SRI BALAJI VIDYAPEETH

(Deemed to be University Declared u/s 3 of UGC act 1956)

Accredited by NAAC with 'A' Grade

Pondicherry – 607 402.

www.sbvu.ac.in

MAHATMA GANDHI MEDICAL COLLEGE & RESEARCH INSTITUTE, PONDICHERRY

FACULTY OF ALLIED HEALTH SCIENCES

B.Sc. CRITICAL CARE TECHNOLOGY

2019 -2020 ONWARDS

FIRST, SECOND & THIRD YEAR SYLLABUS AND REGULATIONS

CHOICE BASED CREDIT SYSTEM (CBCS) PATTERN SYLLABUS

(As approved in the Academic Council at the meeting held on 22-05-2019)

Revisit of the syllabus and Examination pattern

(As approved in the Academic Council at the meeting held on 28-09-2020)

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FOREWORD

In recent years, several innovative and need based undergraduate courses in the realms of Faculty of Allied Health Sciences have been promulgated. These courses are primarily oriented towards augmenting the Core academic courses in the Health Care sector.

Although, Allied Health Science courses are in place at several institutes countywide, mention must be made of the fact that only a few Health Science Universities offer courses in Allied Health Sciences under a holistic umbrella. It is in the fitness of things that Allied Health Science courses are being offered in Nodal and Thrust areas at Sri Balaji Vidyapeeth starting from Certificate programme through Doctoral studies.

The Undergraduate programme of Allied Health Science courses leading to B.Sc degree has been very carefully planned taking all the three components into due consideration, namely academics, patient care and research. Competency assumes great importance as the graduates coming out of these programmes would either directly or indirectly assist the Clinicians in day to day activities.

With this in view, the thrust has been laid on a common syllabus for all B.Sc programmes during the first year of study. These subjects offered in the first year are oriented Basic Medical Sciences, besides English as a mode of communication which is vital for affording Global Placements to our successful candidates. Furthermore all programmes are designed in Choice Based Credit System (CBCS) made to suit the convenience of the students.The proficiency and competence of the Undergraduates is fortified by the promulgation of a unique internship cum research programme.

I wish all students success in their studies and career.

Prof. N. Ananthakrishnan

Dean - Faculty, SBV

POLICY ON COURSES OFFERED UNDER FACULTY OF ALLIED HEALTH SCIENCES

PREAMBLE

Sri Balaji Vidyapeeth, Deemed to be University, established under Section 3 of UGC Act, 1956, Accredited by NAAC with A Grade offers various courses under the Faculty of Medicine, Faculty of Dentistry, Faculty of Nursing Sciences and Faculty of Allied Health Sciences.

"Allied Health Professions are a distinct group of health professionals who apply their expertise to prevent disease transmission, diagnose, treat and rehabilitate people of all ages and all specialties. Together with a range of technical and support staff they may deliver direct patient care, rehabilitation, treatment, diagnostics and health improvement interventions to restore and maintain optimal physical, sensory, psychological, cognitive and social functions." - Organization of International Chief Health Professions Officers (ICHPO).

In March 2011, the Ministry of Health and Family Welfare nominated the Public Health Foundation of India (PHFI) as its technical partner and constituted the National Initiative for Allied Health Sciences (NIAHS) secretariat with a mandate to develop a framework to improve allied health training, education and regulation in the country. (Yet to be notified by Government of India).

Sri Balaji Vidyapeeth has introduced several innovative need based courses under the Faculty of Allied Health Sciences at Undergraduate and Postgraduate levels keeping in mind the initiative of Ministry of Health & Family Welfare, Government of India. In an era marked by expanding global job opportunities, these courses are bound to create an awareness among the students to suit themselves in the Health Care Team. Curricula have been designed in an objective manner and are aimed at cognitive, affective and psychomotor domains of learning. Furthermore all courses are designed in Choice Based Credit System (CBCS) made to suit the convenience of the students.

The Undergraduate courses mainly concentrate in creating professionals who form the part of the Health Care Team. The role of these professional is to ably assist the doctor in treatment as well as prognosis and in many a times form the core professional of the team.The proficiency and competence of the Undergraduates is fortified by the promulgation of a unique internship cum research programme.

The Postgraduate courses mainly aim at shaping a graduate into a full professional. Also these postgraduate courses help the graduates as well as the postgraduates to acquire specific skills on various adjunct therapies and techniques.

SUPPLY AND DEMAND

The starting of the new courses will entirely depend on

a. Demand for the course as seen by the enrolment at other institutes.
b. Employability after the qualification.

At present, the shortage of quality human resources is one of the major challenges faced by the public health domain in India. To redress the imbalance in human resources, the Working Group on Medical Education Training and Manpower Training of the Planning Commission (1984) prioritized training of para-professional and auxiliary personnel as follows:

● Training and development of auxiliary health professionals

● Training and development of para-health professionals

● Basic and pre-service/induction training in health care and health management

● Continuing education in health profession education.

Many new health occupations (Physician's Assistant, Optometrists, Medical Imaging Technologists, and Laboratory Technologists etc) have access over several common features in Allied Health Sciences including Basic Medical Sciences which are being effectively addressed. These processes have received support from administrators who are constantly searching for economic qualified and qualitylabor.

Service users are becoming more empowered through the consumerism of health, which has resulted in better access to information and user-consultation in service development and delivery. Each of these factors has the potential to influence the roles of existing professional groups and presents a challenge to workforce planners. In India, students are not aware of all the allied health courses available in the medical education system. Their career choices are generally influenced by their parents and peer groups, who themselves are unaware of the prospects in this area. By understanding that an entry-level position is just a first step, youth can realistically plan for their future and have a better understanding of what is needed for long-term success. This approach also benefits employers who need a steady inflow of workers at all levels of their organization.

POLICY ON ELIGIBILITY, ADMISSION, & COURSE DURATION OF UG DEGREE COURSES

At Sri Balaji Vidyapeeth, we empower the departments of all the constituent colleges to contribute to the development of innovative, need, value based and job oriented courses taking into considerations the interests of the stake holders.

The Undergraduate Degree courses (B.Sc.) are presently being offered under the Choice Based Credit System (CBCS) mode as per the Guidelines of UGC. The duration of the course will be Three years with a compulsory internship of 1 year (Non Stipendiary) in any of the tertiary health care institute of the University/ Trust. The proficiency and competence of the Undergraduates is fortified by the promulgation of this unique internship cum research programme.80 percent of attendance is mandatory for appearing at the University Examinations. The maximum time limit

for completion of the course will be Six years. However, the Dean / Principal, AHS has the discretionary powers to extend the course duration on valid grounds (Health, Maternity, Natural Disaster, etc.).
The First year of B.Sc. (AHS) courses will be common for all the disciplines. Though the disciplines will be provisionally allotted at the time of admission itself, upon successful completion of the First year the candidates may opt for a change in the discipline or the college which will be permitted depending on the vacancy and on merit based on the First year marks.

Fourth year – Internship Programme

One-year compulsory internship in various intensive care units, outpatient departments, research centerunder Sri BalajiVidyapeeth during which the students get to hone the skills and knowledge acquired in the three years of study. This year ensures their readiness to approach a patient in anysetting.The students should also complete a short duration project (in their areas of interest) and also maintain and submit a log book. The degree will be awarded only upon the successful completion of the course including the internship period. The one-year compulsory internship includes postings at the respective department.

Eligibility for Admission

A candidate seeking admission in the B.Sc. Allied Health Sciences courses shall be completing the age of 17 years as on December of the admission year. The candidate shall have passed the Higher Secondary Examinations conducted by the State Board or the Central Board or its equivalent.

The candidate should have studied English as one of the papers and passed the same. The candidate should have had Biology, Physics & Chemistry and have passed the same in their qualifying Examinations. Mathematics as a subject is mandatory for B.Sc. Optometry, Medical Imaging Technology and Clinical Research.

The candidate should have secured 50 percent as aggregate in the subjects of English, Biology, Physics and Chemistry at the Higher Secondary Examinations. A relaxation of 5 percent in the minimum required (50%) shall be awarded to the candidates belonging to SC/ ST communities and physically challenged candidates (Disability more than 40%). The candidates seeking relaxation should necessarily submit the relevant certificates issued by the concerned Government authorities while applying for the course and mention about the same in their application.

Lateral Entry

Candidates who have Diploma of Two years in the concerned subject from a recognized University can seek Lateral Entry to the second year of the concerned courses provided that they have studied Anatomy, Biochemistry, Physiology, Microbiology and Pathology as individual papers during their Diploma Course.

Note: The candidates who have completed their Diploma Course through DistanceEducation modes are not eligible to seek admission through Lateral Entry mode.

Shorter intrinsic training programmes of duration few weeks to a month or so will be conducted by the departments under the Supervision of the concerned HOD / Dean / Principal.

POLICY ON CHANGE OF NAME/DATE OF BIRTH

The name and date of birth of candidates will be registered in the records of the University as given in their H.S.C. Mark Statement/Transfer Certificate only. No request will be considered later, to correct the spelling of the name of the candidates.

The parents and candidates are requested to verify and confirm these entries in the H.S.C. Mark Statement / Transfer Certificate at the time of receipt of the same. Once admitted to a course of study in the University, date of birth as furnished in the HSC/School record of student and submitted to the University at the time of admission, shall be taken as final proof and no subsequent request for change of date of birth will be entertained by the University at any time under any circumstance, either during the course of study or after the completion of such study. The student should take utmost care while entering their details in SBV GAURDA portal at the time of their registration. They are responsible for any data mismatch at later stage.

Every student shall give an undertaking to this effect duly countersigned by his/her parent or guardian at the time of admission.

PAYMENT OF TUITION AND OTHER FEES

Every student shall pay tuition fee and other fee, as prescribed by the University, within the due date notified. The fees are subject to revision as per rules of the University. All fees, once paid to the University, will not be refunded or adjusted for any other purpose under any circumstance.

RULES FOR DISCONTINUANCE FROM COURSE OF STUDY

Where any student applies for discontinuance, or without any application discontinues on his/her own, from the course to which he/she has been admitted to, for any reason, either after the cut-off date prescribed by the statutory authorities/ University for admission to the first year of the course concerned or where the seat is rendered vacant without having any chance of being filled up with any other candidate from waiting list etc., such students will have to remit the tuition fee and other applicable fees for the **'Entire/Remaining Course Period'**. Unless and until payment of all the prescribed fees for the entire/remaining course period is made to the University account, such student shall not be entitled to any certificate including transfer certificate, mark sheets etc., to be issued by the College/ University and to get back his/her original certificates deposited with the University at the time of admission.

All students and parent will be required to furnish a declaration agreeing to the above said conditions at the time of admission.

POLICY ON RAGGING

Ragging is strictly prohibited in the University Campus. Sri Balaji Vidyapeeth strictly enforces anti-ragging measures and the campus is free from any form of ragging. Any violation will be dealt with according to the law in force and as per directives of the Supreme Court of India. The University has adopted the "Medical Council of India (Prevention and Prohibition of ragging in Medical College / Institutions) Regulations, 2009" and "UGC Regulations on curbing the menace of Ragging in Higher Educational Institutions, 2009" and these Regulations shall be applicable to all students. These Regulations are available in the University Website.

IMPORTANT NOTE

All admissions are subject to fulfillment of all the prescribed eligibility conditions by the candidate. If it is found either at the time of admission or at a later stage, that the candidate has given false information/forged certificates or concealed material information, his/her admission shall be cancelled and the student shall be dismissed from the college immediately.

The University reserves the right to change the curriculum, course structure and the rules relating to admission, examinations, fee structure, refunds, etc.

All disputes arising in the interpretation and implementation of the provisions will be referred to the Vice-Chancellor of Sri Balaji Vidyapeeth and Vice-Chancellor's decision shall be final and binding.

In respect of matters relating to or arising out of this prospectus the jurisdiction shall lie in Puducherry alone.

FUTURE PLANS

It is planned to conduct an informal market survey and start AHS Certificate & M.Sc courses.

OUTLINE OF THE CHOICE BASED CREDIT SYSTEM (CBCS) FOR UNDERGRADUATE DEGREE PROGRAMME

Credit System Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).This is to enhance the quality and mobility of the students within and between the Universities in the country and abroad.

Credit hours

16 Theory classes = 1 credit

32 Practical/Tutorial/Clinical training/Research project = 1 credit

Subjects	Credits
Each core subjects	6 Credits
Ability Enhancement Compulsory course (AECC)	2 Credits
Skill Enhancement course (SEC)	2 Credits
Generic Elective course (GE)	4 Credits
Discipline Electives (DE)	4 Credits

Core course: A Hard core course may be a Theory, Practical (lab), clinical rotation/field work or Research Project Work which are compulsory component studied by candidate to complete the requirement of their programme.

Discipline Elective (DE) Course: An elective course which is supportive or related to the discipline/subject (i.e. supportive to core course) is called a Discipline Elective (DSE) Course.

Generic Elective (GE) Course: An elective course which is unrelated to the discipline/subject (i.e. unrelated to core course) to expand their knowledge chosen by a candidate is called a Generic Elective.

Skill Enhancement Courses (SEC): This course chosen by candidate which provides additional value-based and skill-based knowledge to increase their employability.

Value added courses
The students can take up NPTEL/ SWAYAM / MOOC/ Other value-added courses during internship and the credits will not display in the transcript.

Credit points during Internship
For the 16 UG Internship programmes, there is a Minimum of 40 Credit points to a maximum of 45 Credit points which the students have to obtain.Credit points will be assessed based on thestudentssatisfactory attendance, performance in the Clinical /Camp postings / Seminars /Presentation of the logbook & Research project.

CRITERIA FOR UNIVERSITY EXAMINATIONS ON COURSES OFFERED UNDER FACULTY OF ALLIED HEALTH SCIENCES

Eligibility / Maximum Duration for the Award of the Degree

a) The candidates shall be eligible for the bachelor degree when they have undergone the prescribed course of study for a period of not less than four years (3 Years + 1 Year Internship) in an institution approved by the university and have passed the prescribed examination in all subjects.

b) A student who does not meet the minimum attendance requirement in a year must compensate the inadequacies before appearing examination.

To reaffirm the passing minimum in the University Examinations for all the Undergraduate courses offered under the Faculty of Allied Health Sciences.

- "A candidate shall secure a minimum of 50% aggregate in University Core theory / Elective theory Exams and Internal Assessment put together".
- "A candidate shall secure a minimum of 50% aggregate in University Practical and Internal Assessment put together.
- For Skill based electives, a candidate shall secure a minimum of 50% aggregate in University Practical cum Viva Exams and Internal Assessment put together".

Retotaling / Revaluation and Grace Mark

There is no provision for **Retotaling / Revaluation for AHS programme.**

Grace marks up to a maximum of five marks may be awarded at the discretion of the university to a student who has failed and shall be distributed among the failed subjects.

SCHEME OF EXAMINATION

1) **Attendance Requirements**: 80% hours of learning in each Core Subjects / Electives / Practical's /Postings for appearing for the university exams.
2) **Minimum marks required to be eligible for University Examination**: 35% marks in the internal assessment (Theory / Practical) are required for the candidate to be eligible to appear in the University Examinations.
3) **Passing Minimum**: 50% aggregate both in theory and practical's including internal assessment marks is required for a candidate to pass in the University Examinations.
4) **Submission of Record Note Books for practical examinations**

Candidates appearing for practical examinations should submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates shall not be permitted to appear for the practical examinations.

GRADING

Marks obtained by candidate	Equivalent grade letter	Grade descriptor	Grade point
85 % & above	O	Outstanding	10
75-84	A+	Excellent	9
65-74	A	Very good	8
60-64	B+	Good	7
55-59	B	Above average	6
50-54	C	Average pass	5
49 & below	F	Reappear	0
	AB	Absent	0

A student obtaining **Grade F** shall be considered failed and will be required to reappear in the examination.

