

VIRAR HOMEOPATHIC MEDICAL COLLEGE & HOSPITAL,VIRAR (E)

ADVANCE TEACHING PLAN

Department of Physiology including Biochemistry

TOTAL HOURS -200 (Theory)

2021-2022

DR. NEHAL SHETTY

GENERAL PHYSIOLOGY

SR NO	TOPICS	HOURS
1	Introduction to cellular pathology/Cell Junctions	1
2	Transport through cell membrane and RMP	1
3	Transport through cell membrane and AP	1
4	Homeostasis	1

HEMATOLOGY

SR NO	TOPICS	HOURS
1	Blood (composition and functions)	1
2	Plasma Proteins	1
3	RBC	1
4	Erythropoiesis	1
5	Hemoglobin	1
6	Hemoglobin	1
7	Iron Metabolism	1
8	ESR/PCV	1
9	Anaemia/Hemolysis and Fragility of RBC's	1
10	WBC (leucopoiesis and classification)	1
11	WBC(properties and functions of neutrophils)	1
12	WBC (applied)	1
13	Immunity (introduction)	1
14	Immunity (T cells, types and functions)	1
15	Immunity (B cells and IgG)	1
16	Platelets	1
17	Hemostasis	1
18	Coagulation	1
19	Coagulation	1
20	Blood Groups	1
21	Blood transfusion	1
22	Blood transfusion (Rh and MNS)	1
23	RES/Tissue macrophage	1
24	Spleen/Thymus/Lymph Node/formation of lymph	1
25	Spleen/Thymus/Lymph Node	1
26	Body Fluid Compartments and Blood volume	1
27	Lymphatic system and Lymph	1
28	Lymphatic system and Lymph	1
29	Tissue fluid and Edema	1

NERVE MUSCLE PHYSIOLOGY

SR NO	TOPICS	HOURS
1	Physiological properties of nerve fiber	1
2	Nerve fibre-types,classification, function,degeneration and regeneration of peripheral nerves	1
3	Nerve fibre-types, classification, function, degeneration and regeneration of peripheral nerves	1
4	Neuro muscular junction	1
5	Physiology of skeletal muscle, EMG and disorders of skeletal muscle	1
6	Physiology of cardiac muscle	1
7	Physiology of smooth muscle	1

DIGESTIVE SYSTEM

SR NO	TOPICS	HOURS
1	Introduction to GIT with Innervation	1
2	Physiologic anatomy,Composition and Functions of Digestive juices-Saliva	1
3	Physiologic anatomy,Composition and Functions of Digestive juices-gastric juice	1
4	Physiologic anatomy,Composition and Functions of Digestive juices-Pancreatic Juice	1
5	Physiologic anatomy,Composition and Functions of Digestive juices-Pancreatic Juice	1
6	Physiologic anatomy,Composition and Functions of Digestive juices -Succus Entericus	1
7	Physiologic anatomy of liver and gall bladder	1
8	Physiologic anatomy of liver and gall bladder-Bile Secretion	1
9	Movements Gastrointestinal tract	1
10	Gastrointestinal hormones	1
11	Digestion and absorption of CHO	1
12	Digestion and absorption of proteins	1
13	Digestion and absorption of Lipids	1

SPECIAL SENSES

SR NO	TOPICS	HOURS
1	Eye: Introduction ,structure and retinal layers	1
2	photochemistry of vision	1
3	Visual pathway	1
4	Pupillary reflex	1
5	Errors of refraction	1
6	Color-vision and colour blindness	1
7	Ear-Auditory pathway (introduction of parts)	1
8	Auditory pathway	1
9	Mechanisms of hearing,Middle ear	1
10	Mechanisms of hearing,Inner ear	1
11	Auditory defects,deafness	1

12	Sensation of taste :taste receptors	1
13	Taste pathway	1
14	Sensation of smell : olfactory receptors, olfactory pathways	1
15	Sensation of touch	1

