

DDT (Diploma in Dialysis Technology) Syllabus DDT III SEMESTER Session 2023-2024

				Teachi	ing and Ev	aluation	Scheme				
			1	Theory		Prac	tical				7
Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	Т	P	CREDITS
DDT301	CC	Anatomy & Physiology III	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Course Educational Objectives (CEOs): The students will

CEO1: rationalize the fundamental knowledge of the human body system.

CEO2: understanding detailed functioning about human system histology.

CEO3: gain knowledge about clinical conditions of different body systems.

Course Outcomes (COs): Student should be able to

CO1: understand the human system with emphasis on normal and pathophysiological conditions.

CO2: acquainted with the different body systems and their prime functions.

CO3: Identification of the different clinical conditions with their signs and symptoms.

CO4: Learn some important clinical identification processes of diseases.

Unit-I

Skeletal system, bones, joints, and muscles.:

- Classification and Functions of Bones. Gross structure of an adult long bone.
 Development and classification of bone.
- Classification of bone joints: Fibrous, Cartilaginous and Synovial joints
- Muscles: Types and functions. E-C coupling. Changes during muscle contraction.

^{*}Teacher Assessment shall be based on the following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.



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Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	Т	P	CREDITS
DDT301		Anatomy & Physiology III	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Unit-II

Nervous system:

- Parts of nervous system. Structure of neurons. Action potential generation.
- Summary of cranial nerves.
- Autonomic nervous system: structure and functions,
- Spinal nerves.
- Special senses.

Unit-III

Urinary system:

- Glomerular filtration. Determination of GFR.
- Urine formation with reference to Counter current mechanism.
- Nervous control in micturition process.
- Urinary tract infection, Chronic Kidney Disease, Acute Kidney Disease

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	DDT301	CC	Anatomy & Physiology III	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Unit-IV

The Cardiovascular System:

- Circulations: Systemic & Pulmonary. Regional circulations: Coronary and Carotid circulations
- Blood pressure: Types of blood pressure; determination of blood pressure; Hypertension and Hypotension.
- Different cardiovascular diseases.
- Significances of ECG in different cardiac disorders.

Unit-V

Endocrine & Reproductive system:

- Secretion of Insulin. Diabetes Mellitus: Types and causes. Functions of Adrenal cortical hormones and their diseases.
- Parathyroid gland and its functions.
- Male reproduction: Spermatogenesis
- Female reproduction: Oogenesis, Menstruation, Ovulation, Implantation and Pregnancy.

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DDT301(P)	CC	Anatomy & Physiology III (Practical)	00	00	00	30	20	0	0	2	1	

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Course Educational Objectives (CEOs): The students will

CEO1: identify various bones present in the human body.

CEO2: develop understanding about vitals of human cardiovascular system and factors affecting them.

CEO3: understand, analyze and interpret various histological tests for blood.

Course Outcomes (COs): Student should be able to

CO1: understand and identify the human bones with emphasis on general anatomy and general histology.

CO2: distinguish various human bones based on their respective

CO3: memorize and perform various clinical tests.

CO4: analyze and interpret the results of various blood tests.

List of Practical's

- Bone identification according to their anatomy.
- Determination of different superficial and deep reflexes.
- Determination of Pulse. Different factors affecting pulse.
- Determination of Blood pressure. Different factors affecting Blood pressure.
- Differential count of WBCs.

Reference book:

- 1. G.K. Pal (2021). *Textbook of Medical Physiology, 4th edition*. Elsevier.
- 2. Gyton A.C and Hall J.E. (2020). *Textbook of medical physiology*, Prism Books(Pvt) ltd. Bangalore.
- 3. C.C. Chatterjee . *Human Physiology* Vol.1 and Vol.2, CBS Publishers & Distributers.
- 4. Graaff et al, (2013). Schaum's Outline of Human Anatomy and Physiology. McGraw Hill Education. New York City.
- 5. C. Shier David et al, (2012), Hole's Human Anatomy and Physiology, McGraw Hill Education. New York.
- 6. Seema Tripathi, *Human Anatomical and Physiological Systems*, Viva Books Pvt. Ltd.