Award of Class

Class division will be based on CGPA grade

≥ 7.5 grade point = Distinction Division
≥ 6.0 and < 7.5 grade point = First class Division
≥ 5.0 and < 6.0 grade point = Second class Division
< 5.0 and below – Fail

Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student over all exams. The CGPA is the ratio of total credit points secured by a student in various courses in all exams and the sum of the total credits of all courses in all the University exams. It is expressed up to two decimal places.

Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.

Transcript: Based on the credits earned, a transcript shall be issued to all the registered students after the completion of the program indicating the hours of study and structure of the curriculum delivery as prescribed in his/her curriculum and completed by the student. The transcript will display the course details, including course code, title, and number of credits, hours and type of contact hours in a semester.

INTERNAL ASSESSMENT

1. Continuous Internal Assessment (CIA) for all AHS programs with a minimum of 4 Assessments per year.
2. Internal Assessment will be done in each subject according to the scheme of examinations. The IA marks will be on the basis of performance in the assignment, class tests and practical test in the clinical areas.

Evaluation of Clinical Rotation

Lab, Clinical cum Community postings - To conduct practical's or viva based on the Heads of the concerned department's decision and the total 100 marks to be sent to COE through proper channel to find a place in the transcript.

Question Paper Pattern

The following question paper patterns shall be followed for CBCS pattern syllabi for the candidates admitted from the academic year 2019-20 onwards.

CORE SUBJECTS

For **UG NON-SEMESTER COURSES -** Each Core Subjects University Exam carries -100 marks of 80(Theory) + 20 (IA marks) which consists of

Theory – 80 marks			
I	Essay-type questions of either / or type -(like 1.a (or) 1.b)	2 (of either / or type)	2 x 10=20
II	Short answer questions	6 (*1 choice)	5 x 6=30
II	Very Short answer questions	12 (*2 choice)	10 x 3=30

The University duration of 80 marks – 3 Hours

For courses having Section A & Section B Subjects

For **Section A & Section B** Subjects University Exam carries - 50 marks for each Section consisting of 40 (Theory marks) + 10 (IA marks)

Theory – 40 marks			
I	Essay-type questions of either / or type -(like 1.a (or) 1.b)	1 (of either / or type)	1 x 10 = 10
II	Short answer questions	5 (*2 choice)	3 x 6= 18
II	Very Short answer questions	5 (*1 choice)	4 x 3 = 12

ELECTIVE SUBJECTS

For all UG NON SEMESTER **COMPULSORY, GENERIC & DISCIPLINE** Elective University Exam papers carries- 50 marks of 40 (Theory)+10 (IA marks) which consists of

Theory – 40 marks			
I	Short answer questions	5 (*3 choice)	5 x 6=30
II	Very Short answer questions	5 (*2 choice)	5 x 2=10

*** Number of choices given**

For **SKILL BASED ELECTIVES** from 2019-20 batch onwards all UG AHS courses will have 40 marks as university Practical cum Viva examination & 10 marks as Internal Assessment = 50 marks.

50 marks of the **COMPULSORY, GENERIC, DISCIPLINE & SKILL BASED ELECITIVES** which will be converted to 100 marks in the transcript.

CONDONATION FOR SHORTAGE OF ATTENDANCE

Condonation of shortage of attendance in aggregate up to 10% in each Year may be granted by the college Academic Committee and as per regulations of university.

I YEAR

FACULTY OF ALLIED HEALTH SCIENCES

SRI BALAJI VIDYAPEETH

(Deemed to be University)

Accredited by NAAC with 'A' Grade

COMMON SYLLABUS FOR ALL FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES

CORE SUBJECTS

1. Anatomy
2. Physiology
3. Biochemistry
4. Pathology & Microbiology

ELECTIVES

Ability Enhancement compulsory course (AECC)

1. English

Skill enhancement course (SEC) – Choose any TWO

1. Culinary Skills for optimal nutrition
2. Enhancing soft skill & personality
3. Basics of Yoga & Practice
4. Speaking effectively

Generic Elective Course (GEC) – Choose any ONE

1. Basics of Hospital Administration
2. Counseling and Guidance
3. Lifestyle Disorders

SCHEME OF CREDIT BASED ACADEMIC CURRICULUM

Faculty Code	Category	Course Title	Hours					Credits				
AHS	**Core theory CC**	**Subjects**	**Theory**	**Practical**	**Tutorials**	**Lab training**	**Total hours**	**Lecture (L)**	**Practical**	**Tutorials**	**Lab training**	**Credits**
AHS	CC-1	Anatomy	80		32			5		1		6
AHS	CC-2	Physiology	80		32			5		1		6
AHS	CC-3	Biochemistry	80		32			5		1		6
AHS	CC-4	Pathology	40		16			5		1		6
AHS		Microbiology	40		16							
AHS	Lab training CC 1 to 4					192					6	6
AHS	AECC	English	16	34				1	1			2
AHS	SEC – 1-3	Student's choice	16	32				1	1			2
AHS	SEC – 1-3	Student's choice	16	32				1	1			2
AHS	GEC 1-3	Student's choice	64					4				4
			432	**98**	**128**	**192**	**850**	**27**	**3**	**4**	**6**	**40**

SCHEME OF EXAMINATION AHS - I YEAR BASIC SCIENCES

Papers	Subject	Theory		Practical		Theory	Practical	Grand Total (700)	Min marks to pass % (350)
		UE	IA	UE	IA	UIA*	UIA*		
CC-1	Anatomy	80	20					100	50
CC-2	Physiology	80	20					100	50
CC-3	Biochemistry	80	20					100	50
CC-4	Pathology	40	10					100	50
	Microbiology	40	10						
CC -LT	Lab training Core 1 to 4						100	100	50
AECC	Ability enhancement Compulsory Course- English	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
GEC	Generic elective	80	20					100	50

***UIA – University Internal Assessment only for Lab Trainings (No Final University Examination).**

Passing criteria -50 % aggregate both in theory and practical's including internal assessment marks

For all elective course, 40 marks for university theory and Practical cum Viva examination & 10 marks as Internal Assessment = 50 marks which will be converted to 100 marks in the transcript

ANATOMY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – ANATOMY

NAME OF THE SUBJECT PAPER	**: ANATOMY**
DURATION OF THEORY CLASSES	**: 80Hrs**
DURATION OF TUTORIAL SESSIONS	**: 32Hrs**
DURATION OF LAB TRAINING	**: 40Hrs**
EXAMINATION	**: 100 Marks (80 U + 20IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 3 Hrs**
IN WHICH THE SUBJECT PAPERIS TAUGHT	**: I YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire knowledge of the normal structure of human body and its functions. To ensure that the students understand the alteration in anatomical structure and function in disease in the practice of accident and emergency care technology.

OBJECTIVES

At the end of the course, the student will be able to

1. Describe the anatomical terms, organization of human body and structure of cell, tissue, membranes and glands.
2. Describe the structure and functions of bones and joints.
3. Describe the structure and functions of systems in body. Have knowledge about Applied Anatomy

COURSE OUTCOMES FOR ANATOMY

At the end of the course, students will be able to...

AN-AHS-CO1: Explains the Gross and Microscopic structure of human body.

AN-AHS-CO2: Explains the normal structure and integration of the functions of the organs and systems on basis of the structure of Human body.

AN-AHS-CO3: Explains the clinical correlation of the organs and structures involved and interprets the anatomical basis of the disease presentations.

AN-AHS-CO4: Knows about the General development of human body.

AN-AHS-CO5: Outlines the knowing of the hard & soft structures of the body.

UNIT	TITLE	THEORY + TUTORIALS (80 + 32)HOURS
I	**(a) INTRODUCTION TO HUMAN BODY AS A WHOLE** • Terms of location, positions and planes • Cell and its organelles • Epithelium – Definition, classification, description with examples and functions. • Glands – Classification, description of Serous and Mucous glands with examples. • Basic tissues – Classification with examples. **(b) LOCOMOTION AND SUPPORT** • Cartilage – Different types with examples and Histology. • Bone – Classification, Names of bone cells, parts of Long bone, Microscopy of Compact bone, Names of all bones, Vertebral column, Intervertebral disc, Fontanelles of Fetal Skull. • Joints – Classification of Joints with examples , Synovial Joints (in detail for Medical Imaging Technology students) • Muscular system: Classification of Muscular tissue and histology. • Names of the muscles of the body.	20 + 8
II	**UNIT (a) CARDIO VASCULAR SYSTEM** • Heart Size, Location, Chambers – Exterior & Interior – conducting System and Valves • Blood supply of heart • Systemic & Pulmonary circulation • Branches of Aorta, Common Carotid artery, Subclavian artery, Axillary artery, Brachial artery, Superficial Palmar arch, Femoral artery and Internal Iliac artery. • Peripheral pulse • Inferior Venacava, Portal vein and Portosystemic anastomosis. • Great Saphenous vein • Dural Venous Sinuses • Lymphatic System – Cisterna Chyli and Thoracic duct. • Names of regional lymphatics, axillary and inguinal lymph nodes in brief. **(b) RESPIRATORY SYSTEM** • Parts of Respiratory System, Nose, Nasal Cavity, Larynx, Trachea, Lungs, Bronchopulmonary segments • Histology of Trachea, Lung and Pleura • Names of paranasal air sinuses	20 + 5
III	**(a) GASTRO- INTESTINAL SYSTEM – (10 +5 hrs)** • Parts of GIT, Oral cavity (Tongue, Tonsil, Dentition, Pharynx, Salivary glands, Waldeyer's ring) • Oesophagus, Stomach, Small & Large Intestine, Liver, Gall Bladder, Pancreas **(b) URINARY SYSTEM - – (5 hrs)** • Kidney, Ureter, Urinary bladder, Male & Female Urethra	10 + 5

IV	**(a) REPRODUCTIVE SYSTEM – (10 +2 hrs)** • Parts of Male Reproductive system, Testis, Vas deferens, Epididymis, Prostate • Parts of Female Reproductive System, Uterus, Fallopian tubes, Ovary • Mammary gland **(b) ENDOCRINE GLANDS - (5 hrs)** • Names of all Endocrine glands in detail on Pituitary Gland, Thyroid Gland, Parathyroid gland and Suprarenal Gland.	10 + 5
V	**NERVOUS SYSTEM – (15 +2 hrs)** • Cerebrum, Cerebellum, Mid brain, Pons, Medulla Oblongata, Spinal cord with spinal nerve • Meninges, Ventricles and Cerebrospinal fluid • Names of Basal nuclei • Blood Supply of Brain • Cranial Nerves	10 + 5
VI	**(a) EMBRYOLOGY** • Spermatogenesis and Oogenesis • Ovulation, Fertilization • Fetal Circulation • Placenta **(b) COURSE SPECIFIC TOPICS** • Skin • Eye • Arterial System and Venous Drainage System in detail	10 + 4

LAB TRAINING (40 hrs)

- Histology of Types of Epithelium
- Histology of Serous, Mucous and Mixed Salivary gland
- Histology of the types of Cartilage
- Demo of all bones showing parts, radiographs of normal bones & Joints
- Histology of Skeletal (TS & LS), Smooth and Cardiac muscle
- Demonstration of Heart and Vessels of the body
- Histology of Large artery, Medium sized artery and vein, Large Vein
- Microscopic appearance of Large and Medium sized Artery and Vein, Large Vein
- Demonstration of all muscles of the body
- Pericardium
- Histology of Lymph node, Spleen, Tonsil and Thymus
- Demonstration of parts of Respiratory system
- Normal Chest radiograph showing Heart shadows
- Histology of Lung and Trachea
- Normal Angiograms
- Histology of Lymphatic tissues
- Radiographs of Abdomen – IVP, Retrograde cystogram
- Demonstration of parts of the Urinary system and Histology of Kidney, Ureter and Urinary bladder
- Demonstration of Male and Female Pelvis with organs in situ.

- Histology of Male and Female Reproductive organs
- Histology of Pituitary, Thyroid, parathyriod and Suprarenal glands
- Histology of peripheral nerve and optic nerve.
- Demo of all parts of brain

METHODS OF TEACHING

- 1. Lecture cum discussion
- 2. Demonstration
- 3. Lab visit
- 4. Practical work record

METHODS OF EVALUATION

- 1. Written Test
- 2. Laboratory observation Book
- 3. Assignments
- 4. Oral Presentations

REFERENCE BOOKS

- 1. Cohen, Memmler: Structure & Function of Human Body, LippincottWilliams& Wilkins; Tenth edition (2012)
- 2. Waugh: Ross & Wilson Anatomy & Physiology in health and illness Penguin Books Ltd (2010)
- 3. Tortora: Anatomy & Physiology, John Wiley & Sons (2012)

B.Sc. ALLIED HEALTH SCIENCES – ANATOMY - BLUE PRINT

Unit No.	Unit	Weightage	Marks Allotted	Knowledge / Recall			Understanding			Application		
				LAQ	SAQ	VSAQ	LAQ	SAQ	VSAQ	LAQ	SAQ	VSAQ
1	I	14 %	12	…	1	1	---	---	1	---	---	---
2	II	20 %	16	1		1	1*		----	---	---	1
3	III	20 %	15	1*	1	1	--	1	----	---	---	1*
4	IV	20 %	16	--	--	1	1	1*	1*	---	----	1
5	V	14 %	12	---	1	---	---	--	1	---	---	1
6	VI	12 %	9	---	1	---	---	--	1	---	---	--

LONG ANSWER QUESTIONS

S.No	Unit wise	Type of Question	Question has to ask
1	CVS / Respiratory System / GIT	Knowledge / Understanding	2
2	Urinary system / Reproductive system / Endocrine system	Knowledge / Understanding	2

SHORT ANSWER QUESTIONS

S. No	Unit wise	Type of Question	Question has to ask
1	Unit - I	Recall	1
2	Unit - II	Understanding	-
3	Unit – III	Understanding + Recall	2
4	Unit – IV	Understanding / Recall	1
5	Unit – V	Understanding	1
6	Unit – VI	Understanding / Recall	1

VERY SHORT ANSWER QUESTIONS

S.No	Unit wise	Type of Question	Question has to ask
1	Unit – I	Understanding / Recall	2
2	Unit – II	Understanding + Recall	2
3	Unit – III	Understanding + Recall + Application	2
4	Unit – IV	Understanding + Recall + Application	3
5	Unit – V	Understanding + Application	2
6	Unit – VI	Understanding / Application	1

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100 marks.

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of 4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)

Very Short Answer Questions : 10 X3 = 30 marks (Choice 10 out of 12)

TOTAL = Theory 80 + IA 20 = 100 marks

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
ANATOMY

Time: 3 Hours **Maximum Marks: 80**

Illustrate your answers with suitable diagrams where ever necessary.

LONG ANSWER QUESTIONS - (**Write any Two**) (**2 X 10 = 20)**

1. (A) Explain the Gross features of Right atrium. **(OR)**
(B) Explain the Gross features of Stomach.

2. (A) Explain the Gross features of Kidney. **(OR)**
(B) Explain the Gross features of Thyroid gland.

SHORT ANSWER QUESTIONS - (Write any Five) **(5 x 6 =30)**

1. Discuss the Classification of joints with its examples.
2. Discuss the boundaries and contents of superior Mediastinum.
3. Discuss the gross features of Right lung.
4. Discuss the external & internal features of 2nd part of Duodenum.
5. Discuss the location, external features of urinary bladder.
6. Discuss the supports of uterus.

