Course Code	Course Title	Course ID	L	T	P	Credits	TE	TI	PE	PI	Total
Discipline Specific Courses (DSC)											
240/BCCT/CC/201	Human Anatomy Part II		2	1	-	3	50	25	-	-	75
240/BCCT/CC/202	Human Physiology Part II		2	1	-	3	50	25	-	-	75
240/BCCT/CC/203	General Microbiology		3	-	-	3	50	25	-	-	75
240/BCCT/CC/204	Basic Pathology& Haematology		3	-	-	3	50	25	-	-	75
PRACTICAL											
240/BCCT/CC/205	Human Anatomy Part II				4	2	-	-	35	15	50
240/BCCT/CC/206	Human Physiology Part II				4	2	-	-	35	15	50
240/BCCT/CC/207	General Microbiology				4	2	-	-	35	15	50
240/BCCT/CC/208	Basic Pathology& Haematology				4	2	-	-	35	15	50
240/BCCT/CC/209	Community Orientation & Clinical Visit				4	2	-	-	35	15	50
Minor (MIC) / Vocational Courses (VOC)											
240/BCCT/MI/201	Introduction to Quality and Patient safety		2	-	-	2	35	15	-	-	50
Multidisciplinary courses(MDC)											
240/BCCT/MD/201	Yoga		2	-	-	2	35	15	-	-	50
Skill Enhancement Course (SEC)/Internship/Dissertation											
240/BCCT/SE/201	Basic in Computer & Information Sciences-Practical.		-	-	4	2	-	-	35	15	50
Value Addition Course(s)											
240/BCCT/VA/201	Extracurricular Activity		-	2	-	2	35	15	-	-	50
Total Credits						**30**	**Total Marks**		**750**		

Ms. Kalpana Bankoti — CardiacCare Technology — Mr. Pramod Kumar — Md. Imtiyaz Ansari — Dr. Garima Srivastava — Dr. Himanshu Thapral

SEMESTER-II

Name of the Programme	B.Sc. Cardiac Care Technology
Name of the Course	Human Anatomy-Part II
Course Code	BCCT2.1

Teaching Objective	• To teach the students the basic anatomy of Reproductive, Lymphatic Endocrine ,Nervous system and Special senses
Learning Outcomes	• Demonstrate and understand the basic anatomy of Reproductive and Lymphatic system. • Demonstrate and understand the basic anatomy of Endocrine Nervous system • Demonstrate and understand the basic anatomy of Special senses

Sr. No.	Topics	
1	Classification of nervous system Nerve-structure, classification, microscopy with examples. Neurons, classification with examples. Simple reflex arc. Parts of a typical spinal nerve/Dermatome: Central nervous system -disposition, parts and functions Cerebrum, Cerebellum, Midbrain & brain stem Blood supply & anatomy of brain.	
2	Spinal cord-anatomy, blood supply, nerve pathways Pyramidal, extra pyramidal system, Thalamus, hypothalamus, Structure and features of meninges Ventricles of brain, CSF circulation Development of nervous system & defects.	
3	Cranial nerves -(course, distribution, functions and palsy) Sympathetic nervous system, its parts and components Parasympathetic nervous system Applied anatomy	
4	Structure and function of Visual system, Auditory system, Gustatory system, Olfactory system, Somatic sensory system. Pelvic floor, innervations Kidney, Ureter, bladder, urethra. Reproductive system of male, Reproductive system of female.	

BCCT2.1P-Human Anatomy Part II (Demonstration)

S.No.	Topics	
1	Identification and description of all anatomical structures.	
2	Demonstration of dissected parts	
3	Demonstration of skeleton-articulated and disarticulated	
4	1) Surface anatomy: Surface landmark-bony, muscular and ligamentous. Surface anatomy of major nerves, arteries of the limbs.	

Textbooks:

(1) ManipalManualofAnatomyforAlliedHealthSciencescourses:MadhyasthaS.
(2) G.J.Tortora & N.PA nagnostakos: Principles of Anatomy and Physiology
(3) B.D.Chaurasia: Handbook of General Anatomy

Reference books:

(1) B.D.Chaurasia: Volume I-Upper limb& Thorax,
Volume II-Lower limb, Abdomen & Pelvis Volume
III- Head, Neck, Face
Volume IV-Brain-Neuro anatomy

(2) Vishram Singh:Textbook of Anatomy Upper limb & thorax
(3) T.S. Ranganathan: Textbook of Human Anatomy
(4) Inderbir singh, GPPal: Human Embryology
(5) Textbook of Histology, Apractical guide:- J.P Gunasegaran