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Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	Т	P	CREDITS
DDT302	1 1/1 1	Renal Diseases- III	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Course Educational Objectives (CEOs): The students will -

CEO1: Conferring basic knowledge about renal diseases.

CEO2: Understanding of how diseases develop.

CEO3: Comprehensive knowledge about treatment of diseases.

CO1: 1. An understanding of pathophysiology of Diseases

CO2: Understanding of the treatment processes in the living system.

CO3: Understanding the mechanism and the importance of dialysis in renal diseases.

Unit I:

- Congenital abnormalities of urinary system
- Glomerular diseases, causes, types and pathology
- Tubule interstitial
- Renal vascular disorde

Unit II:

- End stage renal diseases, cause and pathology
- Pathology of peritoneum, peritonitis
- Bacterial, tubular, and sclerosing peritonitis
- Pyelonephritis and tuberculous Pyelonephritis

Unit III:

- Drugs use in renal disease
- Pharmacokinetics
- Drug interactions
- Routes of drug administration
- Adverse drug reactions

Unit IV:

- IV Fluid Therapy with special emphasis in renal diseases
- Diuretics
- Antihypertensive
- Vitamin D and its analogue
- Anticoagulants and its alternatives

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				Theory		Pract	ical				
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DDT302	4 1/4 1	Renal Diseases- III	60	20	20	0	0	3	0	0	3

 $\boldsymbol{Legends} \colon L \text{ - Lecture; } \boldsymbol{T} \text{ - Tutorial/Teacher Guided Student Activity; } \boldsymbol{P} - Practical; \quad \boldsymbol{C} \text{ - Credit; }$

Unit V:

- Nephrotic syndroms
- Tumors of kidney
- Pregnancy associated renal diseases
- Renal vascular disorders
- Obstructive Uropathies

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				Theory		Pract	ical				
Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	T	P	CREDITS
DDT302(P)	СС	Renal Diseases-III (Practical)	00	00	00	30	20	0	0	2	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Course Educational Objectives (CEOs): The students will-

CEO1: understand, analyze and interpret tests.

Course Outcomes (COs): Student should be able to -

CO1: memorize and perform various tests.

CO2: analyze and interpret the results of various tests.

List of Practical's:

- 1. Sign and Symptoms analysis of Peritonitis
- 2. Sign and Symptoms analysis of Nephrotic syndrome
- 3. Indication and Contraindication analysis of Pyelonephritis in Dialysis
- 4. Indication and Contraindication analysis of End stage renal diseases in Dialysis

Reference book:

- 1. Textbook of renal disease by Maheshwari Kata a*, Harkesh Arora b, Rajeshwari Ramachandran c, Varun Victor d, Nihar Jena e, Abid Rizvi f, Prashanth Reddy Yella g, Atul Bali h, Deepak Chandramohan i and Roopa Naik j
- 2. B.C. Bhagavan (2017) Text Book of Renal Dialysis, Clement Publications.
- 3. Pharmacology in Rehabilitations- Ciccone

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				Tea	ching and	Evaluati	on Schem	ıe			
			r	Theory		Pract	ical				7.0
Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	Т	P	CREDITS
DDT303	CC	Applied Dialysis Therapy I	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Objectives

- 1. To explain the Applied Dialysis
- 2. To provide basic understanding of various stages of Dialysis.

Course Outcomes

- 1. Students will be able to understand Dialysis process.
- 2. Students will be able to understand various types of Applied Dialysis processes.

Unit-I

- Need for planning diet
- Concept of a balanced diet
- Food groups and balance diet
- Stapes in planning balance diet
- Concepts of a balanced diet for dialysis patients

Unit-II

- Macronutrients, Micronutrients & Vitamins
- Types, sources, requirements, and deficiency of Proteins
- Types, sources, requirements, and deficiency of Carbohydrates
- Types, sources, requirements, and deficiency of fats
- Types, sources, requirements, and deficiency of drinking water

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				Tea	ching and	Evaluati	ion Schem	1e			
				Theory	1	Pract	ical				7.0
Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	T	P	CREDITS
DDT303	СС	Applied Dialysis Therapy I	60	20	20	0	0	3	0	0	3

Unit III

- Food patterns and its relation to health
- Factors influencing food habit
- Food selection storage and preservation
- Prevention of food adulteration