VERY SHORT ANSWER QUESTIONS - (Write any Ten) **(10 x3 =30)**

1. Write a note on Sesamoid bone.
2. Trace the conducting system of Heart.
3. List out the paranasal air sinuses.
4. Write a note on Pancreatic duct.
5. List out the parts & functions of extra hepatic biliary apparatus.
6. Write a note on Trigone of urinary bladder.
7. Enumerate the Ovarian follicles.
8. Enumerate the hormones of Adrenal gland.
9. Enumerate the layers of Scrotum.
10. List out the meningeal layers & its modifications.
11. Structure of thin skin.
12. Write a note on Fertilization

PHYSIOLOGY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – PHYSIOLOGY

NAME OF THE SUBJECT PAPER	**: PHYSIOLOGY**
DURATION OF THEORY CLASSES	**: 80Hrs**
DURATION OF TUTORIAL SESSIONS	**: 32Hrs**
DURATION OF LAB TRAINING	**: 38Hrs**
THEORY EXAMINATION	**: 100 Marks (80 U + 20IA) NO**
UNIVERSITY PRACTICAL EXAMINATION	**: NIL**
DURATION OF THEORY EXAMINATION	**: 3 Hrs**
IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge of the normal physiology of various human body systems and understand the alternation in physiology in disease and practice of accident and emergency care technology

COURSE OBJECTIVES

At the end of the course, the student will be able to

- Describe the physiology of cell, tissues, membranes and glands.
- Describe the physiology of blood and functions of heart.
- Demonstrate blood cell count, coagulation, grouping, Hb; BP and Pulse monitoring
- Describe the physiology and mechanism of respiration.
- Demonstrate Spirometry
- Describe the physiology of Excretory system

COURSE OUTCOMES FOR PHYSIOLOGY

At the end of the course, students will be able to...

PHY-AHS-CO1: Understand normal structure and functioning of the organs and organ systems of the body

PHY-AHS-CO2: Understand the regulatory mechanisms in normal and physiological variations.

PHY-AHS-CO3: Understand age-related physiological changes in the organ functions that reflect normal growth and development.

PHY-AHS-CO 4: Understand the physiological basis of diseases.

PHY-AHS- CO 5: Interpret laboratory data pertaining to normal function of organ and organ system.

UNIT	TITLE	THEORY + TUTORIALS (80+32) HOURS
I	**a. General physiology (5 + 2 hrs)** • Structure and functions of cell and cell organelles • Transport across cell membrane • Homeostasis: definition and feedback mechanisms **b. Hematology (10 + 2 hrs)** • Composition and function of blood and body fluids • Plasma proteins and their functions • RBC: morphology, production, functions and fate • Anemia: etiological & morphological classification • Immunity : Types, mechanism of immune response • Hemostasis and anticoagulants • Blood groups: Types, cross matching and clinical importance	15 +4
II	**Cardiovascular physiology (10 + 5 hrs)** • Functional anatomy • Conductive system of heart: origin, spread of cardiac impulse • Properties of cardiac muscle • ECG: leads, principles of normal recording. Normal waves and interpretations • Cardiac cycle • Heart sounds, Physiological basis of murmur • Cardiac output: definition, factors affecting, factors regulating and its measurement • Blood pressure: total pressure, lateral pressure, importance of different pressure, measurements, factors controlling BP • Shock : definition & types.	10 + 5
III	**Respiratory physiology (10 + 5 hrs)** • Functional anatomy • Mechanism of respiration • Lung volumes and capacities: definition, normal values, measurements and clinical importance • Transport of gases: oxygen and carbon dioxide • Control of respiration: neural and chemical regulation. • Dyspnoea, Asphyxia, cyanosis, periodic breathing • Hypoxia : definition and types	10 + 5
IV	**a. Gastro-intestinal physiology (5 hrs)** • GI secretions: saliva, gastric juice, pancreatic juice, liver & gall bladder • GI motility: deglutition, gastric motility and emptying,	15 + 3

	intestinal motility • GI hormones: Gerstein, Secretin, CCK – PZ, motilin, Inhibin **b. Renal physiology (10 + 3 hrs)** • Nephrons: structure, types and functions • Juxtaglomerular apparatus • RBF: definition, normal values, factor affecting • GFR: definition, normal values factor affecting and factors regulating, measurement. • Renal handlings of solutes : Na+ , Cl- ,Glucose, water (diuretics, diuresis), H+, ammonia • Renin-angiotensin- aldosterone mechanism • Concentration of urine – countercurrent multiplier and countercurrent exchanger. • Micturition • Renal dialysis	
V	**a. Endocrine physiology (10 + 3 hrs)** • Pituitary gland: hormones secreted and their functions, applied: dwarfism, gigantism, Diabetes Insipitus. • Thyroid gland: hormones secreted and their functions, applied: hypothyroidism, hyperthyroidism • Parathyroid gland: hormones secreted and their functions • Adrenal gland: hormones secreted and their functions • Pancreas: hormones secreted and their functions, applied: Diabetes Mellitus **b. Reproductive physiology (5 + 2 hrs)** • Male reproductive system: spermatogenesis , endocrine functions of testis • Female reproductive system: oogenesis, ovulation, functions of estrogen and progesterone. • Menstrual cycle: ovarian cycle, uterine cycle, hormonal changes, abnormalities of menstruation • Contraception	15 + 5
VI	**a. Nerve-Muscle physiology (5 + 5 hrs)** • Neurons: structure, types, properties, degeneration and regeneration • Neuromuscular junction: transmission of impulse and its clinical applications • Skeletal muscle: structure , muscle proteins, contraction & relaxation, types of contraction **b. Central nervous system (5 + 3 hrs)** • Organization of nervous system • Synapse: types, functions • CSF : functions • Cerebral cortex: Broca`s area and their functions • Cerebellum: lobes & function • Basal ganglia: nucleus & functions, Parkinsonism	15 + 10

	• Hypothalamus: functions **c. Special senses (5 + 2 hrs)** • Vision: Errors of refraction, visual pathway and effects of lesion • Hearing: functions of middle ear, Conductive deafness and nerve deafness. • Smell and taste: receptors and pathways	

LAB TRAINING (38 hrs)

- Hemoglobinometry
- White Blood Cell Count
- Red Blood Cell Count
- Determination of Blood Groups
- Leishman's Staining and Differential WBC Count
- Determination of Packed Cell Volume
- Erythrocyte Sedimentation Rate (ESR)
- Determination of Clotting Time, Bleeding Time
- Recording of Blood pleasure
- Auscultation for Heart sounds
- Artificial Respiration
- Determination of Vital capacity.

METHODS OF TEACHING

- 1. Lecture cum discussion
- 2. Demonstration
- 3. Lab visit
- 4. Practical work record

METHODS OF EVALUATION

- 1. Written Test
- 2. Laboratory observation Book
- 3. Assignments
- 4. Oral Presentations

REFERENCE BOOKS

1. Basics of MedicalPhysiology D.Venkatesh /H.H.SudhakarWolters Kluwer Third Edition.
2. Waugh: Ross & Wilson Anatomy & Physiology in health and illness Penguin Books Ltd (2010).
3. Principles of Physiology,Singh(H).

PHYSIOLOGY - BLUEPRINT

Unit	Systems	Marks	Weightage (%)	Question type		
				LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	General physiology	15	19%			2+1*
	Hematology			1*	1	1
II	Cardiovascular physiology	16	20%	1	1	
III	Respiratory physiology	16	20%	1	1	
IV	Gastro-intestinal physiology	12	15%		1	1+1*
	Renal physiology			1*		1
V	Endocrine physiology	12	15%		1	1
	Reproductive physiology					1
VI	Nerve-Muscle physiology	09	11%			1
	Central nervous system				1*	1
	Special senses					1
Note: * represents question of choice						

- The duration of Examination (University) is Three (3) hours.
- The total marks for the University Examination will be 100 marks.

  Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of 4)

  Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)

  Very Short Answer Questions : 10 X3 = 30 marks (Choice 10 out of 12)

  TOTAL = Theory 80 + IA 20 = 100 mark

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
PHYSIOLOGY

Total marks: 80 **Duration: 3 hours**

LONG QUESTION ANSWER **(2 X 10 = 20)**

1. a) Define Erythropoiesis? Describe its stages. Mention the factors influencing it. **(OR)**

b) Define blood pressure. Write its normal range. Briefly explain short term regulation mechanism of blood pressure.

2. a) Explain how oxygen is transported in blood. Explain oxygen dissociation curve. List the factors shifting this curve to right & left. **(OR)**

b) Define Glomerular filtration rate (GFR). Write its normal value. Explain the factors affecting it.

SHORT QUESTION ANSWER - Answer any 5 **(5 X 6 = 30)**

1. Define hemostasis. Briefly explain blood clotting mechanism.
2. Define cardiac output. Give its normal value. Describe the factors regulating it
3. Draw normal spirogram indicating static lung volumes and capacities.
4. Briefly explain the mechanism of HCl secretion in stomach.
5. Name the anterior pituitary hormones. Briefly explain functions of growth hormones.
6. Briefly describe stages of Spermatogenesis.

VERY SHORT ANSWER - Answer any 10 **(10 X 3= 30)**

1. Write the functions of golgi apparatus
2. Briefly explain osmosis
3. Briefly describe the function of Na^+ K^+ ATPase pump
4. What are anticoagulants? Name any two.
5. Write any 3 functions of saliva
6. Name any two GI hormones. Write any one function of them.
7. Name the cells of Juxtaglomemlar apparatus & mention their function
8. List the 3 functions of thyroid hormone
9. Name natural contraceptive methods
10. Classify muscle proteins
11. Classify glial cell. Write any two functions of it.
12. What is myopia? How it is corrected

BIOCHEMISTRY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – BIOCHEMISTRY

NAME OF THE SUBJECT PAPER	**: BIOCHEMISTRY**
DURATION OF THEORY CLASSES	**: 80hrs**
DURATION OF TUTORIAL SESSIONS	**: 32hrs**
DURATION OF LAB TRAINING	**: 38Hrs**
THEORY EXAMINATION	**: 100 marks (80 U + 20IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 3 hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge of the normal biochemical functioning of human body and alterations.

OBJECTIVES

At the end of the course, the student will be able to

1. Identify the basic principles of biochemistry.
2. Synthesize the knowledge of these principles in various situations.

COURSE OUTCOMES FOR BIOCHEMISTRY

At the end of the course, students will be able to...

BIO-AHS-CO1: Correlate the integration of various aspects of biomolecules and its lab diagnosis

BIO-AHS-CO2: Explain biochemical basis and rationale of clinical laboratory tests for inborn errors of metabolism, and interpret the results.

BIO-AHS-CO3: Correlate the results of these investigations with the primary disorders of each human body system.

BIO-AHS-CO4 Follow good clinical laboratory practice as well as to handle the biological samples collected

BIO-AHS-CO5: Learn how to collect the samples and to process it for diagnostic purposes

UNIT	TITLE	THEORY + TUTORIALS (80 +32) HOURS
I	**(i) INTRODUCTION TO BIOCHEMISTRY** • Biophysical aspects of Biochemistry: Theory of acids and bases, Ionization of acids, Dissociation of water, Hydrogen ion concentration and concept of pH, Dissociation of acids and bases, Basic concepts in Acidosis and Alkalosis (Respiratory and Metabolic) • Concept of buffering, Definition of buffers and Buffering Capacity, Chemical and Physiological buffers, Henderson Hasselbalch equation and pH – pK relationship, • Glass electrode and determination of pH, Acid Base titration. **ii) PROTEINS** • Proteins: Chemistry, Classification, properties and biomedical importance of Proteins. • Hydrolytic products of proteins • Classification of Amino acids and important properties **iii) ENZYMES** • Definitions of Catalyst, Enzymes, Apoenzyme, Coenzyme, Holoenzyme, Cofactors and prosthetic group • Active site • Systematic classification of Enzymes • Factors influencing Enzyme kinetics • Enzyme units	18 + 6
II	**i) CARBOHYDRATES** • Carbohydrates: Chemistry, Classification, properties and biomedical importance of carbohydrates. **ii) NUCLEOPROTEINS** • Purine and Pyrimidine bases • Ribose and Deoxy Ribose • Definition of Nucleosides and Nucleotides • Structure of DNA • Types of RNA • Biologically significant Nucleotides	15 + 5
III	**LIPIDS** • Definition of Fats and Oils • Classification of Lipids • Saturated and Unsaturated Fatty acids • Properties of Lipids • Biomedical importance of Lipids with special reference to PhosphoLipids, Glycolipids and Cholesterol.	15 + 7
IV	**ENGERY METABOLISM AND NUTRITIONAL BIOCHEMISTRY** • Calorific value, Respiratory Quotient, Resting Metabolic expenditure, Specific dynamic action • Energy requirements • Complex Carbohydrates and Role of Dietary fiber • Essential Fatty acids • Essential amino acids	20 + 6

	• Positive and Negative Nitrogen balance • Protein Energy Malnutrition • Biochemical functions of Vitamins • Biochemical functions of major and trace elements	
V	**(i) CLINICAL CHEMISTRY** • Serum Osmolality: Significance and measurement • Electrophoresis: Principles, Methodology and Diagnostic significance • Principles and applications of Partician Chromotography • Simple tests to identify Carbohydrates, Lipids and Proteins in biological fluids • Qualitative estimation of Glucose, Proteins, Cholesterol, Urea, Creatinine and Uric acid and their diagnostic significance **(ii) ENVIRONMENTAL CHEMISTRY** • Definition of Pollutants • Impact of Terrestrial, Water and air pollutants • Biopesticides: Chemistry, Metabolic Transformation in the living system and role in Chemical Pathology • Influence of Non-Biodegradable domestic utility items and its role in metabolic disorders • Carcinogens and mutagens: qualitative and molecular pathology involved in mutagenesis and carcino genesis • Plastics and its impacts on Society • Biomedical Waste and its management	12 + 8

LAB TRAINING (38 hrs)

- Simple Color reactions of Carbohydrates and Proteins
- Qualitative estimations of Glucose, Urea, Creatinine, Total Protein and Cholesterol
- Normal constituents of Urine
- Abnormal (pathological)Urine
- Glucose Tolerance Test and its significance
- Demonstration of Electrophoresis and Interpretation of important clinical conditions based on Electrophoresis appearance
- Demonstration of Paper Chromatography and its utility in the diagnosis of inborn errors of metabolism

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

REFERENCE BOOK

1. Essential of Biochemistry for B.Sc Nursing Students Harbanslal, first edition.
2. Biochemistry U.SathyaNarayana,U.Chakrapani, fifth edition

B.Sc. ALLIED HEALTH SCIENCES – BIOCHEMISTRY (I Year) BLUE PRINT

Unit No.	Weightage	Marks Allotted	Knowledge/ Recall			Understanding			Application		
			LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)
I	30 %	25		1	1	1	1				
II	20%	19	1		2			1			
III	15%	12	1*	1	2						
IV	15 %	9	1*	1*	2			1			
V	20%	15		1	1 + 1*		1	1*			

The duration of Examination (University) is Three (3) hours.
The total marks for the University Examination will be 80 marks.

Long Answer Questions : 2X 10 marks = 20 marks (Choice 2 out of 4)

Short Answer Questions : 5X 6 marks = 30 marks (Choice 5 out of 6)

Very Short Answer Questions : 10 X 3 marks = 30 marks (Choice 10 out of12)

TOTAL = Theory 80 + IA 20 = 100marks

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
BIOCHEMISTRY

TIME: 3 HOURS **MAXIMUM MARKS: 80**

A. Long answer question **(2 X 10=20)**

1. a) Write in detail about the Heteropolysaccharides and mention its importance.

(Or)

b) How is acid base balance maintained in the body?

2. a) Define and classify Lipids with suitable examples.

(Or)

b) Write in detail about the RDA, dietary sources, biochemical role and deficiency manifestations of folic acid.

B. Short answer questions -Answer any 5 questions **(5X 6=30)**

1. Mention dietary sources and functions of cholesterol
2. Define Chromatography & write any 4applications
3. Classify Carbohydrates with a suitable example
4. Classify Enzymes systematically by providing one example under each class.
5. Define carcinogen and name any three agents that cause carcinogenesis.
6. List down the sources, regulation and functions of Calcium

C. Very Short answer questions -Answer any10 questions **(10 x 3 =30)**

1. Define Respiratory quotient
2. Define buffer
3. List any two functions of trace elements.
4. List any two impacts of plastics on society
5. Mention the essential fatty acids and its importance
6. List any 2 functions of phospholipids
7. Name one test to identify plasma proteins and urea.
8. Define osmolality
9. Mention any one cardiac glycoside with its function
10. Draw a neat labeled diagram of DNA
11. Define mutarotation
12. List any two functions of Fat soluble vitamin

GENERAL MICROBIOLOGY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – GENERAL MICROBIOLOGY

NAME OF THE SUBJECT PAPER	**: GENERAL MICROBIOLOGY**
DURATION OF THEORY CLASSES	**: 40hrs**
DURATION OF TUTORIAL SESSIONS	**: 16hrs**
DURATION OF LAB TRAINING	**: 38Hrs**
EXAMINATION	**: 50 marks (40 U+ 10IE)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: IYEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire understanding of fundamentals of microbiology and identification of microorganisms. It also provides opportunities for practicing infection control measures in hospital setting.