Name of the Programme	B.Sc. Cardiac Care Technology
Name of the Course	Human Physiology Part II
Course Code	BCCT2.2

Teaching Objective	• To teach basic physiological concepts related to Renal physiology, Endocrinology& Reproductive physiology, CNS, Special senses
Learning Outcomes	To understand the basic physiological concepts of Renal physiology To understand the basic physiological concepts of Endocrinology& Reproductive physiology To understand the basic physiological concepts of CNS, Special senses,

Sr. No.	Topics
1	PhysiologyofkidneyandurineformationGlomerularfiltrationrate,clearance, Tubular function, Ureter, bladder, urethra
2	Physiology of the endocrine glands- Hormones secreted by these glands, their classification and function.
3	Male-Functionsoftestes,pubertalchangesinmales,testosterone-action& regulations of secretion
4	Female-Functions of ovaries and uterus, pubertal changes, menstrual cycle, estrogens and progesterone -action and regulation.

BCCT2.2P-Human Physiology Part II – (Demonstration)

Sr.No.	Topics
1	To study circulatory system from charts and transverse section (TS) of artery and vein from permanent slides.
2	To study digestive system from charts and TS of liver, spleen and pancreas from permanent slides.
3	Study of Urinary system(charts)
4	Study of Genital system (male & female) from chart sand TS of testis and ovary from permanent slides.
5	To study nervous system(From models /charts)
6	To study various body fluids.

Textbooks:

- Basics of medical Physiology–D Venkatesh and H.H Sudhakar, 3rd edition.
- PrinciplesofPhysiology–DevasisPramanik,5th edition.
- Human Physiology for BDS –DrA.K.Jain,5th edition.
- TextbookofhumanPhysiologyfordentalstudents-Indukhurana2nd edition.
- Essentials of medical Physiology for dental students–Sembulingum.

Reference books:

- Textbook of Medical Physiology, Guyton, 2nd South Asia Edition.
- Textbook of Physiology Volume I&II (for MBBS)–Dr.A.K.Jain.
- Comprehensive textbook of Medical Physiology Volume I&II–Dr.G.K.Pal.

Name of the Programme	**B.Sc. Cardiac Care Technology**
Name of the Course	**General Microbiology**
Course Code	**BCCT2.3**

Teaching Objective	To introduce basic principles and then applies clinical relevance in four segments of the academic preparation for paramedical: immunology, bacteriology, mycology, and virology. This rigorous course includes Many etiological agents responsible for global infectious diseases.
Learning Outcomes	Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques. Perform microbiological laboratory procedures according to appropriate safety standards

Sr. No.	Topics	
1	**ConceptsandPrinciplesofMicrobiology-**HistoricalPerspective,Koch's Postulates, Importance of Microbiology, Microscopy, Classification of Microbes. **GeneralCharactersofMicrobes-**Morphology,stainingmethods,Bacterialgrowth& nutrition, Culturemediaandculturemethods+ABS,Collectionofspecimen,transportand processing, Antimicrobial mechanism and action, Drug Resistance minimization.	
2	**Sterilization and Disinfection -** Concept of sterilization, Disinfection asepsis, Physical methodsofSterilization,Chemicalmethods(Disinfection),OTSterlization,Biologicalwast e and Bio safety &Biohazard. **Infection and Infection Control-**Infection, Sources, portal of entry and exit, Standard(Universal)safetyPrecautions&handhygiene,Hospitalacquiredinfections& Hospital Infection Control	
3	**Immunity-**TypesClassification,Antigen,Antibody–Definitionandtypes,Ag-Abreactions– Types and examples, Procedure of Investigation & Confidentiality, Immunoprophylaris – Types of vaccines, cold chain, Immunization Schedule. **SystemicBacteriology(Morphology,diseasescaused,specimencollection&listsof laboratorytests)–**Introduction,GramPositiveCocci&GramNegativeCocci, Enterobacteraecea& Gram negative bacilli, Mycobacteria, Anaerobic bacteria &Spirochaetes, Zoonotic diseases, Common Bacterial infections of eye.	
4	**Mycology-**Introduction, Classification, outline of lab diagnosis, List of Fungi causing: Common fungal infections of eyes, Superficial Mycoses, Deep mycoses & opportunistic , Fungi. **Virology-**Common Viral infection of eye, Introduction, General Properties, outline of lab diagnosis& Classification, HIV Virus, Hepatitis -B Virus. **Parasitology** – Morphology, Life Cycle & Outline of Lab Diagnosis & Classification, Common parasite infection of eye, Protozoa- E, histolytica, Malarial Parasite, General properties, classification, list of diseases caused by: Cestodes and Trematodes, Intestinal Nematodes& Tissue Nematodes, Vectors.	