BIOPHYSICAL SCIENCES

SR NO	TOPICS	HOURS
1	Tracer elements and Adsorption, Hydrotrophy and Absorption, Assimilation/surface tension	1

CENTRAL NERVOUS SYSTEM

SR NO	TOPICS	HOURS
1	Introduction to Nervous system	1
2	Neuron,nerve fibre	1
3	Neuroglia	1
4	Receptors	1
5	Receptors	1
6	Synapse	1
7	Synapse	1
8	Neurotransmitters,NMJ	1
9	Reflex	1
10	REflex	1
11	Spinal Cord	1
12	Somatosensory and somtomotar system, injury to nerve fibre	1
13	Physiology of pain	1
14	Brain stem,vestibular apparatus	1
15	Cerebral cortex	1
16	Cerebral cortex	1
17	Cerebral cortex	1
18	Thalamus	1
19	Hypothalamus	1
20	Internal capsule	1
21	Basal ganglia	1
22	Limbic system	1
23	Cerebellum -posture and eqillibrium	1
24	Cerebellum -posture and eqillibrium	1
25	Cerebellum -posture and eqillibrium	1
26	Cerebellum -posture and eqillibrium	1
27	Reticular formation	1
28	Proprioceptors	1
29	Higher intellectual function	1
30	Higher intellectual function (learning and memory)	1
31	EEG	1
32	Physiology of sleep	1
33	CSF	1
34	ANS	1

DR. VIVEK KAMTIKAR
CARDIOVASCULAR SYSTEM

SR NO	TOPICS	HOURS
1	Introduction to CVS	1
2	Properties of Cardiac Muscle	1
3	Properties of Cardiac Muscle	1
4	Cardiac Cycle	1
5	Cardiac Cycle	1
6	General Principles of circulation	1
7	Heart Sounds	1
8	Heart Sounds	1
9	Regulation of C.V.S; Junctional tissues	1
10	Normal and Abnormal ECG	1
11	Cardiac Output	1
12	Cardiac Output	1
13	Heart Rate	1
14	Heart Rate	1
15	Arterial Blood Pressure	1
16	Arterial Blood Pressure	1
17	Regional Pulse J.V.P	1
18	Regional Circulation-Cerebral, Splanchnic, Capillary, Cutaneous and Skeletal muscle Circulation	1
19	Regional Circulation-Cerebral, Splanchnic, Capillary, Cutaneous and Skeletal muscle Circulation	1
20	Regional Circulation-Cerebral, Splanchnic, Capillary, Cutaneous and Skeletal muscle Circulation	1
21	Cardiovascular Adjustments During Exercise.	1

REPRODUCTIVE SYSTEM

SR NO	TOPICS	HOURS
1	Male reproductive system -Testis and its Hormone, Seminal vesicles, Prostate Gland, Semen	1
2	Male reproductive system -Testis and its Hormone, Seminal vesicles, Prostate Gland, Semen, (Spermatogenesis)	1
3	Introduction to Female Reproductive System	1
4	Menstrual Cycle	1
5	Ovulation	1
6	Menopause/Puberty	1
7	Infertility /fertility	1
8	Pregnancy and Parturition	1
9	Placenta	1
10	Pregnancy Tests	1
11	Mammary Glands and Lactation	1
12	Mammary Glands and Lactation	1
13	Fetal Circulation	1

ENDOCRINOLOGY

SR,NO	TOPICS	HOURS
1	Introduction to Endocrinology	1
2	Hormones and Hypothalamo-Hypophyseal Axis	1
3	Pituitary Gland/growth hormone	1
4	Pituitary Gland/growth hormone	1
5	Thyroid Gland	1
6	Thyroid Gland	1
7	Parathyroid Calcium/Phosphorous	1
8	Parathyroid Calcium/Phosphorous	1
9	Endocrine function of Pancreas	1
10	Endocrine function of Pancreas(blood sugar regulation)	1
11	Endocrine function of Pancreas (blood sugar regulation)	1
12	Adrenal cortex	1
13	Adrenal cortex	1
14	Adrenal medulla	1
15	Endocrine function of other organs	1