COURSE OBJECTIVES

At the end of the course, the student will be able to:

1. Identify common disease producing microorganisms
2. Explain the basic principles of microbiology and their significance in health and disease.
3. Demonstrate skill in handling specimens
4. Explain various methods of disinfection and sterilization
5. Identify the role of the nurse in hospital infection control system.

COURSE OUTCOMES FOR GENERAL MICROBIOLOGY

At the end of the course, students will be able to...

MIC-AHS-CO1: Sterilize the articles with physical and chemical methods

MIC-AHS-CO2: Perform with suitable culture media, methods for growth of the bacteria and perform staining techniques for identification of bacteria

MIC-AHS-CO3: Learn the structure, function of immune system and immunity by its antigen-antibody reactions

MIC-AHS-CO4: Learn the how to collect & process the specimen for the diagnostic purposes

MIC-AHS-CO5: Learn about the identification of fungal infections from clinical specimens and various antifungal agents used for the fungal infections.

MIC-AHS-CO6: Learn the laboratory diagnosis of Parasitic and Viral infections

MIC-AHS-CO7: Learn about the treatment and post exposure prophylaxis (PPE) of viral infections

UNIT	TITLE	THEORY + TUTORIALS (40 + 16) HOURS
I	**GENERAL BACTERIOLOGY** ▫ Historical introduction Classification of Microorganisms based on size, shape and structure ▫ Anatomy & Physiology of Bacteria : Nutrition, Growth ▫ Microscopy, staining techniques & Culture media, culture methods ▫ Sterilization (physical &chemical methods) Infection	8 +2
II	**IMMUNOLOGY** ▫ Immune response ▫ Immunity ▫ Hypersensitivity,Autoimmunity ▫ Complement ▫ Antigen antibody reactions	7 + 2
III	**SYSTEMATIC BACTERIOLOGY** ▫ Introduction : Collection transport & processing of bacteriological clinical specimen in general ▫ Pyogeniccocci ▫ Spore baring bacilli Clostridium +Bacillus ▫ Enterobacteriaceae - E.coli, Klebsiella, Salmonella,Shigella ▫ Vibrio,Pseudomonas **MYCOLOGY** ▫ Introduction, classification of fungi, laboratory diagnosis ingeneral ▫ Fungi of medical importance-Opportunisticfungi	8 + 3
IV	**BASICS OF PARASITOLOGY** ▫ Introduction to Parasitology, Classification, Protozoa-I - Entamoebahistolytica ▫ Protozoa-II, Plasmodiumspp. ▫ Cestodes: general,T. solium&T.saginata,E.granulosus ▫ Nematodes: Introduction &Classification - Intestinal - Ascaris,Ancylostorma,Strongyloides - Tissue-W.bancrofti	7 +3
V	**VIROLOGY** ▫ Classification & General properties of Viruses, Virus Host interactions & Lab diagnosis in general ▫ DNA Viruses : Pox viruses & Adenoviruses, Herpesviruses ▫ Hepatitis virus,HIV ▫ Rabies , Polio, Arbo viruses common in India – Dengue, Chickenkuniya , Japanese encephalitis,KFD	6 + 4
VI	**HOSPITAL INFECTION AND CONTROL** ▫ Causative agents and methods of transmission ▫ Systematic investigation of hospital infection ▫ Prevention and control of Hospital infections ▫ Environmental Hazards resulting from biomedical waste and preventive measures.	4 + 2

LAB TRAINING (38 hrs)

- Introduction & visit to microbiology lab + Morphology of bacteria + Identification of bacteria (Culture plates & Basic biochemical reactions)
- Gram stain, Acid fastStain
- Spotters , Instruments, Culture media inoculated &uninoculated
- Applied Immunology(Bacterial)
- Serological tests – CRP, ASO, RPR, Widal Applied Immunology (Virology) Serological tests: HIV, HBsAg(Rapid Tests)
- Stool Examination for eggs + Parasitology specimens

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory Observation Book
3. Assignments
4. Oral Presentations

REFERENCE BOOKS

1. Ananthnarayan R: Textbook of Microbiology. (2017)
2. Pommerville J. C: Fundamentals of Microbiology. Jones and Bartlett learning (2013)
3. ApurbaSastry, SandhyaBhat. Essentials of Microbiology.
4. Text book of Concise Microbiology by C.P.Baveja, Latest edition

BLUE PRINT - B.Sc ALLIED HEALTH SCIENCES -GENERAL MICROBIOLOGY (I Year)

Unit No.	Unit	Weightage (%)	Marks Allotted	Knowledge/ Recall			Understanding			Application		
				LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)
I	GENERAL BACTERIOLOGY	8	3	1*								1
II	BASICS OF IMMUNOLOGY	15	6			1*		1				
III	SYSTEMATIC BACTERIOLOGY	25	10				1				1*	
IV	BASICS OF PARASITOLOGY& MYCOLOGY	22	9					1				1
V	VIROLOGY	22	9		1							1
VI	HOSPITAL INFECTION AND CONTROL	8	3		1*				1			
	TOTAL	**100**	**40**									

The duration of Examination (University) is One and Half (1 ½) hours.

The total marks for the University Examination will be 40marks.

Long Answer Questions : 1 X10mark = 10 marks (Choice 1 out of2)

Short Answer Questions : 3 X6marks = 18 marks (Choice 3 out of5)

Very Short Answer Questions : 4 X3 marks = 12marks (Choice 4 out of5)

TOTAL = 40 marks

MODEL QUESTION PAPER
FIRST YEAR B.Sc ALLIED HEALTH SCIENCES
GENERAL MICROBIOLOGY

Time: 1½Hours **Maximum Marks: 40**

Illustrate your answers with suitable diagrams wherever necessary.

(A) Long answer questions **(1 X 10 =10)**

1. Describe the commonly used chemical disinfectants and their applications in the hospital.

(OR)

2. Classify Mycobacterium. Give an account on pathogenesis and laboratory diagnosis of pulmonary tuberculosis. Add a note on BCG vaccine.

(B) Short answer questions -Answer any 3 questions marks **(3 X 6=18)**

1. Define immunity. Describe acquired immunity.
2. Types of HAI & mention the causative agents.
3. Name the UTI cause bacteria. How to collect urine & laboratory diagnosis of *E.coli*.
4. Life cycle of malaria parasite inhuman.
5. Write about Modes of transmission of HIV.

(C) Very Short answer questions -Answer any4 questions **(4 x3 =12)**

1. Mention different color coded bags for biological waste management used in hospital with the viruses.
2. Prophylaxis of hepatitis B.
3. List FOUR bacteria causing wound infection.
4. Name the opportunistic fungi.
5. Name four arboviral diseases common in India.

GENERAL PATHOLOGY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – GENERAL PATHOLOGY

NAME OF THE SUBJECT PAPER : GENERAL PATHOLOGY

DURATION OF THEORY CLASSES : 40hrs

DURATION OF TUTORIAL SESSIONS : 16hrs

DURATION OF LAB TRAINING : 38Hrs

EXAMINATION : 50 marks (40 U + 10IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

COURSE DESCRIPTION

To make the student to understand pathology laboratory reports, the normal ranges of investigations, severity and specificity of disease conditions which will help him perform International Classification of diseases to clinical pertinence.

COURSE OBJECTIVES

On completion of this subject, the student will be able to:

- Differentiate between symptoms and diseases
- Understand the needs of mandatory diagnostic procedures
- Demonstrate an understanding of the pathology of common diseases
- Understand various pathology laboratory reports
- Knowaboutthepossibilitiesandconsequencesofnosocomicalinfectio ns,needle prick injuries etc., in a health care facility

COURSE OUTCOMES FOR GENERAL PATHOLOGY

At the end of the course, students will be able to...

PAT-AHS-CO1: Learns the pathophysiology of disease and its causes and progression

PAT-AHS-CO2: Learns the aetiologies, the pathogenesis, and the host response specific to a particular organ system

PAT-AHS-CO3: Learn about lab investigations and techniques in haematology.

PAT-AHS-CO4: Learns to perform cross matching, coombs test, blood grouping and TTI

PAT-AHS-CO5: Learns the diagnosis of disease based on the laboratory analysis of bodily fluids

UNIT	TITLE	THEORY + TUTORIALS (40 + 16) HOURS
I	**GENERAL PATHOLOGY (12 +3 HOURS)** Basic Concepts in Cellular Adaptions • Cell injury and Cell death • Over view of Cellular adaption Basic Principles in Inflammatory Process • General features of Acute and Chronic inflammation repair. • NEOPLASIA • Definition of Neoplasia • Differences between Benign and Malignant tumors • Nomenclature	10 + 5
II	**HAEMATOLOGY** **Structure and functions of Blood cells** • Objective use ofanticoagulants • Mechanisms of Haemostasis • Tests to monitor Coagulation • Blood Grouping and Blood Bank (Basic aspects on Blood Components) • Basic concepts in Anemia • Basic Concepts of Leukemia	10 + 3
III	**BIOMEDICAL WASTE MANAGEMENT AND ENVIRONMENTAL PATHOLOGY** • Biomedical waste management from perspectives of Pathology • Environment and Disease – Smoking hazards, Asbestosis and Silicosis Occupational Exposure	5 + 2
IV	**CLINICAL PATHOLOGY** • Collection, transport, preservation and processing of Clinical Specimen • Clinical Pathology of specialized Body Fluids (CSF), Synovial fluid, Pleural Fluid • Urine Examination(Urinalysis)	5 + 2
V	**OVERVIEW OF SYSTEMIC PATHOLOGY** • Rheumatic Heart Disease ineffective endocarditic, atherosclerosis, IHD – Basic Concepts. • Lungs : Pneumonia, COPD, Asthma, ARDS – Basic Concepts • Gastrointestinal tract – Peptic Ulcer, Carcinoma Stomach, Carcinoma Colon –Basic Concepts. • Liver: Hepatitis, Cirrhosis, Gall Bladder – basic	10 + 4

	Concepts. • BrainTumour. • Kidney – Renal Calculi, Hydronephrosis, renal Tumor – Basic Concepts. • FGT – Leiomyoma, Endometrial hyperplasia, Endometrial Cancer, Cervical Cancer –Basic Concepts. • FGT – Ovarian Tumor classifications – Basic Concepts. • Breast – Benign and Malignant tumors – Basic Concepts • Bone Tumors – Basic Concepts	

LAB TRAINING (38 hrs)

1. Blood Grouping and Rh typing
2. Urine Routine
3. Hb, TLC, DLC
4. Gross Specimens
5. Slides

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

REFERENCE BOOK

1. Culling Histopathology techniques
2. Bancroft Histopathology techniques
3. Todd & Sanford Clinical Diagnosis by laboratory method
4. Dacie & Lewis – Practical Haematology
5. RamanicSood, Laboratory Technology (Methods and interpretation) 4th Ed.

B.Sc. ALLIED HEALTH SCIENCES – PATHOLOGY (I Year)-BLUE PRINT

Unit No.	Unit	Weightage	Marks Allotted	Knowledge/ Recall			Understanding			Application		
				LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)
I	a) BASIC CONCEPTS IN CELLULAR ADAPTIONS b) BASIC PRINCIPLES IN INFLAMATORY PROCESS c) NEOPLASIA	37.5%	15	1*	2	1	-	1*	1*	-	-	-
II	HAEMATOLOGY	22.5%	9	-	1	1	-	-	-	-	-	-
III	BIOMEDICAL WASTE MANAGEMENT AND ENVIRONMENTAL PATHOLOGY	7.5%	3	-	-	-	-	-	1	-	-	-
IV	CLINICAL PATHOLOGY	7.5%	3	-	1*	1	-	-	-	-	-	-
V	OVERVIEW OF SYSTEMIC PATHOLOGY	25%	10	1	-	-	-	-	-	-	-	-

The Duration of Examination (University) is One and Half hours (1 ½) hours.

The total marks for the University Examination will be 40 marks.

Long Answer Questions : 10 X1 marks = 10 marks (Choice 1 out of 2)

Short Answer Questions : 3 X 6 marks = 18 marks (Choice 3 out of 5)

Very Short Answer Questions : 4 X 3 marks = 12 marks (Choice 4 out of 5)

TOTAL = 40 marks

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
GENERAL PATHOLOGY

Time: 1½Hour **Maximum Marks: 40**

Illustrate your answers with suitable diagrams wherever necessary.

(A) Long Answer Questions **(1X10=10)**

1. Mention the types of necrosis withexamples

(Or)

2. Describe about Myocardial infarction

(B) Short Answer Question **(3X6 =18)**

Answer any THREE of the following

1. Tabulate the difference between Benign and Malignanttumors
2. Define anemia. Mention types of anemia, on the basis of Etiology.
3. Explain the mode of spread of tumors inbrief.
4. Explain granulomatous inflammation with a neat labeled diagram
5. Describe the method of collection, transport and preservation of CSF

(C) Very Short Answer Questions **(4X3=12)**

Answer any FOUR of the following

1. Define Apoptosis.
2. Enumerate two colors coding for various biomedical waste disposal withexamples.
3. Define cross matching
4. Mention two types of Necrosis.
5. Define Pneumonia.

I YEAR ELECTIVE COURSES

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
ABILITY ENHANCEMENT COMPULSORY COURSE (AECC) - ENGLISH

NAME OF THE SUBJECT PAPER	**: ENGLISH**
DURATION OF THEORY CLASSES	**: 16hrs**
DURATION OF PRACTICAL SESSIONS	**: 34hrs**
EXAMINATION	**: 100 marks (80 U + 20 IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE OUTCOMES FOR ENGLISH

ENG-CO1: Speak and write grammatically correct sentences in English

ENG-CO2: Develop effective writing skills needed for clinical task

ENG-CO3: Build fluency in English needed for clinical tasks

SYLLABUS
(THEORY& PRACTICALS = 16 +34 Hours)

COURSE DESCRIPTION

This course is designed to build spoken and written English competency of the students needed to function effectively in academic setup.

OBJECTIVES

On completion of this subject, the student will be able to:

1. Speak and write grammatically correct sentences inEnglish.
2. Develop effective writing skills.
3. Build fluency in English

UNIT: I GRAMMAR

1. Remedial Grammar : Parts of speech; Types of sentences, questiontags
2. Modalverbs;
3. Tenses
4. Concordance

UNIT: II VOCABULARY

1. Word formation – prefixes andsuffixes
2. Medicalterminology
3. Words often misused orconfused
4. Idioms andphrases

UNIT: III WRITING SKILLS

1. Letter writing - permission, leave and other officialletters
2. Note makingmethods
3. Jumbled sentences -cohesion
4. ParagraphWriting

UNIT: IV SPOKEN COMMUNICATION

1. Pronunciation of commonly mispronouncedwords
2. Day to dayconversation
3. Telephonicconversations
4. GroupDiscussions

UNIT: V LISTENING AND READING SKILLS

1. General Listening and readingcomprehension

Textbook Recommended

1. Effective English Communication by Krishna Mohan and Meenakshi Raman, Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. English for Colleges and Competitive Exams by Dr. R. Dyvadatham, Emerald Publishers.

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – CULINARY SKILLS FOR OPTIMAL NUTRITION

NAME OF THE SUBJECT PAPER : CULINARY SKILLS FOR OPTIMAL NUTRITION

DURATION OF THEORY CLASSES : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

THEORY EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

COURSE OUTCOMES FOR CULINARY SKILL FOR OPTIMAL NUTRITION

NUTRI-CO1: Understand the basic food groups, their nutrient composition and function for balanced healthy diet for people of all ages & patients on dietary management for healthy life.

