks : 39
 - i. 30 weeks: Academic (3 terms)
 - 1. Hours per week – 36 (6 days per week)
 - 2. Hours per day: 06
 - 3. Total Hours - 36 X 30 = 1080 hours
 - ii. 04: leave and holidays
 - iii. 03: exam preparation
 - iv. 02: Exams

v - Internship - 13 wks

Distribution of hours:

1. Theory: 112 hours
2. Demo/ Practical: 188 hours
3. OJT: 780 hours

Hours - Term wise - Break up		
Term 1 (4 weeks = 144 hours)	Term 2 (13 weeks = 468 hours)	Term 3 (13 weeks = 468 hours)
Theory – 60 hours	Theory – 26 hours	Theory – 26 hours
Demo/ Practical – 84 hours	Demo/ Practical – 52 hours	Demo/ Practical – 52 hours
	OJT – 390 hours	OJT – 390 hours

TERM DETAILS

TERM 1 (4 weeks: 144 hours)					
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (Demo/ practical)	Marks (Demo/ practical)
1.	Orientation To Healthcare and Role of Dialysis Assistant	8	1	10	2
2.	Professionalism, Ethics, Patient Rights	8	1	10	2
3.	Customer Etiquette	8	1	10	2

4.	Quality Systems and Safety	8	1	10	2
5.	Communication skills	8	2	10	4
6.	Medical Terminology	8	2	18	4
7.	Documentation, language and use of computers	10	2	10	4
	Total	58	10	82	20
	Internal Assessment	2	3	2	2

TERM 2 (13 weeks: 468 hours)							
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (clinical/rot)	Weeks (clinical/rot)
8.	Introduction to Anatomy and Physiology	4	4	8	6	-	-
9.	Basic principles of dialysis	4	4	9	6	20	5
10.	Renal disease and treatment options	4	4	9	5	90	30
11.	Basic of Nursing	4	4	8	6	90	25
12.	The Dialyzer	4	5	8	6	96	25
13.	Dialysis equipments/machines	4	4	8	6	90	25
	Total	24	25	50	35	386	110
	Internal Assessment	2	1	2	2	4	4

TERM 3 (13 weeks: 468 hours)

SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (clinical 0/1)	Marks (clinical 0/1)
14. Dialysis concentrates	4	4	8	6	90	25
15. Dialyzer Reprocessing	4	4	9	6	90	20
16. Water treatment plant	4	4	9	5	50	20
17. Universal Precautions	4	4	8	6	60	15
18. Biomedical Waste	4	5	8	6	48	20
19. Patient and staff safety	4	4	8	6	48	20
Total	24	25	50	35	386	120
Internal Assessment	2	2	2	2	4	4

SUBJECT WISE DETAILS

TERM 1 (4 weeks: 144 hours)					
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (Demo/ practical)	Marks (Demo/ practical)
1.	Orientation To Healthcare and Role of Dialysis Assistant	8	1	10	2
2.	Professionalism, Ethics, Patient Rights	8	1	10	2
3.	Customer Etiquette	8	1	10	2
4.	Quality Systems and Safety	8	1	10	2
5.	Communication skills	8	2	10	4
6.	Medical Terminology	8	2	18	4
7.	Documentation, language and use of computers	10	2	10	4
	Total	58	10	82	20
	Internal Assessment	2	3	2	2

SUBJECT 1: Orientation to Healthcare Systems and Role of Dialysis Assistant

Background:

The student needs to understand at a macro, meso and micro level, how healthcare is organized and delivered. They will be made familiar with the levels, categories and departments. Patient flows, and staff categories will also be covered. The students will visit various areas and keep a record of their visits.

Learning Objectives:

1. Understand the healthcare environment and delivery systems
2. Familiarize with the various departments in the hospital
3. Familiarize with different kinds of staff in a hospital
4. Understand the role of the Dialysis Assistant in the system
5. Understand healthcare needs of patients and their families

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Overview of Healthcare Industry	1		2	
2.	Types of Hospitals and Healthcare services	1		1	
3.	Departments of a hospital	2		2	1
4.	Types of Staff and their role	1		1	
5.	Role of the Dialysis Assistant	2	1	2	1
6.	Healthcare needs of Patients and their families	1		2	
	Total	8	1	10	2

SUBJECT 2: Professionalism, Ethics, Patient Rights

Background:

Healthcare deals with a unique relationship between the patients, their families and the staff. It is important to understand the code of expected behavior and the rights of the patients and their families in the sensitive environment.