SKIN, BODY TEMPERATURE

SR.NO	TOPICS	HOURS
1	Skin-structure	1
2	Skin-functions	1
3	Skin- appendages	1
4	Sweat	1
5	Body temperature and its regulation	1
6	Body temperature and its regulation	1
7	Body temperature and its regulation	1
8	Body temperature and its regulation and fever	1
9	Body temperature and its regulation and fever	1

DR.MANEESHA SONI**RENAL**

SR.NO	TOPICS	HOURS
1	Physiological anatomy of kidney and urinary tract (Nephron and Functions of Kidney)	1
2	Renal circulation/Renal Blood flow regulation	1
3	Urine formation :renal clearance, glomerular filtration	1
4	Urine formation -Tubular reabsorption	1
5	Urine formation-Selective secretion and concentration of urine	1
6	Urine formation: acidification of urine (ph regulation by kidney)	1
7	Renal function tests	1
8	Dialysis	1
9	Micturition	1

RESPIRATORY SYSTEM AND ENVIRONMENTAL PHYSIOLOGY

SR.NO	TOPICS	HOURS
1	Physiological anatomy of Respiratory tract	1
2	.Mechanism of respiration-ventilation, diffusion of gases	1
3	Mechanism of respiration, ventilation, diffusion of gases, surfactant	1
4	Mechanism of respiration-ventilation, diffusion of gases (respiratory membrane)	1
5	Mechanism of respiration-ventilation, diffusion of gases (Lung Volume Capacities)	1
6	Transport of respiratory gases, oxygen	1
7	Transport of respiratory gases, oxygen	1
8	Transport of respiratory gases, carbon dioxide	1
9	Transport of respiratory gases, Carbon dioxide	1
10	Regulation of respiration-neural	1
11	Regulation of respiration-chemical	1
12	Pulmonary function tests	1
13	Pulmonary function test	1
14	High altitude and Space Physiology	1
15	Deep sea physiology/Cyanosis/asphyxia/dyspnoea	1
16	Artificial respiration and hypoxia, cyanosis	1
17	Effects of exercise on respiration alveolar ventilation, pulmonary ventilation	1

BIOCHEMISTRY

SR.NO	TOPICS	HOURS
1	Carbohydrates (chemistry metabolism, glycolysis, TCA, HMP, glycogen synthesis and degradation, blood glucose regulation)	1
2	Proteins (chemistry, metabolism, digestion, transamination, deamination, fate of ammonia, urea cycle, end products of each amino acid and their entry in to the TCA cycle)	1
3	Lipids (chemistry, metabolism, intestinal uptake, fat transport utilization of stored fat, activation of fatty acids, Beta oxidation and synthesis of fatty acids)	1
4	Ezymes (definition, classification, biological importance, diagnostic use, inhibition)	1
5	Ezymes (definition, classification, biological importance, diagnostic use, inhibition)	1
6	Ezymes (definition, classification, biological importance, diagnostic use, inhibition)	1
7	Minerals (daily requirements, dietary sources, disorders and physiological role)	1
8	Vitamin A, Vitamin D	1
9	Vitamin E, Vitamin K	1
10	Vitamin B Complex Group	1
11	Vitamin B Complex Group	1
12	Balanced Diet	1
13	Balanced Diet	1
14	Diet in pregnancy, Diet in obesity	1