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

UNIT-I INTRODUCTION TO FOODS AND NUTRITION

- Food-Definition of foods, nutrition and nutrients characteristics of good health
- Relation of nutrition to good health-optimal nutrition, malnutrition and over nutrition
- Classification of foods based on major nutrientcontent
- Food selection-factor responsible for foodselection

UNIT-II FOODS GROUPS

- Basic four and five food groups-cereals, millets pulses, fruits and vegetables, fats and oils, sugar and jaggery.
- Foods and nutrients, Functions of food- energy yielding, body building and protective foods, balanced diet, vegetarian and non-vegetarian foods
- Functional Foods-Dietary supplements
- Food Adulterations-Common adulterants and method of identification, nutrition labeling and foodstandards

UNIT-III METHODS OF COOKING, PRESERVATION AND SENSORY EVALUATION

- Principles and techniques of sensory evaluation, Interpretationtools
- Cooking methods-moist heat, dry heat advantages and disadvantages, changes during cooking, nutrient preservation whilecooking
- Preservation techniques advantages anddisadvantages

UNIT-IV NUTRITIONAL REQUIREMENTS AND MEAL PLANNING

- Basic nutritional requirements through different stages of life cycle, basic principles of meal planning, revisiting concept of balanceddiet.

PRACTICALS

- Introduction to cutlery andcrockery
- Introduction to weights andmeasures
- Art of tablesetting
- Market survey on foodlabeling
- Preparation of few commonly consumed cerealpreparation
- Preparation of few commonly consumed pulsedishes
- Vegetable cooking without nutrientloss
- Preparation and display of fruitssalads
- A day's menu for an adult sedentaryworker
- A day's menu for an 8-month oldinfant
- Nutritious snacks forpreschooler
- Nutritious lunch for school going boys andgirl
- Consistency modified menu for an80-year-old
- Simple test to identify foodadulteration
- Sensory evaluation of prepareditems

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

Reference book

1. Srilaksmi.B. : Food science;seventhedition(2012)
2. Jacqueline B .Marcus :Culinary Nutrition: The science and practice of healthy cooking:(2014)

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – ENHANCING SOFT SKILL & PERSONALITY

NAME OF THE SUBJECT PAPER : Enhancing soft skill & personality

DURATION OF THEORY CLASSES : 16Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

THEORY EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs.

YEAR : I YEAR

COURSE OUTCOMES FOR ENHANCING SOFT SKILL AND PERSONALITY (ESSP)

ESSP-CO1: Foster healthy attitude and develop effective inter and intra personal skills to be an effective team worker in both academic and professional setup.

LEARNING OBJECTIVES

This course is designed to equip the students with essential soft skills needed for workplace and improve personality.

SYLLABUS

UNIT: I ASPECTS OF COMMUNICATION

1. Importance of communication, Process,Barriers
2. Non verbal Communication

UNIT: II SPEAKING

1. Opening and Closingconversations
2. Introductions and AddressSystems
3. ExpressingCourtesy
4. Giving Compliments and replying toCompliments
5. PresentationSkills
6. Telephonic conversation and telephoneetiquette

UNIT – III PRESCRIBED READING

1. White washing the Fence – Episode from Tom Sawyer by MarkTwain
2. Bacon‘s Essays: - Of Goodness and goodness ofnature

UNIT – IV WRITING

1. Letter writing - Letter of Complaints, Inviting and Declining aninvitation
2. Memos andEmail
3. Editing- Grammar, Spelling & Punctuation, Use of Dictionary &Thesaurus.

UNIT – V SOFT SKILLS

1. Active ListeningSkills
2. AssertiveSkills
3. Negotiation and PersuasiveSkills
4. InterviewSkills

Reference Books

1. Communication Skills for Engineers and Scientists by Sangeeta Sharma and Binod Mishra, PHI Learning Private Limited, NewDelhi.
2. English and soft skills by S.P. Dhanavel, Orient BlackSwan
3. Effective English Communication by Krishna Mohan and Meenakshi Raman, Tata McGraw –Hill Publishing CompanyLimited.
4. Technical Communication – Principles and Practice, by Meenakshi Raman and Sangeetha Sharma, II edition, Oxford UniversityPress.

Learning Outcome

This course is designed to help the students to

- Foster healthyattitude.
- Develop effective inter and intra personal skills to be an effective team worker.
- Communicate effectively in both academic and professionalsetup

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – SPEAKING EFFECTIVELY

NAME OF THE SUBJECT PAPER : SPEAKING EFFECTIVELY

DURATION OF THEORY CLASSES : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs.

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT: I YEAR

COURSE OUTCOMES FOR SPEAKING EFFECTIVELY

SPEAK-CO1: Speak and write grammatically correct sentences in English and Build fluency in English needed for clinical tasks.

LEARNING OBJECTIVES

- Advance the students' intellectual curiosity, competency and skills in preparation for employment
- Develop critical thinking, creativity and effective communication

SYLLABUS

1. Communication Skills

- Importance of Communication skills in Public health; Communication process; Methods of communication; Types of communication: Verbal and Non-verbal; Impediments to effective communication;Feedback

2. Oral Presentation Skills

- Preparation and planning; Structure; Audio-visual aids; Creating interest and establishing a relationship with the audience; Body language; Voice and pronunciation;Review

3. Writing skills

- Writing a scientific paper; Writing a proposal; Structure of an article; References and literature review; Peer-review process-Publication bias; International guidelines for publication in journals; ProfessionalEthics

4. Leadership in Public health

- Leadership styles and trait; Motivation skills; Interpersonal communication skills; Problem solving skills; Decision making skills; Management skills; CommunicationSkills

5. Manuscript writing

- Writing introduction, objectives, methodologies, major finding, discussion, conclusion andrecommendation

6. Seminar presentations

- Use of computers present data and information on recenttopics

LEARNING OUTCOMES

At the completion of the course, the students will-

- Develop good written and oral communicationabilities
- Develop an understanding of team building and leadershipskills
- Develop knowledge regarding capacities needed to work independently within diverse workenvironments

TEXT BOOKS

1. Professional Writing Skills, A self-paced training programme by Janis Fisher Chan and Diane Lutovich.

2. Speaking Your Mind: Oral Presentation and Seminar Skills By Rebecca Stott, Tory Young, Cordelia Bryan Contributor Rebecca Stott, Tory Young, Cordelia Bryan.

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – BASICS OF YOGA AND PRACTICE

NAME OF THE SUBJECT PAPER : BASICS OF YOGA AND PRACTICE
DURATION OF THEORY CLASSES : 16 Hrs
DURATION OF PRACTICAL SESSIONS : 32Hrs
THEORY EXAMINATION : 50 Marks (40 U + 10 IA)
NO UNIVERSITY PRACTICAL EXAMINATION
DURATION OF THEORY EXAMINATION : 1 ½ Hrs
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

SYLLABUS & COURSE OUTCOMES FOR BASICS OF YOGA & PRACTICE (YOGA)

YOGA CO1: Understand the respiratory system, types of breathing and benefits of meditation.

Unit	TIME(HRS)	CONTENT
1	1	Introduction to Yoga philosophy, psychology and lifestyle
2	1	A brief outline of the history of Yoga.
3	1	Cultivation of correct psychological attitudes
4	1	Asanas : Definition, Types, scope and limitations of Asanas
5	1	Pranayamas and their significance in Yogic curriculum, Types & phases of Pranayama.
6	1	Dharna and Dhyana as the keys to unlocking human potential.
7	1	Study of various aspects of Yoga: Kriyas, Bandhas, Mudras
8	1	Yoga defined as “Integration” and “Harmony”
9	1	Meaning of the term “Positive Health”
10	1	Yoga, a tool to restore homeostasis
11	1	Integration of Yoga into Health Professions Education
12	1	Order of teaching the Yogic practices; Do’s and Dont’s of specific Yoga techniques.
13	2	Applied aspects of Yoga in various human activities like therapeutics, education and sports
14	2	Introduction to yogic concept of health and disease

Unit 15: Introduction to Yogic techniques: Methods and practices (32 hours) Asanas (26 hrs):

- Aruna SuryaNamaskar
- Ardha – Padmasana/ Padmasana
- ArdhakatiChakrasana

- PadaHasta
- PavanaMuktasana
- Trikona
- Navasana
- Ardha –Shalabhasana
- Shalabhasana
- Makarasana
- Bhujangasana
- Dhanurasana
- Vakrasana
- Vrikshasana
- Ushtrasana
- Gomukasana
- YogaMudra.
- Natarajasana
- Chakrasana
- Sarvangasana
- Matsyasana
- Halasana
- Shavasana

Pranayama (6 hrs)

- VibhagaPranayama
- PranavaPranayama
- SavitriPranayama
- Chandra and Surya NadiPranayama
- Nadi –Shuddhi
- Sheetali andSitkari

TEXT BOOKS

- Dayanidy G and Bhavanani AB. CYTER Practical Book. Pondicherry, India: Dhivyananda Creations;2016.
- A primer of Yoga Theory – DrAnandaBalayogiBhavanani, Dhivyananda Creations,Pondicherry-13
- Fundamentals of Yoga History- Compilation by MeenaRamanathan
- Basic Hatha Yoga lessons (Tamil) - DrAnandaBalayogi and MeenaRamanathan, Puducherry

BOOKS RECOMMENDED FOR STUDIES AND REFERENCE

1. A yogic approach to stress-DrAnanda Balayogi Bhavanani, Ananda Ashram, Pondicherry
2. Asana, Pranayama, Mudra and Bandha. Swami Satyananda, Bihar School of Yoga,Monger
3. ASANAS : WHY? AND HOW? – byShri. O.P. Tiwari. Kaivalyadhama,Lonavla.
4. Hatha Yoga practices of the Gitananda tradition by Dr Ananda Balayogi Bhavanani
5. Ramanathan Meena. Applied Yoga: Applications of Yoga in Different Fields of Human Activities. 3rdEd; Pondicherry, India: Sri Balaji Vidyapeeth;2018
6. PRANAYAMA – by Swami Kuvalayananda. Kaivalyadhama,Lonavla.
7. Yoga and sports- Swami Gitananda and Meenakshi Devi, Ananda Ashram, Pondicherry.

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
GENERIC ELECTIVE COURSE (GEC) – BASICS OF HOSPITAL ADMINISTRATION

NAME OF THE SUBJECT PAPER : BASICS OF HOSPITAL ADMINISTRATION

DURATION OF THEORY CLASSES : 64Hrs

THEORY EXAMINATION : 50 Marks (40 U + 10IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

COURSE OUTCOMES FOR BASICS OF HOSPITAL ADMINISTRATION (HSM)

HSM CO1: To familiarizes students with the basics concepts, policies of hospital management regarding the occupational safety, organizational behavior & quality management.

COURSE OBJECTIVES

- To provide orientation about the hospitalfunctions
- To familiarize students with the basics concepts of hospitalmanagement

THEORY (DURATION 64 Hours)

UNIT: I ORGANISATION OF A HOSPITAL AND ITS DEPARTMENTS

1. Organogram
2. Vision, Mission &Values, Logo
3. Patient Service Points – Clinical & Non-Clinical (OPD's, A&E, MHC, Wards,ICU's, OT's,etc.)
4. Scope of Services (Medical & SupportiveServices)

UNIT: II HOSPITAL POLICIES & PROCEDURES

1. Registration Process
2. OP/IPBilling
3. AdmissionProces s
4. DischargeProcess
5. Financial counseling
6. Visitors Policy
7. Feedback forms.

UNIT: III MEDICAL RECORS MANAGEMENT/LEGAL ASPECTS

1. Types of Medico legal cases 2.SOP's for handling MLC

3. Medical Records -Forms, consents, registers used in hospitals

UNIT: IV QUALITY MANAGEMENT

1. Quality – Brief Introduction
2. Code of Conduct for healthcare professionals
3. Patient rights & responsibilities
4. Incident Reporting
5. Quality Indicators
6. List of Licenses to be obtained to run a Hospital College
7. Accreditation –ISO/NABH/JCI

UNIT: VOCCUPATIONAL SAFETY

1. Biomedical Waste Management
2. Hospital SpillManagement
3. Usage ofPPE
4. Emergency Codes
5. Fire SafetyManagement
6. Hospital InfectionControl

UNIT: VI ORGANISATIONAL BEHAVIOUR

1. Communication with patients/health careprofessionals
2. Groomingstandards
3. TimeManagement
4. Grievance Handling, InterdisciplinaryCommittee
5. Leadership

LEARNING OUTCOMES

Students will have an overview of hospital functions, processes and patient management.

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
GENERIC ELECTIVE COURSE (GEC) – COUNSELING AND GUIDANCE

NAME OF THE SUBJECT PAPER	**: COUNSELING AND GUIDANCE**
DURATION OF THEORY CLASSES	**: 64 Hrs.**
EXAMINATION	**: 50 Marks (40 U + 10IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ Hrs.**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE OUTCOMES FOR COUNSELING AND GUIDANCE (CG)

CG CO1: To assess a person's needs and understand their personal characteristics that will help in personal growth, wellbeing and improving their relationships with others.

LEARNING OBJECTIVES

- To understand theoretical foundations of counseling psychology
- To examine briefly the major perspectives of counselling and to apply based on the client's needs
- To assess one's own needs and motivations and personal characteristics that will help in personal growth andwellbeing.
- To understand basic counselling skills as practiced by an effective counsellor.
- To discuss special settings and populations where counselling could be effectively used.
- To explore ethical and legal issues for the practice of counseling profession.

UNIT I:

Introduction and definition of Counselling and Guidance, Counsellor Preparation, Qualifications, Qualities, Legal and Professional ethics

UNIT- II:

Different approaches to counselling, goals in counselling, role and functions of the counsellor.

UNIT- III:

Micro skills in Counselling- relationship building strategies and methods: Opening techniques, attending skills- verbal and non-verbal communication, Listening skills:

Open questions and closed questions, Encouragement, Paraphrasing, Reflection, Summarization, influencing skills-Reframing, genuineness and Self-disclosure.

UNIT-IV:

Macro skills in Counselling, empathy, advanced empathy, Confrontation & challenging, Resistance, transference and counter-transference

UNIT-V:

Counselling situations and Counselling across life-span.

Learning Outcome

At the end of this course, the students will be able to:

Demonstrate basic knowledge in counseling (concepts, theories, ethical issues, basic skills, etc.)

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
GENERIC ELECTIVE COURSE (GEC) – LIFESTYLE DISORDERS

NAME OF THE SUBJECT PAPER : LIFESTYLE DISORDERS

DURATION OF THEORY CLASSES : 64 Hrs

EXAMINATION : 50 Marks (40 U + 10IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs.

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

COURSE OUTCOMES FOR LIFESTYLE DISORDERS (LD)

LD CO1 : To understand the relevance, significance and implications of lifestyle disorders for the betterment of human life quality.

THEORY (64 Hours)

UNIT I Modern Life style disorders

Deskbound and sleeping habits, junk food, anxiety. Food poisoning, Acidity.

UNIT II Dietary disorders

Food groups and concept of abalanced diet, obesity, metabolic syndrome,hypertension- their causes and prevention through dietary and lifestyle modifications

UNIT III Social health problems

Smoking, alcoholism, drug dependence and AquiredImmuno Deficiency Syndorme (AIDS).