Learning Objectives:

1. Understand the meaning of professionalism.

2. Thoroughly understand ethical principles and their context in the working environment.
3. Thoroughly understand patient and family rights.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Professionalism	2		2	1
2.	Respecting and Maintaining dignity of patients	2		2	
3.	Maintaining privacy and confidentiality	1		2	
4.	Medical Ethics	1	1	2	1
5.	Patient and Family Rights	2		2	
	Total	8	1	10	2

SUBJECT 3: Customer Etiquette

Background:

The staff dealing with patients and families needs to behave in a very customer friendly manner-humane and caring, as well as showing courtesy and a helpful attitude. The perception of the 'customer' about quality and their satisfaction with the services is very much based on the impression that the staff gives them. It is critical that staff is 'service oriented' both to the internal and external customer.

Learning Objectives:

1. Understand the meaning of internal and external 'customer' and their mindset and expectations.
2. Telephone etiquette, grooming, hygiene, manners.
3. Problem solving, complaint handling.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Internal and external customer	1	1	1	
2.	Telephone etiquette	1		1	1
3.	Grooming	1		2	1
4.	Personal hygiene	1		2	
5.	Empathy	2		2	
6.	Problem solving, complaint handling	2	1	2	
	Total	8	1	10	2

SUBJECT 4: Quality Systems and Safety

Background:

In today's environment, quality of services has become relevant to each and every staff member. The Dialysis Assistant will need to understand the concept of quality, management systems and have clarity on patient and occupational safety.

Learning Objectives:

1. Quality in healthcare
2. Accreditation and systems
3. Patient and occupational safety

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Quality in healthcare	1		2	
2.	Accreditations: ISO & NABH	2		2	1
3.	Licenses & Certifications	2	1	2	1
4.	Introduction to Dialysis Management	2		2	
5.	Patient and Occupational Safety	1		2	
	Total	8	1	10	2

SUBJECT 5: Communication skills

Background:

Because of the people interface and multiple handovers, good interpersonal communication, team work, and managing conflict are important.

Learning Objectives:

1. Understand the skills of a good communicator
2. Establishing rapport and team work
3. Expressing concern and managing conflict

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Communication skills : verbal and non verbal	2		2	1
2.	Establishing rapport	1		2	1
3.	Team work	1	1	2	1
4.	Expressing concern	2	1	2	1
5.	Managing conflict	2		2	
	Total	8	2	10	4

SUBJECT 6: Medical Terminology

Background:

In healthcare, several terms are used that are from the original "Greek" language. The dialysis assistant has to be familiar with the commonly used terms and abbreviations.

Learning Objectives:

1. Understand the medical terminology used in healthcare

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Medical terminology meanings of words	2	1	5	1
2.	Medical Vocabulary	2		4	1
3.	Pronunciations	2		4	1
4.	Typing and editing of Medical record	2	1	5	1
	Total	8	2	18	4

SUBJECT 7: Documentation, language and use of computers

Background:

Because of the people interface and multiple handovers, good interpersonal communication, team work, and transfer of information through documentation and computers, is very important.

Learning Objectives:

1. The medical record
2. English speaking
3. English writing
4. Electronic health record and IT

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	The medical record	2		2	1
2.	English speaking	2		2	1
3.	English writing	2		2	
4.	Use of Computer in hospital	2	1	2	1
5.	Electronic health record and IT	2	1	2	1
	Total	10	2	10	4

Term 2

TERM 2 (13 weeks: 468 hours)							
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (Clinical Off)	Marks (Clinical Off)
8.	Introduction to Anatomy and Physiology	4	4	8	6	-	-
9.	Basic principles of dialysis	4	4	9	6	20	5
10.	Renal disease and treatment options	4	4	9	5	90	30
11.	Basic of Nursing	4	4	8	6	90	25
12.	The Dialyzer	4	5	8	6	96	25