BCCT2.3P-General Microbiology (Demonstration)

Sr.No.	Topics	
1	Concepts and Principles of Microbiology	
2	General Characters of Microbes	
3	Sterilization and Disinfection	
4	Infection and Infection Control	
5	Immunity	
6	Systemic Bacteriology(Morphology, diseases caused, specimen collection& lists Of laboratory test)	
7	Mycology	
8	Virology	
9	Parasitology	
Total		

Text Book:

- Text Book of Microbiology for Nursing Students, Anant Narayan Panikar
- Text Book of Ophthalmology ,Khurana

Reference Book:

1. Tex t Book of Microbiology, Baveja.

Name of the Programme	**B.Sc. Cardiac Care Technology**
Name of the Course	**Basic Pathology & Hematology**
Course Code	**BCCT2.4**

Teaching Objective	Understand the importance of clinical information in supporting a timely, accurate pathological diagnosis. Describe normal and disorder red hematopoiesis Develop implement and monitor a personal continuing education strategy and critically appraise sources of pathology related medical information. Describe mechanisms of oncogenesis & demonstrate an understanding of genetics and cytogenetics pertaining to hematology
Learning Outcomes	• The student should submit the appropriate tissue sections per protocol to demonstrate the lesion and other clinically-relevant information needed for the final pathologic report • To aid hematology in the reference ranges for hemoglobin, hematocrit, erythrocytes, and leukocytes in infants, children andadult.

Sr. No.	Topics	
1	GeneralprinciplesofHaematologytechniques,bloodcollection,anticoagulants,fixation, processing,routinestaining,Haemoglobin,TLC,DLC,Peripheralsmear(CBCreport), platelet counts, cell counter working	
	GeneralprinciplesofHistopathologytechniquescollection,fixation,processing& routine staining	
2	General principles of Cytopathology techniques collection, fixation, processing & routine staining	
	General principles of Clinical Pathology techniques sample collection, processingforroutinetest,normalurine&urineexamination,urinestrip, introductions to body fluids (Distinguish between Transudate and exudate)	
	General principles of Blood Bank techniques antigen, antibody, ABO & Rhs system	
	General principles of Autopsy & Museum	
3	**General Pathology including introduction to:** • Cell Injury (Reversible, Irreversible cell injury) • Inflammation(Acuteinflammation,cells,Chronicinflammation,granulomaand examples Circulatorydisturbances(Thrombosis,Embolism,Edema-ascetic,pleural, pericardial-effusions,Shock,Allergy,Anaphylaxis-Definition,Morphologicalfeatures, and distinguishing features)	
	IV)Neoplasia(DefinitionofAnaplasia,dysplasia,metaplasiaandmetastasisand Difference between benign and malignant lesions)	

4	**Systemic pathology basis and morphology of common disorders like** 1. Anemia(types-Iron deficiency, megaloblastic, Aplastic-Etiology, Pathogenesis Investigation)- 2. Leukemia(Acute and chronic, Peripheral smear), AIDS(Definition, Pathogenesis, Mode of transmission, Two Confirmatory test Tridot, Western blot), Hepatitis (Types, Etiology, Mode of spread) 3. Malaria-(Mode of spread 4. Tuberculosis-(Primary and secondary tb, Granuloma formation, Mode of transmission, Organs involved Maintenance and medico legal importance of records and specimens, Lab information system(LIMS) Biomedical Waste, Universal Safety Precaution(Protocol to be followed after -Needle injury, chemical injury	

BCCT2.4P–BasicPathology & Hematology (Demonstration)

S.No.	Topics	
1	Working and maintenance of instruments,	
2	General principles of Haematology techniques, blood collection, anticoagulants, fixation, processing, routine staining, Haemoglobin, TLC, DLC, Peripheral smear (CBC report),platelet counts, cell counter working	
3	GeneralprinciplesofHistopathologytechniquescollection,fixation,processing & routine staining	
4	GeneralprinciplesofCytopathologytechniquescollection,fixation,processing& Routine staining	
5	General principles of Clinical Pathology techniques sample collection, Processingforroutinetest,normalurine&urineexamination,urinestrip, Introductionstobodyfluids(DistinguishbetweenTransudateandexudate)	
6	GeneralprinciplesofBloodBanktechniquesantigen,antibody,ABO&Rhsystem	
7	General principles of Autopsy & Museum	

Reference Books:

- A *Handbook of Medic l* Laboratory (Lab) Technology: *Editor)Second Edition.V.H.Talib* (Ed.).
- Comprehensive Textbook Of Pathology For Nursing: Pathology Clinical Pathology Genetics. AkMandalShramana Choudhury, Published by Avichal Publishing Compnay | Language English