UNIT IV Gastrointestinal disorders

Stomach disorders-Gastritis, Ulcer, Amoebiasis, Constipation, piles
Common ailment- cold, cough, fevers, diarrhoea, constipation- their causes and dietary

LEARNING OUTCOMES

To understand the relevance, significance and implications of lifestyle disorders for the betterment of human life quality

Text Books

1. Text book of Clinical Biochemistry- Carl. A.Burtis and Edward R.Ashwood
2. Text Book of Medical Biochemistry – Dr. M.N. Chatterjee and RaneShinde

Reference Books

1. P. Singh MD. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence Biochemistry with Clinical Correlation- Thomas M.Devlin

II YEAR

B.Sc – CRITICAL CARE TECHNOLOGY
FACULTY OF ALLIED HEALTH SCIENCES
SRI BALAJI VIDYAPEETH
(Deemed to be University)
Accredited by NAAC with 'A' Grade

II-YEAR

CORE SUBJECTS

1. Clinical Pharmacology
2. Applied Anatomy & Applied Physiology
3. Basics of Intensive Care Unit
4. Pathology & Pathophysiology

ELECTIVES

Ability Enhancement compulsory course (AECC)

1. Environmental studies

Skill enhancement course (SEC) – Choose any TWO

1. Good Clinical Laboratory practice
2. Computer Applications
3. Library and E-resource
4. Public Health and Hygiene

Generic Elective Course (GEC) – Choose any ONE

1. Basic Psychology
2. Sociology
3. Entrepreneurship essentials

AHS Course Content Second year B.Sc. Critical Care Technology (CC)

Faculty code	Category	Course title		Hours				Credits				
AHS	Core theory CC	Subjects	Theory	Practical	Tutorials	Clinical training	Total hours	Lecture	Practical	Tutorials	Clinical training	Total credits
AHS	CC -5	Clinical Pharmacology	80		32			5		1		6
AHS	CC -6	Applied Anatomy & Applied Physiology	80		32			5		1		6
AHS	CC -7	Basics of Intensive Care Unit	64	64				4	2			6
AHS	CC -8	Pathology & Pathophysiology	80		32			5		1		6
AHS	CC-CT 1	Clinical Training CC 5 to 8				192					6	6
AHS	AECC	Environmental Science	16	32				1	1			2
AHS	SEC – 1-3	Student's choice	16	32				1	1			2
AHS	SEC – 1-3	Student's choice	16	32				1	1			2
AHS	GEC - 1-3	Student's choice	64					4				4
			416	**160**	**96**	**192**	**864**	**26**	**5**	**3**	**6**	**40**

SCHEME OF EXAMINATION

Papers	Subject	Theory		Practical		Theory	Practical	Grand total 1000	Min marks to pass % (500)
		UE	IA	UE	IA	UIA*	UIA*		
CC -5	Clinical Pharmacology	80	20					100	50
CC -6	Applied Anatomy & Applied Physiology	80	20					100	50
CC -7	Basics of Intensive Care Unit	80	20	80	20			200	100
CC -8	Pathology & Pathophysiology	80	20					100	200
CC-CT 1	Clinical Training CC 5 to 8						100	100	50
AECC	Ability enhancement Compulsory Course – Environmental Science	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
GEC	Generic elective	80	20					100	50

For all elective course, 40 marks for university theory and Practical cum Viva examination & 10 marks as Internal Assessment = 50 marks which will be converted to 100 marks in the transcript.

CLINICAL PHARMACOLOGY

PAPER CC -5-CLINICAL PHARMACOLOGY

NAME OF THE SUBJECT	**: CLINICAL PHARMACOLOGY**
DURATION OF THEORY CLASSES	**: 80Hrs**
DURATION OF TUTORIAL SESSIONS	**: 32Hrs**
THEORY UNIVERSITY EXAMINATION	**: 100 Marks (80 U + 20IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	**: NIL**
DURATION OF THEORY EXAMINATION	**: 3 Hrs**
IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire understanding of fundamentals of drugs and their mode of action. It also provides opportunities for practicing infection control measures in hospital settings. It also helps to assist the students to use knowledge of pharmacology in practice of critical care technology.

OBJECTIVES

At the end of the course, the student will be able to:

1. To identify drugs used in ICU and describe their pharmacology, administration, uses and adverse effects.
2. To describe pharmacology of vasopressors and inotropes.

PROGRAM OUTCOMES

CC-PO1: Performs the duty as acritical care Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.

CC-PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

CC-PO3: Understanding the structure and functions of different organs in normal human body.

CC-PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.

CC-PO5: To make students participate in palliative care and also aware of basic radiology principles.

CC-PO6: To make students apply basic science knowledge gained through this curriculum in their critical care technology practice.

CC-PO7: To make students assist in ICU emergency procedures including cardiopulmonary resuscitation and also in participation of trauma evaluation &management.

CC-PO8: To make students aware of the ethical principles pertinent to critically ill patients.

CC-PO9: To make students participate in ICU administration, organization and quality improvement.

CC-PO10: To make students understand the pharmacological principles and pharmacovigilance pertaining to the drugs used in critical care.

CC-PO11: To build efficient technologist in handling ICU Equipment's and practice.

CC-PO12: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOMES

CC-PHAR CO 1: Learn & practice principles of clinical pharmacology.

CC- PHAR CO 2: Learn& practice pharmacology of drugs used for central nervous system pertinent to critically ill patients.

CC- PHAR CO 3: Learn & practice pharmacology of drugs used for autonomic nervous system pertinent to critically ill patients.

CC- PHAR CO 4: Learn & practice pharmacology of drugs used for cardiovascular nervous system pertinent to critically ill patients**.**

CC- PHAR CO 5: Learn & practice pharmacology of drugs used for endocrine and metabolic disorders pertinent to critically ill patients.

CC- PHAR CO 6: Learn & practice pharmacology of drugs used for respiratory system, gastrointestinal system pertinent to critically ill patients.

CC- PHAR CO 7: Learn & practice intravenous administering fluids in ICU.

COURSE CONTENT

UNITS	TITLE	THEORY + TUTORIALS 80 + 32 HOURS
I	• ANTISIALAGOGUES – Atropine, Glycopyrrolate • ANTIEMETICS - Metoclopramide, Ondansetron, Dexamethasone • ANTACIDS - Na citrate, Gelusil, Mucaine gel • H2 BLOCKERS- Cimetidine, Ranitidine, Famotidine	**16 + 6**
II	• SEDATIVES & ANXIOLYTICS Diazepam, Midazolam, Phenergan, Lorazepam , Flumazenil. • NARCOTICS- Morphine, Pethidine, Fentanyl, Pentazozine, Naloxone • ANALGESICS - Paracetamol, diclofenac, tramadol, ketrolac, Buprenorphine , Nalbuphine	**16 + 6**

III	INDUCTION AGENT -Thiopentone ,Ketamine,Propofol, Etomidate. • MUSCLE RELAXANTS -Depolarising – Suxamethonium. • Non depolar:sing -Pancuronium,Vecuronium, Atracurium, rocuronium. • INHALATIONAL GASES - Gases - 02, N20, Air Agents Isofllurane, Sevoflurane, Desflurane. • REVERSAL AGENTS - Neostigmine. LOCAL ANAESTHETICS - Xylocaine, Bupivacaine ,xylocaine-jelly, Emla Ointment, Etidocaine, Ropivacaine •	**16 + 6**
IV	EMERGENCY DRUGS • Adrenaline, Nor-adrenaline, Isoprenaline. •Vasopressin : Mode of administration, dilution, dosage, Effects. • Atropine, bicarbonate, calcium, potassium, ephedrine, xylocard. •Ionotropes : dopamine, dobutamine, amiodarone. • Aminophylline, hydrocortisone, protamine, antihistamines.	**16 + 6**
V	**DRUGS USED TO TREAT SYSTEMIC DISEASES & MISCELLANEOUS** • cardiovascular system •Antihypertensives– Eg : Beta Blocker, Ca channel blocker, ACE inhibitors •Antiarhythmics •Anti coagulation – Heparin •Antidiabetic – Oral Hypoglycemic agents, Insulin. • Bronchodilators – Aminophylline, Deriphylline •Steriod – Inj. Hydrocortisone, Inj. Prednisolone, Inj. Dexamethasone. • Vasodilators – nitroglycerin & sodium nitroprusside • Respiratory system - Bronchodilators, respiratory stimulants • Renal system - Diuretics,furosemide,mannitol • Obstetrics - oxytocin, methergin, Prostoglandin **MISCELLANEOUS** - Antibiotics classification, IV fluids, Various preparations.	**16 + 6**

METHODS OF TEACHING

- 1. Lecture cum discussion
- 2. Demonstration
- 3. Lab visit
- 4. Practical work record

METHODS OF EVALUATION

- 1. Written Test
- 2. Laboratory observation Book
- 3. Assignments
- 4. Oral Presentations

REFERENCE BOOKS

1. Clinical Anaesthesiology – 6 th edition Morgan
2. Principles of anaesthesia equipment's – Yasodhanandhaariti
3. Comparative pharmacology for anaesthetists- Vipindhama
4. Miller anaesthesia

BLUE PRINT – PAPER CC- 5 –CLINICAL PHARMACOLOGY

UNITS	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
Unit-1	15	12	-	1	2
Unit-2	11	9	-	1	1 1*
Unit-3	28	22	1 1*	1 1*	2 1*
Unit-4	15	12	-	1	2
Unit-5	31	25	1 1*	1	3

- The duration of Examination (University) is Three (3) hours.
- The total marks for the University Examination will be 100 marks.

  Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of 4)
  Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)
  Very Short Answer Questions : 10 X3 = 30 marks (Choice 10 out of 12)
  TOTAL = Theory 80 + IA 20 = 100 mark

PAPER CC- 5 CLINICAL PHARMACOLOGY
MODEL QUESTION PAPER

TIME: 3 HOURS **MAXIMUM MARKS: 80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long Answer Questions: **(2x10 =20)**

1. a) Discuss briefly about the mechanism of action, systemic effects of Propofol?

(OR)

b) LAST and its management?

2. a) Write about the various concentrations of bupivacaine and its clinical uses.

(OR)

b) Compare& Contrast pharmacology of ketamine and thiopentone?

B. Short Answer Questions - (Any 5) **(5X6 =30)**

1. Compare and contrast pharmacology of atropine &glycopyrrolate?
2. What is the mechanism of action and clinical uses of benzodiazepines?
3. Discuss briefly about the systemic effects of thiopentone sodium?
4. Classify neuromuscular blockers?
5. Clinical uses of adrenaline .
6. Classify antiarrythmic drugs .

C. Very Short Answer Questions - (Any 10) **(10x3= 30)**

1. What is meant by atropine flush?
2. What is meant by atropine fever?
3. Write about benzodiazepine antagonist?
4. Clinical uses of lorazepam?
5. Mention any 4 physical properties of thiopentone sodium?
6. Mention the composition of Propofol?
7. Mention any 2 physical properties of Propofol?
8. What are the signs of adequate reversal?
9. How is succinylcholine metabolized?
10. What are the MAC value of isoflurane?
11. Mention the complication of halothane agents?
12. Write about laughing gas?

APPLIED ANATOMY AND PHYSIOLOGY

PAPER CC- 6 - APPLIED ANATOMY AND PHYSIOLOGY

NAME OF THE SUBJECT : APPLIED ANATOMY AND PHYSIOLOGY

DURATION OF THEORY CLASSES : 80 HOURS

DURATION OF TUTORIAL SESSION : 32 HOURS

THEORY EXAMINATION : 100 MARKS (80 U+ 20 IA)

DURATION OF THEORY EXAMINATION : 3 HOURS

PRACTICAL EXAMINATION : NIL

YEAR IN WHICH SUBJECT PAPER IS TAUGHT: II YEAR

COURSE DESCRIPTION

The course is designed to acquire knowledge of applied anatomy and physiology and to ensure that the students understand the applied aspects in the practice of anaesthesiatechnology.

OBJECTIVES

At the end of the course, the student will be able to

1. Efficient knowledge aboutthe relevant applied anatomy& physiology of respiratory system, cardiovascular system and central nervous system.
2. Learn the fluids, blood products and electrolytes.
3. Knowledge about neuromuscularphysiology.

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

ANEST-PO1: Performs the duty as an Anesthesia Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.

ANEST-PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

ANEST-PO3: Understanding the structure and functions of different organs in normal human body.

ANEST-PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.

ANEST-PO5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

ANEST-PO6: To make students apply anatomy and physiology knowledge gained through this curriculum in their Anesthesia technology practice.

ANEST-PO7: To make students aware of the ethical principles, infection control protocol followed in operating room complex.

ANEST-PO8: To make students participate in OT administration, organization and quality improvement.

ANEST-PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.

ANEST-PO10: To build efficient technologist in handling Anesthesia monitors &Equipment's practice.

ANEST-PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.

ANEST-PO 12: To make students assist in ICU emergency procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.

ANEST-PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies:

ANT&PHY CO 1: Learn relevant applied anatomy, physiology & applied aspects of respiratory system.

ANT&PHY CO 2: Learn relevant applied anatomy, physiology & applied aspects of cardiovascular system.

ANT&PHY CO 3: Learn relevant applied anatomy, physiology & applied aspects of central nervous system

ANT&PHY CO 4: Learn about the intravenous fluids and plasma expanders.

ANT&PHY CO5: Proper knowledge about the composition of blood, bloodtransfusion protocols and procedures.

ANT&PHY CO 6: Complete knowledge about neuromuscular anatomy and physiology.

ANT&PHY CO7: Knowledge about physiological changes during pregnancy& its importance.

COURSE CONTENT

UNIT	TITLE	THEORY + TUTORIALS (80 + 32)
I	**Respiratory System** •Structure and function of the respiratory tract in relation to respiratory system. • Nose - Role in humidification. • Pharynx - Obstruction in airways. • Larynx - Movement or vocal cords, Cord palsies. • Trachea & Bronchial tree - vessels, nerve supply, respiratory tract, reflexes and bronchospasm. • Alveoli - Layers, Surfactants. **Respiratory Physiology** • Control or breathing • Respiratory muscles - diaphragm, intercostals. • Lung volumes - dead space, vital capacity, FRC etc. • Pleural cavity - intrapleural pressure, pneumothorax. • Work of breathing - airway resistance, compliance. • Respiratory movements under anesthesia. • Tracheal tug - signs, hiccup. **Pulmonary Gas Exchange and Acid Base Status** •Pulmonary circulation. • Pulmonary edema. • Pulmonary hypertension. • Pulmonary function tests. • Transfer of gases - oxygen &Carbon dioxide. • Acid base status, definitions, acidosis types, Alkalosis types, buffers in the body. **Oxygenproperties** •Storage, supply, hypoxia. **Respiratory failure** •Type, clinical features, causes.	**30HOURS + 10 TUTORIAL**
II	**Cardiovascular system** •Anatomy - Chambers of the heart, major vasculature. • Coronary supply and innervations. • Conduction system. •Cardiac output - determinants, heart rate, preload, after load. • Coronary blood flow& myocardial oxygen supply. • ECG. • Arrhythmias. • Cardiovascular response to anesthetic& surgical procedures. • SHOCK – (Shock) types, definition, causes, management.	**20 HOURS + 10 TUTORIAL**
III	**Fluids, electrolytes & Blood Transfusion** • Body Fluids – Composition.	**15 HOURS + 5 TUTORIAL**

	• Water, sodium and potassium balance. • I.V. Fluids and plasma Expanders - composition & administration. • Blood grouping, storage, administration various Blood Products.	
IV	**Nervous System & Neuromuscular Physiology** •Spinal cord and Nerve Plexus anatomy. Cervical plexus Brachial Plexus Lumbosacral plexus • Pain Pathways. • Nerve conduction. • Neuromuscular junction.	**12 HOURS + 5 TUTORIAL**
V	**REPRODUCTIVE SYSTEM** •Physiological changes in pregnancy and labor	**3 HOURS + 2TUTORIAL**

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Clinical postings
- Log book

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations

REFERENCE BOOKS

- Clinical Anaesthesiology – 6 th edition Morgan
- Principles of anaesthesia equipment's – Yasodhanandhaariti
- Comparative pharmacology for anaesthetists- Vipindhama
- Miller anaesthesia
- Manual of anesthesia for OT technicians - Ahnandhapillai

BLUE PRINT

UNITS	TOPICS	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
I	Respiratory System	27	22	1 1*	1	2 1*
II	Cardiovascular system	27	22	1 1*	1 1*	2 1*
III	Fluids, electrolytes & Blood Transfusion	23	18	-	2	2
IV	Nervous System & Neuromuscular Physiology	15	12	-	1	2
V	REPRODUCTIVE SYSTEM	8	6	-	-	2

Note: * indicates the choice questions

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100 marks.