SUBJECT 8:
Introductio
n to
Anatomy
and

13.	Dialysis equipments/machines	4	4	8	6	90	25
	Total	24	25	50	35	386	110
	Internal Assessment	2	1	2	2	4	4

Physiology

Back ground:-

- In this topic students will be introduced to basic structure and functions of the kidney

Learning Objectives

- Understand the Anatomy of the kidney
- Understand the basics of physiology.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1	Structure of the kidney	2	2	4	3
2	Functions of the kidney	2	2	4	3
	Total	4	4	8	6

SUBJECT 9: Basic principles of dialysis

Back ground:-

The students will be introduced to the mechanisms and physiologic principles of dialysis.

Learning Objectives

1. To understand the mechanisms of solute/solvent transport in dialysis
2. Importance of molecular weight
3. To understand the basic principles of dialysis

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Diffusion	1	1	1	1	2	1
2	Ultra filtration/TMP			1	1	3	
3	Osmosis	1	1	2	1	4	1
4	Convection	1	1	2	1	3	1
5	Solutions	1	1	2	1	4	1
6	Fluid dynamics			1	1	4	1
Total		4	4	9	6	20	5

SUBJECT 10: Renal disease and treatment options

Background:-

Students will be introduced to various kidney diseases and type of treatment options.

Learning objectives:-

1. Understand the basics of various type of kidney failure
2. Understand the treatment options

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Acute kidney disease	1	1	2	1	15	6
2	Chronic kidney disease	1	1	2	1	15	6
3	Hemodialysis	1	1	2	1	20	6
4	Peritoneal Dialysis	1	1	2	1	20	6
5	Transplantation			1	1	20	6
Total		4	4	9	5	90	30

SUBJECT 11: Basic of Nursing

Background:-

The students needs to understand the patient flow and has to be familiar with the commonly used terms

Learning objectives

1. To understand and familiar with the protocols / process in dialysis
2. To understand and familiar with vital signs (B.P, Pulse, Temperature etc)

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Vital signs	1	1	2	1	20	7
2	Aseptic techniques	1	1	2	2	25	5
3	History collection and date entry	1	1	2	2	25	6
4	Bed making	1	1	2	1	20	7
	Total	4	4	8	6	90	25

SUBJECT 12: The Dialyzer

Background:-

In this topic the student will be taught on concepts of semi-permeable and different characteristics of the membrane and its effect.

Learning objectives

1. To understand the importance of concentration gradient
2. To understand the importance of membrane resistance
3. To understand the types, advantages and disadvantages of various membrane materials

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Functions and component	1	1	1	1	16	3
2	Dialyzer design		1	2	1	16	4
3	Surface area	1	1	2	1	16	5
4	Clearance	1	1	1	1	16	5
5	Membrane			1		16	4

6	FBV, Kuf	1	1	1	1	16	4
	Total	4	5	8	6	96	25

SUBJECT 13: Dialysis equipments/machines

Background:-

- To provide basic knowledge of dialysis equipment and its operation/maintenance.

Learning objectives:-

- Identify and familiarize with all major and minor equipments in dialysis
- Assisting in operations and maintenances of equipment

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Conductivity, Temperature, Pressures	1	1	1	1	10	3
2	Preparation, Test, Priming			1		12	3
3	Termination	1	1	1	1	14	5
4	Disinfection	1	1	1	1	16	5
5	Basics of Hydraulic circuit			2	1	16	4
6	Safety features	1	1	1	1	12	3
7	Alarms			1	1	10	2
	Total	4	4	8	6	90	25

Term 3

TERM 3 (13 weeks: 468 hours)							
Subject	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (Clinical)	Marks (Clinical)	

						OJT	OJT
14.	Dialysis concentrates	4	4	8	6	90	25
15.	Dialyzer Reprocessing	4	4	9	6	90	20
16.	Water treatment plant	4	4	9	5	50	20
17.	Universal Precautions	4	4	8	6	60	15
18.	Biomedical Waste	4	5	8	6	48	20
19.	Patient and staff safety	4	4	8	6	48	20
	Total	24	25	50	35	386	120
	Internal Assessment	2	2	2	2	4	4

SUBJECT 14: Dialysis concentrates

Background:-

- Preparing the concentrate solution (Acid/ Bicarb) is a key requirement of the Dialysis assistant in this chapter they will be thought on chemical composition, preparation, testing and distribution.

