Apart from undergraduate course M.D. study include:

I. Comparative Physiology

II. Animal Physiology

III. History of Physiology

IV. History of medical science

V. Recent advances

VI. Evolution
VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT.

M.B.B.S.

Physiology

1) GENERAL PHYSIOLOGY:
   i) Cell structure, organelles & function
   ii) Biophysics
   iii) Homeostasis

II. Body fluid
   i) Distribution
   ii) ECF
   iii) ICF
   iv) Interstitial fluid
   v) Applied aspects

2) HEMATOLOGY
   i) Function of Blood
   ii) Properties of Blood
   iii) Composition of Blood
   iv) Erythrocytes
      (a) Structure,
      (b) Function,
      (c) Development
      (d) Applied
   v) Leukocytes
      (a) Identification.
      (b) Classification,
      (c) Structure,
      (d) Function,(includes immune system)
      (e) Development
      (f) Applied
   vi) Thrombocytes
      (a) Structure
      (b) Function,
      (c) Development
      (d) applied
   vii) Plasma: composition
      (a) Plasma proteins
      (b) Classification
      (c) Function
      (d) applied

3) EXCITABLE TISSUES(NERVE & MUSCLE PHYSIOLOGY) & BIO-POTENTIALS
   i) Resting membrane potential & Action Potentials
   ii) Nerve ,synapse & synaptic transmission
      (a) Classification
(b) Structure
(c) Properties
(d) Function

iii) Muscle: Skeletal, cardiac & smooth
   (a) Types
   (b) Structure
   (c) Properties
   (d) Neuromuscular junction: Structure & mechanism of contraction
   (e) Applied Physiology

4) CARDIO VASCULAR PHYSIOLOGY
   I. Cardiac system
      a. Anatomy
      b. Cardiac cycle
      c. Heart rate
      d. Cardio dynamics
      e. Conduction system, ECG
      f. Coronary Circulation, Pulmonary & Systemic circulation
      g. Cardiac output
      h. Venous return
   II. Circulatory system
      a. Anatomy
      b. Hemo dynamics
      c. Arterial pressure, Volume & regulation
   III. Applied physiology

5) DIGESTIVE SYSTEM
   i) Anatomy & function (GIT, Liver, Pancreas, Gallbladder…)
   ii) Secretion
   iii) Digestion
   iv) Absorption
   v) Control of secretion
      a. Nervous
      b. Hormonal
      c. Higher centers
   vi) Motility in GIT
      a. Mastication
      b. Deglutition
      c. Intestinal movements
      d. Defecation
   vii) GI hormones
   viii) Applied
      (a) Vomiting
      (b) Diarrhoea

6) EXCRETORY SYSTEM (RENAL & SKIN: BODY TEMPERATURE)
   I. Anatomy (Kidney, Ureter, Bladder)
      i) structure
      ii) functions
      iii) Control
II. Functions of kidneys
   i) Homeostasis
      a. Body fluid regulation (ECF)
      b. Urine formation & regulation
      c. Ph regulation
      d. Excretion of waste products
   ii) Hormonogenesis
      a. Renin
      b. Erythropoietin
   iii) Vit-D activation
   iv) Body-temperature regulation
   v) Gluconeogenesis during starvation...
   vi) Applied

7) RESPIRATORY PHYSIOLOGY
   a. Anatomy & functions
   b. Respiratory mechanics
   c. Pressure & volumes
   d. Compliance & Elastance
   e. Work of respiration
   f. Resistance
   g. PFT
   h. Ventilation –perfusion
   i. Gaseous exchange
   j. Gas transport
   k. Regulation of respiration
   l. Applied Physiology

8) CENTRAL NERVOUS SYSTEM
   a. Anatomy & Histology of Brain(Fibers in CNS)
   b. Synapse
   c. Neurotransmitters
   d. Reflexes
   e. Receptors
   f. CSF
   g. ANS
      ♦ Receptor
      ♦ Sympathetic system
      ♦ Parasympathetic nervous system
   h. Sensory system
      ♦ Receptors
      ♦ Properties
      ♦ Pathways
   i. Motor system
      ♦ The Pyramidal System, Major voluntary Motor, Crosses in Medulla
      ♦ The Extrapyramidal System
   j. Spinal cord
   k. Cerebral cortex
1. Corpus Callosum
m. The Basal nuclei (ganglia)
n. Caudate nucleus
o. The limbic system
p. Thalamus
q. Hypothalamus
r. Pons
s. Medulla Oblangata
t. Cerebellum
u. EEG & Sleep
v. Learning & memory
w. Cranial nerves
x. Special senses
  ♦ Vision
  ♦ Hearing
  ♦ Gustatory
  ♦ Olfaction

9) ENDOCRINOLOGY
a. General endocrinology
  ♦ Physical & Chemical characteristics of hormones
  ♦ Mechanisms of Action
  ♦ Hormonal control system

b. Pituitary & Hypothalamic hormones
  ♦ Structure
  ♦ Secretion
  ♦ Function
  ♦ Physiological effects
  ♦ Applied physiology

c. Thyroid gland
  ♦ Structure
  ♦ Secretion
  ♦ Function
  ♦ Physiological effects
  ♦ Applied physiology

d. Parathyroid gland
  ♦ Calcium metabolism
  ♦ Vit-D
  ♦ PTH

e. Pancreas : Anatomy
  ♦ Glucagon
  ♦ Somatostatin
  ♦ PP factor
  ♦ Insulin
    a. Structure
    b. Secretion
c. Function
d. Physiological effects
e. Control
f. Applied physiology

f. Adrenal gland
   ♦ Cortical hormones
   ♦ Medullary secretion

10.) REPRODUCTIVE SYSTEM
   a. Male reproductive system
      ♦ Anatomy
      ♦ Secretion by testis, Spermatogenesis
      ♦ Function
      ♦ Physiological effects
      ♦ Control
      ♦ Applied physiology

   b. Female reproductive Physiology
      i. Non-pregnant Stage
         ♦ Anatomy
         ♦ Secretion
         ♦ Uterine sexual cycle
         ♦ Oogenesis
         ♦ Control
         ♦ Applied physiology
      ii. Pregnancy
         ♦ Hormones
         ♦ Changes during pregnancy
      iii. Lactation