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of 4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)

Very Short Answer Questions: 10 X3 = 30 marks (Choice 10 out of 12)

TOTAL = Theory 80 + IA 20 = 100 marks

PAPER CC- 6 – APPLIED ANATOMY & PHYSIOLOGY

MODEL QUESTION PAPER

TIME: 3 HOURS **MAXIMUM MARKS: 80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long answer questions: **(2X10 =20)**

1. a) Explain briefly about the mechanism of breathing with diagram?

(OR)

b) Draw a neat diagram of heart with chambers and explain the flow of blood?

2. a) Explain briefly about the conduction system of the heart?

(OR)

b) Draw a neat diagram of anatomy of larynx and explain about them?

B. Short answer questions - (Any 5) **(5X 6 =30)**

1. How to recognize & manage hypoxia post operatively?
2. Explain the waves and complexes seen in ECG?
3. Explain the valves of heart?
4. What are the complications associated with the use of colloids?
5. Discuss about the classification of IV fluids?
6. Glasgow coma scale

C. Very Short answer questions - (Any 10): **(10x3 = 30)**

1. What is bronchospasm?
2. Define ARDS?
3. Write any 2 functions of surfactant?
4. What is sinus arrthymias?
5. Define sinus bradycardia?
6. Define sinus tachycardia?
7. What are the indications of hypertonic saline?
8. What are the indications of ringer lactate?
9. What are the types of neurons?
10. Classification of nervous system?
11. What is supine hypotension?
12. What are the techniques in preventing supine hypotension?

BASIC OF INTENSIVE CARE UNIT

PAPER CC- 7: BASIC OF INTENSIVE CARE UNIT

Duration of Theory Classes	**: 64 Hrs**
Duration of Practical Sessions	**: 64 Hrs**
Theory Examination	**: 100 Marks (80 U + 20 IA)**
University Practical Examination	**: 100 Marks**
Duration of Theory Examination	**: 3 Hrs**

COURSE DESCRIPTION

The course is designed to assist students in developing expertise and knowledge in the field of critical care .it will help students to develop advanced skills for medical emergency for critically ill patient

OBJECTIVES

At the end of the course, the student will be able to:

- Appreciate trent and issues related to critical care technology
- Describe the various drugs used in critical care –responsibility in their administration
- Demonstrate advance skill /competence in managing critically ill patient including advance cardiac life support
- Demonstrate skill in handling various equipment used in icu
- Practice infection control measure
- Provide comprehensive care critically ill patients

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

CCMT-PO1: Performs the duty as a critical care Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.

CCMT-PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

CCMT-PO3: Understanding the structure and functions of different organs in normal human body and acquire knowledge of the fundamentals of pathology & pathophysiology in disease states.

CCMT-PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.

CCMT-PO5: To make students participate in palliative care and also aware of basic radiology principles.
CCMT-PO6: To make students apply basic science knowledge gained through this curriculum in their critical care technology practice.
CCMT-PO7: To make students assist in ICU emergency procedures including cardiopulmonary resuscitation and also in participation of trauma evaluation & management.
CCMT-PO8: To make students aware of the ethical principles pertinent to critically ill patients.
CCMT-PO9: To make students participate in ICU administration, organization and quality improvement.
CCMT-PO10: To make students understand the pharmacological principles and pharmacovigilance pertaining to the drugs used in critical care.
CCMT-PO11: To build efficient technologist in handling ICU Equipment's and practice.
CCMT-PO12: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies**:**
CCMT ICU CO 1: Learn& practice general principles of monitoring in critical ill patients.
CCMT ICU CO 2: Learn & practice the principles of monitoring of respiratory system.
CCMT ICU CO 3: Learn & practice the principles of monitoring of cardiovascular system.
CCMT ICU CO 4: Learn & practice the principles of monitoring of nervous system.
CCMT ICU CO 5: Learn & practice the principles of monitoring of Intra-abdominal pressure , nutritional monitoring &renal functions.
CCMT ICU CO 6: Learn & practice the systemic diseases , care in ICU.
CCMT ICU CO 7: Learn & practice the principles and maintenance of ICU equipments.
CCMT ICU CO 8: Learn the basic biophysics& types of medical equipment used in ICU.

COURSE CONTENT

UNIT	TITLE	THEORY 64 HOURS
I	**INTRODUCTION , GENERAL CARE & MONITORING IN ICU** • Introduction and General care of ICU patient - eye, skin, bladder care, position, airways, drains, catheters. Transport of critically ill patient to and out of ICU, transport of patient with drains, airway, inotropes, mechanical ventilator. **A) General monitoring** **Temperature monitoring** Principles of temperature monitoring Hypothermia and hyperthermia **Pulse monitoring**	**24 HOURS**

Positioning of patient
Monitoring for pressure sores
B) Respiratory system
Airway monitoring
- Securing ET tube
- Cuff pressure

Monitoring Gas Exchange
a) Oxygenation
- ABG
- Pulse Oximetry
- Oxygen delivery and consumption

b)Ventilation
- ABG
- Capnography
- Oxygen consumption
- Alveolar gas equations
- Dead space

c)Monitoring lung and chest wall mechanics
- Compliance
- Resistance
- Pressures
- Auto PEEP
- Volumes

Monitoring muscle strength, work of breathing, Maximum inspiratory and expiratory pressures
Monitoring patient ventilator system, Graphics monitoring
Bedside PFT
PFT - Recognize the methods & significance of measuring the following lung volume and flow in the ICU.
- Tidal volume
- Vital capacity
- Peak flow rate
- Negative inspiratory pressure

C) Cardiovascular System
- ECG , NIBP , Invasive arterial blood pressure , CVP monitoring ,Zeroing, calibration, trouble shooting of pressure transducers
- Assessment of Preload responsiveness static and dynamic parameters
- Basic Echocardiography in ICU
- Defibrillator and Cardio version
- PICCO
- Monitoring tissue perfusion
- Pulmonary artery catheters
- Temporary pacemaker

D) CNS
- Neurological history and examination, pupils, Muscle strength.
- Glasgow Coma Scale.
- ICP Monitoring
- Monitoring brain stem function

	• Sedation and analgesia scoring **E) Abdomen / Renal** Intra-abdominal pressure monitoring Monitoring renal function: • Clinical – Urine output • Laboratory- creatinine, creatinine clearance	
II	**INFECTION CONTROL AND NUTRITION IN ICU** • Infection control in ICU: prevention of cross infection, personal protection, antibiotics and policy. **Nutritional monitoring** Functional nutritional assessment (history and physical examination) Metabolic assessment Estimating nutritional requirements Nutrition and Fluid balance - total parenteral nutrition, nasogastric tube, gastric tube, jejunostomy tube care and feeding, IV Fluids.	**4 HOURS**
III	**SYSTEMIC DISEASES AND CARE IN ICU** • Cardiac care in ICU: hypertension, hypotension, arrhythmias, cardiac arrest, BLS, ACLS • Respiratory care in ICU: airway care, Different modes of ventilation, tracheostomy care, endotracheal intubation, mechanical ventilation, care of ventilated patient, complications and weaning. • Renal failure: types, etiology, complications, corrective measures • Hepatic failure: types, etiology, complications, corrective measures. Head injury and Trauma Care: Glasgow coma scale, care of head injury patient, poly trauma patient • Blood and blood products transfusion: Transfusion reactions & complications, Massive transfusion	**20 HOURS**
IV	**ACID BASE DISORDERS, NEONATAL VENTILATION, IMAGING IN ICU** • Acid-base & electrolyte balance and their correction, fluid, electrolyte, nutrition balance and management. • Neonatal mechanical ventilation: intubation and problems inherent to the neonate, basic principles of neonatal ventilation, modes, initiation and maintenance. • Miscellaneous: X-rays, ultrasound, chest and limb physical therapy in ICU	**6 HOURS**
V	**EQUIPMENT MAINTENANCE** • Care & maintenance of ICU equipment & Troubleshooting (Includes quality checks and calibrations of all the equipment) • Mechanical Ventilators & Non-invasive ventilators • Pumps: Infusion, syringe • Monitors: Stand-alone & multi-parameter, Cardiac Output monitors. • ECG machine • ABG machine • Defibrillator • Ultrasound machine • Bronchoscope	**10 HOURS**

PRACTICALS – 64 HOURS

Clinical audit to be started in 2ndyear and completed by 3rd year

REFERENCE BOOKS

1. Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James K Stoller, Craig L Scalan(Mosby)
2. The ICU Book – Paul L Marino (Lippincott, Williams &Wilkins)
3. Practical Methods for Respiratory Care – Raymond Sibberson(Mosby)
4. Respiratory Physiology – The Essentials l John B West (Williams &Wilkins)
5. Ventilation / Blood Flow & Gas Exchange – John B West (Blackwell Scientific Publications)
6. Techniques in Bedside haemodynamic Monitoring – Elaine Kiess Daily &JohnspeerSchroeder(Mosby)
7. All you really need to know to interpret arterial blood gases – Lawrence Martin (Lea &Febiger)
8. Mechanical Ventilation – Susan P Pilbeam& J M Cairo(Elsevier)
9. Critical Care Secrets: Parsons, Wiener – Kronish, JaypeeBrothers
10. Washington Manual of CriticalCare

BLUE PRINT

S.NO	UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
I	INTRODUCTION , GENERAL CARE & MONITORING IN ICU	27	22	1	1	2 1*
II	INFECTION CONTROL AND NUTRITION IN ICU	15	12	1*	1 1*	2
III	SYSTEMIC DISEASES AND CARE IN ICU	28	22	1 1*	1	2 1*
IV	ACID BASE DISORDERS, NEONATAL VENTILATION, IMAGING IN ICU	15	12	-	1	2
V	EQUIPMENT MAINTENANCE	15	12	-	1	2

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100 marks.

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of 4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)

Very Short Answer Questions : 10 X3 = 30 marks (Choice 10 out of 12)

TOTAL = Theory 80 + IA 20 = 100 marks

BASICS OF INTENSIVE CARE UNIT

MODEL QUESTION PAPER

Duration: 3 hours **Total marks: 80**

A. LONG QUESTION ANSWER **(2 X 10 = 20)**

1. a) Define Shock?. Classification of shock. Explain briefly about the Hypo volaemic shock.(OR)

   b) Define capnograpy. Draw it graph. List down the medical uses of the capnograpy

2. a)Define DVT. Explain the well 's criteria. Explain briefly about the prevention of DVT

   (OR)

   b) Describe biomedical waste. List out the ten category. Mention the color code use in ICU for segregation of biomedical waste management

B. SHORT QUESTION ANSWER - Answer any 5 **(5 X 6 = 30)**

1. Describe the various position of the ICU patient
2. List down the equipment / articles need for transport of critically ill patient
3. What are the reversible causes of Cardio respiratory arrest
4. How to measure the intra abdominal pressure monitoring
5. List out the emergency drugs in commonly used in ICU
6. Mention any 5 contra- indications to non- invasiue ventilation
7. List down the equipment / articles need for transport of critically ill patient
8. Write down the criteria for extubation procedure

C. VERY SHORT ANSWER - Answer any 10 **(10 X 3= 30)**

1. Define pulse oxyimeter
2. List out the airway adjustments
3. Mention the high quality of CPR
4. List out the devices used for oxygen therapy
5. What mean by ISBAR
6. Write down the moments of Hand hygienic
7. What are the cardinal signs of Diabetic keto acidosis
8. Explain of FAST HUGGS ME
9. Three main prioritus management of Traumatic brain injury
10. What are the reversible causes of Cardio respiratory arrest
11. List out the devices used for oxygen therapy
12. How to control infection in ICU setup

PATHOLOGY & PATHOPHYSIOLOGY

CC -8- PATHOLOGY & PATHOPHYSIOLOGY

Duration of Theory Classes : **80 Hrs**

Duration of Practical Sessions : **32 Hrs**

Examination : **100 Marks (80 U + 20 IA)**

University Practical Examination : **NIL**

Duration of Theory Examination : **3 Hrs**

Year in which Subject Paper is taught : **II Year**

COURSE DESCRIPTION

The course is designed assist students to acquire the knowledge of the fundamentals of pathology and pathophysiology in disease states.

OBJECTIVES

At the end of the course, the student will be able to describe the basic pathology and pathophysiology of the important disease states of respiratory system, cardiovascular system, CNS, hematology, renal and GI system in ICU settings.

COURSE CONTENT

UNIT	TITLE	THEORY+TUORIALS (80 + 32)HOURS
I.	**Respiratory system** • Respiratory failure • Adult respiratory distress syndrome • Pneumonia, TB • Opportunistic infections • Bronchial asthma and COPD • Bronchiectasis and Lung abscess • Atelectasis, collapse • Pleural disease: Pneumothorax, pleural effusion • Occupational lung diseases - Smoke inhalation , Pneumoconiosis	15 + 4
II.	**Cardiovascular** • Shock: hypovolemic, cardiogenic, obstructive, septic • Hypertension in ICU • Congestive cardiac failure, acute Left ventricular failure, Right • ventricular failure • Pulmonary edema • Pulmonary Hypertension	15 + 6

	• Pulmonary embolism • Ischemic heart disease	
III.	**CNS** • Cerebrovascular disease (stroke) • Coma • Delirium in ICU • Neuromuscular disease • Myasthenia gravis • Critical illness polyneuropathy • Diaphragmatic paralysis • GuillianBarre syndrome • Brain death, Persistent vegetative state • Trauma,Head injury& Unstable spine and protection	18 + 8
IV.	**Haematology** • Anemia in ICU • Neutropenia • Bleeding disorders • Clotting disorders	10 + 4
V.	**GIT, Liver, Pancreas, Renal, Endocrine** • Upper GI bleed • Hepatic coma • Pancreatitis • Renal failure in ICU • Hypoglycemia • Hyperglycemia • Disorders Sodium, Potassium and Fluid balance. • Stress response role of Adrenals	12 + 4
VI.	**Miscellaneous** • Envenomation – snake bite, scorpion sting • Poisoning – general supportive care, common poisons	10 + 6

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

REFERENCE BOOKS

1. Smeltzer – Brunner &Suddharth Textbook of Medical Surgical Nursing, 2010,LWW
2. Black – Medical Surgical Nursing, 2009, Elsevier
3. Nettina – Lippincott manual of Nursing Practice, 2009. LWW
4. Lewis – medical Surgical Nursing, 2008, Elsevier
5. Davidson's Principles &Practice of Medicine, 2010, Elsevier
6. Bailey & Love Short Practice of Surgery, 2008, Hodder Arnold
7. Timby – Introductory Medical Surgical Nursing, 2009, WK
8. Das – textbook of Surgery, SD Publishers
9. Woods – Cardiac Nursing, 2010, LWW
10. Hickey – Neurologic & Neurosurgical Nursing, 2009, LWW
11. Morton – Critical Care Nursing, 2009, LWW
12. Thelan's Critical Care Nursing, 2008, Elsevier
13. Spring House – Medical Surgical Nursing Made Incredibly Easy, 2008, LWW
14. Webber – Health assessment in Nursing, 2010, WK

BLUE PRINT

S.NO	UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
I	Respiratory system	23.75	19	1	1	1+ 1*
II	Cardiovascular	15	12	1*	1	2
III	CNS	23.75	19	1	1	1+ 1*
IV	Haematology	15	12		1	2
V	GIT, Liver, Pancreas, Renal, Endocrine	15	12	1*	1	2
VI	Miscellaneous	7.5	6	-	1*	2

The duration of Examination (University) is Three (3) hours.
The total marks for the University Examination will be 100 marks.
Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of 4)
Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)
Very Short Answer Questions : 10 X3 = 30 marks (Choice 10 out of 12)
TOTAL = Theory 80 + IA 20 = 100 marks

II YEAR ELECTIVE COURSES

II YEAR ELECTIVE COURSE CONTENT
ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)
ENVIRONMENTAL STUDIES

NAME OF THE SUBJECT PAPER	**: ENVIRONMENTAL STUDIES**
DURATION OF THEORY CLASSES	**: 16 hrs**
DURATION OF PRACTICAL SESSIONS	**: 32 hrs**
EXAMINATION	**: 100 marks (80 U + 20 IA) NO**
UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ hrs YEAR**
IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

SYLLABUS

UNIT-I (Renewable and Non — renewable resources**)**

The multidisciplinary nature of environmental studies — Definition, scope and importance — Need for public awareness.

