NON MAJOR I

DIAGNOSTIC BIOCHEMISTRY I

Sem	Subject Code	Category	Lecture		Theory		Practical		Credit
			Hrs/ week	Hrs/ sem.	Hrs/ week	Hrs/ sem.	Hrs/ week	Hrs/ sem.	
III	21NBC3A	Non Major	2	30	2	30	-	-	2

COURSE OBJECTIVE:

Diagnostic Biochemistry uses biochemical knowledge and techniques to assist in the diagnosis of human diseases, to follow its progress and to monitor the effect of treatment.

COURSE OUTCOMES:

On the successful completion of the course, students will be able to –

CO Number	CO Statement	Knowledge Level ($K_1 – K_4$)
CO1	Understand the basic units of measurement of solution.	**K1**
CO2	Gain knowledge about diabetes and its diagnosis.	**K2**
CO3	Understand the metabolism of bilirubin and functions of liver	**K2**
CO4	Get basic knowledge about the functions of kidney.	**K3**
CO5	Gain the knowledge about various tests to assess gastric function.	**K4**

(*CO – Course Outcomes

Knowledge Level: K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze).

MAPPING WITH PROGRAMME OUTCOMES:

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	S	S	M	M	M
CO2	S	M	M	S	S	M
CO3	S	S	M	S	M	S
CO4	M	M	S	S	M	S
CO5	S	S	S	M	S	S

(S- Strong; M-Medium; L-Low)

Total Hours: 30

UNIT-I

Units of measurements and Specimen collection **7 Hours**

Units of measurements of solutes in solution, e.g., Normality, Molarity, Molality, Ionic strength. Examples of this concept.Osmosis, osmotic pressure and its application.Isotonic, hyper and hypotonic solution.

Specimen collection and processing (Blood, urine, faeces), anti-coagulant and preservatives for blood and urine. Transport of specimens.

UNIT-II

Glucose Homeostasis **5 Hours**

Blood sugar level - factors controlling blood sugar level - hypo, hyper glycemia, Diabetes mellitus - Types, GTT.

UNIT-III

Liver Function Test **6 Hours**

Metabolism of Bilirubin- Jaundice – types, liver function tests- Prothrombin time, Bilirubin (direct and indirect), Serum enzymes (aspartate transaminase and alanine transaminase),Bromosulphthalein and Hippuric acid test.

UNIT-IV

Renal Function Test **6 Hours**

Renal function tests - clearance test - Urea, Creatinine, Inulin, PAH test, concentration and dilution test.

UNIT-V

Gastric Function Test **6 Hours**

Gastric function tests - collection of gastric contents, examination of gastric residues, FTM stimulation test, tubeless gastric analysis.

DISTRIBUTION OF MARKS: Theory - 100% and Problems – Nil

TEACHING METHODOLOGY:

- Black Board
- Power Point Presentations
- Assignments
- Models
- Demonstrations

TEXT BOOKS:

S.NO	AUTHOR	TITLE	PUBLISHER	YEAR OF PUBLICATION
1	J. Jayaraman	Laboratory manual in biochemistry	Wiley Eastern	1981
2	U.Satyanarayana, U.Chakrapani	Biochemistry	Books and Allied (P) Ltd	2010
3	Ramniksood	Medical laboratory Technology	Jaypee	6th edition(2006)

REFERENCE BOOKS:

S.NO	AUTHOR	TITLE	PUBLISHER	YEAR OF PUBLICATION
1.	H. Varley	Practical Clinical Biochemistry	CBS Publishers	4th edition 1988
2	RanjnaChawla	Practical Clinical Biochemistry	Jaypee Brothers Medical Publishers	4th edition 2014
3	N. Balu	Physician's Guide to the Laboratory Diagnosis of Metabolic Diseases	Springer	2nd edition 2012
4	David L. Williams	Scientific Foundations of Biochemistry in Clinical Practice	CRC Press	2nd edition 1998
5	Robert H. Glew	Clinical studies in Medical Biochemistry	Oxford University Press	3rd edition 2006

WEB SOURCES:

- www.webmd.com/diabetes/guide/types-of-diabetes-mellitus
- www.healthcarentsickcare.com/gastric-functions-gastric-function-test
- www.healthline.com/health/liver-function-tests
- www.healthline.com/health/kidney-function-tests

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