

# 19BM201 BASIC CLINICAL SCIENCES

Hours Per Week :

L	T	P	C
3	-	-	3

Total Hours :

L	T	P	WA/RA	SSH/HSH	CS	SA	S	BS
45	-	-	10	12	-	10	5	-



**SOURCE:**

<https://www.pharmaceuticaltechnology.com>

**PREREQUISITE COURSE:** Fundamentals of Anatomy & Physiology.

## COURSE DESCRIPTION AND OBJECTIVES:

Clinical sciences gives a perceptible to students on various aspects of clinical diseases and the measurable parameters for diagnosis and gives a view on instruments for treatment and other assistive devices.

## COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes.

COs	Course Outcomes	POs
1	Understand the various diseases of cardiology, and neurology.	1
2	Apply the principles of volume conductor to realize the working of ECG.	3
3	Analyze the different constituents that influence the organs in failing or improve a system.	2
4	Recognize the learned concepts and to apply them in self and lifelong learning in biomedical engineering field.	12

## SKILLS:

- ✓ Knowledge on basic diseases.
- ✓ Awareness of diagnosis or treatment methodology.

**UNIT - I** **L-9**

**NEPHROLOGY:** Principles of dialysis, Hemodialysis, Acetate dialysis, Bicarbonate dialysis, Peritoneal dialysis, Chronic ambulatory peritoneal dialysis, Hemo perfusion, Sequential ultra-filtration, Hemofiltration, Adequacy of dialysis, Clearance, Dialysance, Components of dialyzing system, Dialysate, Composition of dialysate, Types of dialyzers, Controls and monitoring devices for dialyzers, Clinical significance, Renal transplantation: Basic principles.

**UNIT - II** **L-9**

**NEUROLOGY:** Diseases of nervous system (Alzheimer's disease, Parkinson's disease, ALS), Spinal cord lesions, Motor nervous disease, Prolapsed intervertebral disc, Neuropathies, Myasthenia gravis, Diseases of muscle - myopathy.

**UNIT - III** **L-9**

**CARDIOLOGY:** Electro cardiography - source of ECG potentials, dipole theory, conduction system, normal and abnormal ECG's, diagnostic applications, interpretation of ECG, basic introduction to cardiac assistive devices, heart lung machine.

**GASTROENTEROLOGY:** Anatomy and physiology and G.I.T diseases - stomach (ulcers), liver (jaundice), gall bladder (gall stone); Disease diagnosis and treatment, Juices-Gastric, Bile, Pancreatic, Intestinal, Including their functions and clinically significant symptoms - signs, diseases, instruments used in gastroenterology.

**UNIT - IV** **L-9**

**GENERAL SURGERY:** Introduction to surgical patient, Clinically significant investigations, Preoperative care, Postoperative care and consent by patient, Study of operation of surgical equipments, Laparoscopy, Endoscopy and intubation tubes.

**UNIT - V** **L-9**

**PATHOLOGY& BLOOD BANK:** Blood bank, Blood groups, ESR, Electrolyte estimation of normal values, HIV test - ELISA, dot method, cross matching of blood, cell counter, normal blood coagulation factors, normal bilirubin.

**TEXT BOOKS:**

1. Strauss, Maurice B. & Louis G. Welt. "Diseases of kidney", Vol. 1 and 2 Little Brown. 1997.
2. James G. Mcleod, "Physiological Approach to Clinical Neurology", 3<sup>rd</sup> edition, Butterworth-Heinemann Ltd.

**REFERENCE BOOKS:**

1. Sudhir V. Shah, "Diseases of the Brain and Nervous System", A health education Guide, Team sprint India Pvt Ltd, 2008.
2. D. Goldstein, Mehmet Oz, "Cardiac Assist Devices", Blackwell Future, 2002.
3. Robert F Rushmer, "Cardio vascular Dynamics", WB Saunders, 1976.
4. T.L Dent. W.E. Stodel, J.G. turcotte, "Surgical Endoscopy", Medicalpub, 1985.
5. Jones DB, Wu JS, Soper NJ, "Laparoscopic surgery: Principles and Procedures", 2<sup>nd</sup> edition, Marcel Dekker, 2004.