Unit-IV

- Recommended dietary intake for dialysis patients
- Influence age, sex, occupation and physiological state in planning diets
- Superstations culture, religion, income, composition of family in dietary pattern

Unit-V

- Acid base balance
- Renal function tests
- Determination of GFR
- Renal circulation peculiarities
- Hormones for kidney

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Syllabus DDT III SEMESTER Session 2023-2024

				7	Teaching a	nd Evalı	iation Sch	eme			
				Theo	ry	Pract	ical				
Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	Т	P	CREDITS
DDT303(P)	CC	Applied Dialysis Therapy I (Practical)	00	00	00	30	20	0	0	2	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

List of Practical's

- 1. Diet plan or renal diseases
- 2. Nutritional assessment of different foods
- Practical's will be modified as per the feasibility.

Reference book:

1. Textbook of renal disease by Maheshwari Kata a*, Harkesh Arora b, Rajeshwari Ramachandran c, Varun Victor d, Nihar Jena e, Abid Rizvi f, Prashanth Reddy Yella g,

Atul Bali h, Deepak Chandramohan i and Roopa Naik j

- 2. B.C. Bhagavan (2017) Text Book of Renal Dialysis, Clement Publications.
- 3. Pharmacology in Rehabilitations- Ciccone
- 4. Textbook of Renal dialysis and renal diseases latest edition

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				T	eaching a	ınd Evalı	uation Sc	hem	ie		
				Theor	y	Pract	ical				_
Subject Code	Category	Subject Name	End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)	L	Т	P	CREDITS
DDT304	CC	Haemodialysis-III	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Course Educational Objectives (CEOs): The students will-

CEO1: Acquire the ability to identify and find appropriate solutions to medical problems.

CEO2: Interpret morphological changes of the diseases in correlation to clinical manifestations and haemodialysis techniques of the Renal diseases.

Course Outcomes (COs): Student should be able to -

CO1: develop competency in techniques of Haemodialysis.

CO2: acquire knowledge and understand the background of hamodialysis.

CO3: understand the detailed aspects of haemodialysis techniques...

CO4: acquire knowledge and understand therapeutic use of Haemodialysis.

Unit-I

Basic hemodialysis machine

- Indications of dialysis
- Types of dialysis
- Hemodialysis apparatus
- Priming of dialysis apparatus

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DDT304	CC	Haemodialysis- III	60	20	20	0	0	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Unit II

- Dialyzer reuse
- Common complications of hemodialysis
- Monitoring of patients during dialysis
- Type of vascular access for hemodialysis

Unit-III

(Dialysis membrane)

- Structure
- Characteristics (molecular weight cut off, ultrafiltration co-efficient, mass transfer coefficient, low and high flukes and clearance)
- Biocompatibility
- Newer membrane
- High performance membrane

Unit-IV

Latest hemodialysis machine

- Conventional and portable machines
- Wearable artificial kidney
- Bioartificial kidney
- Home dialysis machine
- Patient training

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DDT304	CC	Haemodialysis- III	60	20	20	0	0	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Unit-V

Adequacy of dialysis:

- Hemodialysis
- Peritoneal dialysis
- Peritoneal equilibration (PET)
- Biochemical investigation required for renal dialysis

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DDT304(P)	CC	Haemodialysis- III (Practical)	00	00	00	30	20	0	0	2	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

Course Educational Objectives (CEOs): The students will-

CEO1: understand, analyze and interpret Haemodialysis. Course Outcomes (COs): Student should be able to -

CO1: memorize and perform Haemodialysis.

CO2: analyze and interpret the results of haemodialysis.

List of Practical's:

- Hemodialysis Machine.
- Patient Monitoring During hemodialysis
- Haemodialysis: Patient management

Reference book:

- 1 Dialysis Therapy (New Ed.) (1 copy) Nissenson Fine Jay Pee Brothers Medical Publishers (P) Ltd.
- 2 Review of Haemodialysis for Nurse and Dialysis Personnel (1 copy) C.F. Gutch –
- 3 Principle and Practices of Haemodialysis (1 copy) William C.M. Meulean –
- 4 Principles of Dialysis (1 copy) Trunne Dipittiod –
- 5 Haemodialysis (1 copy) Juanne Dippitt

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