Name of the Programme	B.Sc. Cardiac Care Technology
Name of the Course	Introduction to Quality and Patient safety
Course Code	BCCT2.5

Teaching Objective	The objective of the course is to help students understand the basic concepts of quality in health Care and develops skills to implement sustainable quality assurance program in the health system. To understand the basics of emergency care and life support skills. To Manage an emergency including moving a patient To help prevent harm to workers, property, the environment and the general public. To provide knowledge on the principles of on-site disaster management
Learning Outcomes	Upon completion, Students should be able to apply health care quality Improvement and patient safety principles, concepts, and methods at the micro-, meso-, and macro-system levels.

Sr. No.	Topics	
1	**Qualityassuranceandmanagement**–ConceptsofQualityofCare,QualityImprovement Approaches, Standards and Norms, Introduction to NABH guidelines **Basics of emergency care and life supports kills**-Basic life support(BLS), Vital signs and Primary assessment, Basic emergency care–first aid and triage, Ventilations including use of bag-valve-masks (BVMs), Choking, rescue breathing methods, One- and Two-rescuer CPR	
2	**Bio medical waste management and environment safety** -Definition of Biomedical Waste, Waste minimization, BMW – Segregation, collection, transportation, treatment and disposal (including color coding), Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste, BMW Management & methods of disinfection, Modern technology for handling BMW, Use of Personal protective equipment(PPE),Monitoring& controlling of cross infection(Protective devices)	
3	**Infection prevention and control** - Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)],Prevention & control of common healthcare associated infections, Components of an effective infection control program, Guidelines (NABH and JCI) for Hospital Infection Control	
4	**Antibiotic Resistance**-History of Antibiotics, How Resistance Happens and Spreads, Types of resistance- Intrinsic, Acquired, Passive, Trends in Drug Resistance, Actions to Fight Resistance,Bacterialpersistence,Antibioticsensitivity,Consequencesofantibioticresistance	

Reference Books:

- Washington Manual of Patient Safety and Quality Improvement Paper blackthorn
- Understanding Patient Safety, Second Edition by Robert Wachter(Author)
- HandbookofHealthcareQuality&PatientSafetyAuthor:GirdharJGyani,AlexanderThomas
- Researching Patient Safety and Quality in Health care: ANordic Perspective Karina Aase, Lene Schibevaag
- Old)Handbook Of Healthcare Quality & Patient Safety by Gyani Girdhar J(Author)
- Handbook of Healthcare Quality & Patient Safety by.GyaniGJ/ThomasA
- Quality Management in Hospitals by S.K.Jos

Course Title: **Yoga and meditation**	
Semester: II | **Course code:**	**Credits:02** |**Core**
Number of sessions: 20	**Total Marks: 70**
Course Pre-requisites:	**Timing: 3 Hours**

Instructions for paper setter: Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

Course learning Outcomes

After completing this course, the learner will be able to know/understand:

CLO1- The basic concepts of yoga system

CLO2- The basic concept of mediation

CLO3- The basic steps of asana

CLO4- The relevance of yoga philosophy

Course contents

Unit I

Meaning, definition and nature of yoga

Chitta, cittavratti,and chittabhumi.

Unit II

Type of yoga: karma yoga, gyana yoga, bhakti yoga

Unit III

Astanga Yoga(yam, niyama,aasan, pranayam, pratyaahar, dharna, dhayan and samadhi)

Unit IV

Method, precautions and merit of the following Asana: Vajrasana: sirshasana: Makarasana: Bhujangasana etc.

Course Title: Extracurricular Activity- Practical	
Semester : II I Course code :	Credits:02 I Core
No of sessions Lectures/Tutorial:	Total Marks: 70
Course Pre-requisites:	Timing: 3 Hours

Instructions for paper setter: examiner is requested to set one compulsory and eight other questions, two from each unit. The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

Course learning outcomes

After completing this course, the learner will be able to know/understand:

CLO1- Importance of extra-curricular activities

CLO2- Benefits extra-curricular activities

CLO3- Enhance personal growth of student.

CLO4- it will contribute to improved academic performance

Course Contents

Unit I

Co-curricular and extra-curricular activities, importance of extracurricular activities

Unit II

The role of extracurricular activities in student development, benefits of extracurricular activities, best practices for implementing extracurricular activities

Unit III

Participation in extra-curricular activities. Advantages of participation, disadvantages of participation, requirements for activity participation, guidelines for dual-sport participation

Unit IV

Outcome of extracurricular activities