Learning objectives

1. To understand the types of concentrates used for dialysis
2. To understand the preparation of concentrate solutions
3. To understand the operation and maintenance of CDS system

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Type	1	1	1	1	10	3

2	Chemical composition			1	1	20	5
3	Preparation	1	1	2	1	15	5
4	Electrolyte check	1	1	2	1	15	3
5	Distribution	1	1	1	1	15	4
6	CDS/Storage			1	1	15	5
Total		4	4	8	6	90	25

Subject 15: Dialyzer Reprocessing

Background:-

In this topic the student will be familiar with the types of reprocessing cleaning and disinfection and also the various chemicals used for disinfections

Learning objectives

1. To understand the types of reprocessing
2. To perform various tests of dialyzer performances
3. Learn to documenting and labeling

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	History	1	1	2	1	10	3
2	Reasons (medical and non medical)			1		10	2
3	Type – Manual and Automated	1	1	2	1	15	3
4	Cleaning and Disinfection techniques	1	1	2	1	20	3
5	Chemicals used			1	1	15	3
6	Performance test	1	1	1	1	10	3
7	Labeling and storage of dialyzer after reprocessing				1	1	10
Total		4	4	9	6	90	20

Subject 16: Water treatment plant

Background:-

- The water treatment plant is an essential component of dialysis set up. The student has to be familiar with day to day operation /maintenance and trouble shooting of water treatment plant.

Learning objectives

1. Identify and familiarize with different filtration methods
2. To understand the water and dialysis solution quality requirements
3. Storage and distribution of purified water
4. Learn to document the functions of each part of water treatment plant

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Objectives and working principle	1	1	1	1	5	4
2	Different filtration methods (sand filtration, softener, ACF, R.O, DM plant)			2	1	15	4
3	Operation and day to day maintenance	1	1	2	1	10	4
4	Disinfection	1	1	2	1	10	4
5	Quality control and AAMI standards	1	1	2	1	10	4
Total		4	4	9	5	50	20

SUBJECT 17: Universal Precautions

Background:

This topic will reinforce in detail the universal precautions that are to be practiced by the Dialysis Assistant.

Learning Objectives:

Practical implementation of universal precautions.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1.	Universal precautions	1	1	1	1	8	2
2.	Personal protective equipment			2	1	7	3
3.	Proper gloving	1	1	1	1	7	2
4.	Isolation			1	1	8	2
5.	Aseptic technique	1	1	1	1	10	2
6.	Spillage of body fluids			1		10	2
7.	Risk Management/ assessment	1	1	1	1	10	2
	Total	4	4	8	6	60	15

SUBJECT 18: Bio Medical Waste

Background:

The Dialysis Assistant will learn about the regulations and procedures of Bio Medical waste.

Learning Objectives:

1. Familiarize with BMW rules and regulations and practically implement in day to day use.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Introduction	1	1	1	1	8	2
2	Management issues			1	1	4	2
3	Rules & Regulations	1	1	2	1	8	4
4	Color Coding			1	1	10	4
5	Sharp Disposal	1	1	1	1	10	4
6	Spill cleaning	1	1	2	1	8	4
	Total	4	5	8	6	48	20

SUBJECT 19: Patient and Staff Safety and Quality Control

Background:

The Dialysis Assistant will learn about the patient and staff safety and quality control.

Learning Objectives:

1. Practice patient safety in the Dialysis Assistant role
2. Occupational hazards and their prevention
3. Errors in sampling and their implications

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Patient Safety issues	1	1	1	1	10	4
2	Staff hazards especially needle stick injuries	1	1	2	1	10	4
3	Errors in sampling	1	1	2	1	8	4
4	Reporting adverse events			1	2	10	4
5	Practicing occupational safety	1	1	2	1	10	4
	Total	4	4	8	6	48	20