VIRAR HOMEOPATHIC MEDICAL COLLEGE,VIRAR
 ADVANCE TEACHING PLAN -PRACTICAL
 TOTAL HOURS -275
 2021-2022

SR.NO	TOPICS	HOURS
1	Introduction to Hematology	3
2	Collection of blood samples	3
3	Estimation of Hemoglobin concentration	3
4	Study of compound microscope	3
5	Total WBC (TLC) count	3
6	Total R.B.C count	3
7	Preparation and examination of blood smear	3
8	Differential Leucocyte count	3
9	Determination of blood groups	3
10	Determination of bleeding time	3
11	Determination of coagulation time	3
	Charts and photographs	
12	Strength duration curve	3
13	Action potential curve	3
14	Compound action potential	3
15	Action potential in purkinje fiber of heart	3
16	Snellen's chart	3
17	Jaegger's chart	3
18	Ishihara's chart	3
19	T.P.R chart	3
20	Gastric analysis	3
21	Oxygen dissociation curve	3
22	Typical photographs of endocrine disorders	3
23	De-cerebrate cat	3
	Human experiments	
24	History taking	3
25	General Examination	3
26	Respiratory system clinical examination	3
27	Recording of body temperature	3
28	Artificial respiration	3
29	Clinical examination of throat	3
30	Clinical examination of kidney and surface marking	3
31	PH meter	3
32	Gastrointestinal System-clinical examination	3
33	Cardiovascular system -clinical examination	3
34	Blood pressure recording	3
35	Radial pulse	3
36	E.C.G	3
37	Nerve muscle physiology	3
38	Handgrip dynamometer	3
39	Nervous system	3
40	Cranial nerves-1,2,3	3
41	Cranial nerves -4,5,6	3
42	Cranial nerves 7,8,9	
43	Cranial nerves -10,11,12	
44	Clinical examination of higher functions	3

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45	Special senses	3
46	Motor examination	3
47	Sensory	3
48	Reflexes-Deep	3
49	Albinometer	3
50	Superficial Reflexes	3
51	Cardiac efficiency tests	3
	Animal experiments (Audio visual)	
52	Introduction to circuits	3
53	Gradation of stimuli	3
54	Simple muscle twitch	3
55	The effect of 2 successive stimuli	3
56	Genesis of tetanus	3
57	Effect of load on after loaded muscle	3
58	Effect of free load on skeletal muscle,starlings law and calculation of work done	3
59	Fatigue in skeletal muscle	3
60	Normal cardiac tracing	3
61	Effect of temperature on heart	3
62	Effect of vagal and crescent stimulation and vagal escape	3
63	Effect of acetylcholine on heart	3
64	Effect of nicotine on heart	3
65	Effect of adrenaline on heart	3
66	Heart block	3
67	Properties of Cardiac muscle	3
	Biochemistry Practicals	
68	Test for monosaccharides-glucose	3
69	Test for monosaccharides-fructose	3
70	Test for Diasaccharide-lactose	3
71	Test for Diasaccharide-sucrose	3
72	Test for Polysaccharide-starch	3
73	Test for Polysaccharide-dextrin	3
74	Demonstration of uses of instruments or equipment	3
75	Test for unknown carbohydrate-1	3
76	Test for unknown carbohydrate-2	3
77	Test for unknown carbohydrate-3	3
78	Test for unknown carbohydrates-4	3
79	Test for unknown carbohydrates-5	3
80	Test for unknown carbohydrates-6	3
81	Test for proteins -Precipitation reaction	3
82	Proteins-seperation of albumin and globulin	3
83	Proteins-colour reactions	3
84	Normal characteristics of urine-organic	3
85	Normal characteristics of urine-inorganic	3
86	Abnormal constituents of urine	3
87	Study of full Urine report	3
88	Quantitative estimation of glucose	3


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89	Discuss on estimation of Uric acid	3
90	Interpretation and discussion of results of biochemical tests	3
91	Use of glucometer-blood glucose levels	3
92	Discussion on lipid profile	3


PRINCIPAL
KONKAN EDUCATION & MEDICAL TRUST'S
VIRAR HOMOEOPATHIC MEDICAL COLLEGE & HOSPITAL
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