1 Forest resources: Use and over-exploitation, deforestation, case studies.Timber extraction, mining, dams and their effects on forests and tribalpeople.
2 Water resources: Use and over-utilization of surface and ground water,floods, drought, conflicts over water, dams-benefits and problems.
3 Mineral resources: Use and exploitation, environmental effects ofextracting and using mineral resources, case studies.
4 Food resources: World food problems, changes caused by agriculture andovergrazing, effects of modern agriculture, fertilizer-pesticide problems,water logging, salinity, case studies.
5 Energy resources: Growing energy needs, renewable and non-renewableenergy resources, use of alternate energy sources, case studies.
6 Land resources: Land as a resource, land degradation, man induced Landslides, soil erosion and desertification.Role of an individual in conservation of natural resources.Equitable use of resources for sustainable lifestyles.

UNIT-II (Ecosystems)

Concept of an ecosystem - Structure and function of an ecosystem Producers, consumers and decomposers — Energy flow in the ecosystem-Ecological succession- Food chains, food webs and ecological pyramids —Introduction, types, characteristic features, structure and function of the following ecosystem:

- Forest ecosystem
- Grassland ecosystem
- Desert ecosystem
- Aquatic ecosystems (Ponds, streams, lakes, rivers, ocean estuaries)

UNIT-III (Biodiversity and its conservation)

Introduction — Definition: genetics, species and ecosystem diversity

- Biogeographically classification of India
- Value of Biodiversity: Consumptive use, productive use, social, ethicalaesthetic and option values

- Biodiversity at global, national and local levels
- India as a mega- diversity nation
- Hot-spots of biodiversity-Threats to biodiversity: habitat loss, poachingof wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation ofbiodiversity

UNIT-IV (Environmental Pollution)

Definition- causes, effects and control measures of:

- Air pollution
- Water pollution
- Soil pollution
- Marine pollution
- Noise pollution
- Thermal pollution
- Nuclear pollution
- Solid waste Management: causes, effects and control measures of urbanand industrial wastes — role of an individual in prevention of pollution —Pollution case studies — Disaster management: floods, earthquake, cyclone and landslides.

UNIT-V

Social Issues and the Environment: From unsustainable to sustainable development — Urban problems and related to energy — Water conservation, rain water harvesting, watershed management —Resettlement and rehabilitation of people; its problems and concerns. Case studies - Environmental ethics: issues and possible solutions climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.

- Wasteland reclamation — Consumerism and waste products —Environmental Protection Act — Air (Prevention and Control of Pollution) Act — Water (Prevention and control of Pollution) Act — Wildlife Protection Act — Forest
  Conservation Act - Issues involved in enforcement environmental legislation — Public awareness
- Human Population and the Environment: Population growth, variation among nations — Population explosion — Family welfare Programmes —Environment and human health- Human Rights - Value Education- HIV/ AIDS - Women and Child Welfare- Role of Information Technology in Environment and Human Health — Case Studies.

FIELD WORK

1. Visit to local area to document environmental assets- river/ forest/ grassland / hill / mountain
2. Visit to a local polluted site - Urban / Rural / Industrial / Agricultural
3. Study of common plants, insects, birds
4. Study of simple ecosystems- pond, river, hill slopes, etc.

TEXT BOOKS RECOMMENDED

1. Agarwal, K.C. Environmental Science, Nidi Publishers.
2. BharuchaErach, The Biodiversity of India, Mapin Publication.
3. Brunner RC, Hazardous waste incineration, McGraw Hill Publishers.
4. Iaclhav H, Environmental Protection and Laws, Himalaya Publication.
5. Odum EP, fundamentals of Ecology, WB Sannders Publication.

TEACHING LEARNING ACTIVITIES

The course content in Environmental Studies will be covered by:

1. Interactive Lectures
2. Group Discussions
3. Field Visits

SKILL- BASED ELECTIVE COURSES – II YEAR
GOOD CLINICAL LABORATORY PRACTICE

NAME OF THE SUBJECT PAPER	**: Good Clinical Laboratory practice**
DURATION OF THEORY CLASSES	**: 16 Hrs**
DURATION OF PRACTICAL SESSIONS	**: 32 Hrs**
EXAMINATION	**: 50 Marks (40 U + 10 IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

Learning Objective

- To understand the relevance, importance and basic concepts of good laboratory practices
- To apply the knowledge to become familiar with the basic laboratory skills

UNIT I: INTRODUCTION

Introduction to Bioethics and Biosafety.Biosafety Guidelines and Regulations.Legal and Socio-economic Impacts of Biotechnology.Use of Genetically Modified Organisms and their Release in theEnvironment. Hazardous Materials used in Biotechnologytheir Handling andDisposal.

UNIT II: GOOD LABORATORY PRACTICE PRINCIPLE

Test Facility Organization and Personnel: Management responsibility, Study director‘s responsibility, safety measures and personal responsibility. Quality assurance program. Facilities: Test System Facilities, Facilities for Handling test and Reference Substances. Archive Facilities. Waste Disposal, Animal Care Facilities, Animal Supply Facilities.

UNIT III: STANDARDED OPERATING PROCEDURES

Definition, Initiation of SOP, Preparation of SOP, Administration, Distribution and Implementation. Maintenance of laboratory records.Formatting SOP, Reagent/materials certification, Certification of analysts,Certification of laboratory facilities, Documentation and maintenance of record.

UNIT IV: DATE REPORTING AND STORAGE

Performance of study, Study plan, Conduct of study, Reporting of results. Archival storage of records and reports.

Learning Outcome

- To understand the implications of good laboratory practices

SKILL- BASED ELECTIVE COURSES – II YEAR
COMPUTER APPLICATIONS

NAME OF THE SUBJECT PAPER : COMPUTER APPLICATIONS

DURATION OF THEORY CLASSES : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32 Hrs

EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : II YEAR

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

UNIT - I - Introduction to Computers

- Concepts of Computers
- Hardware and software trends and technology
- Classification of computers
- Application of computers in Laboratories

UNIT - II - Operating System

- Introduction
- Types of operating systems
- Windows

UNIT - III -Multimedia

- Types and uses
- Computer aided teaching and testing

UNIT — IV -Internet

- Introduction to Internet
- Use of Internet and e- mail
- Statistical packages

LIST OF PRACTICAL EXERCISES

1. Computer operating systems like MS~DOS and WINDOWS
2. Study of software packages like Chem Draw, Tinker and Microsoft package. Unit - Typing text in MS word- manipulating text- formatting the text – using different font sizes, bold, italics, Bullets and numbering – pictures, file insertion – aligning the text and justify – choosing paper size – adjusting margins- header and footer, inserting page numbers in a document – printing a file with options – using spell check and grammar – find and replace mail merge – inserting tables in a document.

Creating table in MS - Excel – cell editing – using formulas and functions – manipulating data with excel – using sort function to sort numbers and alphabets – drawing graphs and charts using data in excel – auto formatting – inserting data from other worksheets Preparing new slides using MS- POWER POINT – inserting slides – slide transition and animation – using templates – different text and font sizes – slides with sounds – inserting clip arts, pictures, tables and graphs – presentation using wizards.

Internet- using search engine – Google search – Exploring the text Explorer and Navigator – uploading and downloading of files and images E mail ID creation – sending messages – attaching files in E- mail

TEACHING LEARNING ACTIVITIES

The course content in Computer Applications will be covered by:

1. Interactive Lectures
2. Lab

SKILL- BASED ELECTIVE COURSES – II YEAR
Library and E-resource

NAME OF THE SUBJECT PAPER : Library and E-resource

DURATION OF THEORY CLASSES : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32 Hrs

EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : II YEAR

THEORY & PRACTICALS (DURATION 16 + 32 HOURS)

Course Objectives

- To enable the students to understand at different levels of information systems in the society
- and their functions.
- To enable the students apply their knowledge in various library practice.
- To enable the students to understand the basic concepts of the Health Sciences.

UNIT: 1

Evolution, growth and development of LIS in India-current trends.
Type of libraries: Academic, Public and special Libraries (Health Science Libraries).

UNIT: 2

Library concepts & Legislation: Five laws of Library science, Professional ethics of librarian, Delivery of books and newspaper act/Intellectual Property/Plagiarism.

UNIT: 3

Library Association and International Bodies: Library Association –ILA, IASCIC, ALA, IFLA and UNESCO, SALIS, MLAI (Medical Library Association of India).

UNIT: 4

Library Rules & Regulation, Stock Verification, Annual Reports, Budgets, Library buildings, furniture, equipment's.

SKILL- BASED ELECTIVE COURSES – II YEAR
PUBLIC HEALTH AND HYGIENE

NAME OF THE SUBJECT PAPER : Public Health and Hygiene

DURATION OF THEORY CLASSES : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32 Hrs

EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : II YEAR

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

Learning objectives

- To understand the concepts, significance and relevance of public health and hygiene
- To understand the health hazards as associated with public health and hygiene

I Introduction

Definition and Concept of Public Health, historical aspects, public health system in India and in the rest of world

II Aspects of health

Indicators of health, Determinants of Health, (Social, Economic, Cultural, Environmental, Education, Genetics, Food and Nutrition).Burden and prevention of disease. Environmental health- sanitation, air, water pollution, waste management. Mental health.

III Epidemology

Introduction, principles and concepts, study design, analysis methods, presentation and interpretation of epidemiological data

IV Hygiene concepts

Definition, importance, personal hygiene, medical hygiene, food hygiene, industrial hygiene.

Learning outcomes

- To understand public health and hygiene issues, their relevance and significance as can be practiced in real-life situations.

Text Books

1. Introduction to Public Health, Raymond L. Goldsteen, Karen Goldsteen, David G. Graham, 2011, Springer publishing company
2. Introduction To Community Health Nursing, KasturiSundarRao, 4th edition, Bi Publications Pvt Ltd
3. Concepts of Epidemiology, Raj S Bhopal, 2002, Oxford University press

Reference Books

1. A Treatise On Hygiene And Public Health, BirendraNathGhosh, 9th edition, Calcutta Scientific Publishing Co
2. An Introduction to Public Health, Caryl Thomas, 1949, John Wright and Sons Ltd.,

GENERIC ELECTIVE COURSES – II YEAR
BASIC PSYCHOLOGY

NAME OF THE SUBJECT PAPER : Basic Psychology

DURATION OF THEORY CLASSES : 64 Hrs

EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : II YEAR

THEORY (64 Hours)

LEARNING OBJECTIVES

After complete ting the course the student can able to

- To identify the emerging specialties
- To understand the behavior and mental processes
- How the theories and principles of psychology may be applied to individual, societal and global issue
- Explain the application of psychology in Allied Health Sciences

Unit I: Introduction

Introduction to applied Psychology, Scientific methods in Psychology, Application of Psychology: Psychology in Industry, community, family, education, health, self development, Human relations. Scope of psychology with special relevance to Allied Health Sciences.

Unit II: various cognitive processes and their application

Factors affecting learning, Importance of studying Psychology of learning in relation to Allied Health Sciences

Memory and forgetting, Kinds of remembering, the nature of forgetting, Improving memory, relevance to Allied Health Sciences

Intelligence, Normal distribution of intelligence levels, Intelligence Testing, Intelligence tests, Uses and abuses of intelligence tests, relevance of intelligence and aptitude for Allied Health Sciences

Unit-III: Life style, Health, Stress and Coping Behavior

Cultural evolution, Life style choices and consequences, Healthy and Unhealthy life styles.Nutrition, Physical fitness, Smoking and Drinking. Stress and Health, The biological basis of stress, Stress and Physical functioning, Coping with stress, Adjustment a lifelong process. Cognitive appraisal and Stress, Stressful life styles,

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Coping with everyday stress, Sources of stress, Coping styles and Strategies, Stress inoculation training.

Unit IV : Psychology of Vulnerable Individuals

Psychology of the challenged, types of disability, effects of disability, psychology of women, women and health, dealing with alcoholics and their families, post-traumatic stress disorder, psychology of the sick and ill, how patients react to chronic illness, effects of illness and hospitalization

REFERENCE BOOKS

1. Clifford T. Morgan, Richard a. King, John R. Weis and John Schopler, ―Introduction to Psychology‖ – 7th Edition. Tata McGraw Hill Book Co. New Delhi, 1993.
2. Ernest R. Hillgard, Richard C. Atkinson, Rita L. Atkinson, ―Introduction to Psychology‖ 6th Edition, Oxford IBH publishing Co. Pvt. Ltd., New Delhi,1975.
3. Baron.A. Robert, Psychology, Pearson Education Vth Ed.,2002
4. Psychology –the science of behavior –fifth edition1982-Neil Carson-William Bulkist-Allyn and Bacon.

GENERIC ELECTIVE COURSES – II YEAR SOCIOLOGY

NAME OF THE SUBJECT PAPER	**: SOCIOLOGY**
DURATION OF THEORY CLASSES	**: 64 Hrs**
EXAMINATION	**: 50 Marks (40 U + 10 IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY (64 Hours)

Unit 1: Sociology: Discipline and Perspective

- Thinking Sociologically
- Emergence of Sociology, Sociology as a science; Sociology and Common Sense
- Some Basic Concepts: Association; Aggregates: Community, Categories,Groups and its Forms; Status and Role; Norms and Values.
- Individual and Society; Socialization: Concept and Agencies; Culture –meaning and characteristics; Types of culture – popular, elitist, folk, and consumer cultures; Pluralism and Multiculturalism, Culture and Personality.

Unit 2: Sociology and Other Social Sciences

- Sociology and Social Anthropology
- Sociology & Psychology
- Sociology & History

Unit 3: Human Society

- Social Institutions and Social Processes
- Social control: meaning, agencies and mechanisms
- Conformity and Deviance.
- Social Change, definition, factors, Social Mobility Readings

1. Anthony Giddens : Sociology
2. G. Rocher: A General Introduction to Sociology
3. George Ritzer. Encyclopaedia of sociology
4. Harry M. Johnson Sociology

GENERIC ELECTIVE COURSES – II YEAR
ENTREPRENEURSHIP ESSENTIALS

NAME OF THE SUBJECT PAPER	**: Entrepreneurship essentials**
DURATION OF THEORY CLASSES	**: 64 Hrs**
EXAMINATION	**: 50 Marks (40 U + 10 IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ Hrs.**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY (64 Hours)

LEARNING OBJECTIVES

- To understand the fit between you and your entrepreneurial ambitions
- To find a problem worth solving
- To identify your customers
- To develop a solution for your customers' problems and problem solution
- To build and demonstrate an MVP
- To structure a business model around the problem, customer, and solution and present your Business Model Canvas

UNIT – I ORIENTATION

What is entrepreneurship – myths about entrepreneurship – impact of an entrepreneur and social entrepreneurship – wealth building and making an impact

IDEA/PROBLEM

What is a business opportunity and how to identify it - Methods for finding and understanding problems - (Observation, Questioning, DT, Jobs to be done (JTBD) - Introduction to Design Thinking - Process and Examples - Generate ideas that are potential solutions to the problem identified.

UNIT - II

CUSTOMER

The difference between a consumer and a customer (decision maker); Market Types, Segmentation and Targeting, Defining the personas; Understanding Early Adopters and Customer Adoption Patterns - Identify the innovators and early adopters for start-up - Basics of Lean Approach and Canvas; Types of Business Models (b2b; b2c)

UNIT – III

BUSINESS MODEL AND VALIDATION

Introduction to Risks; Identify and document your assumptions (Hypotheses); Identify the riskiest parts of Plan - Develop the Solution Demo - Sizing the Opportunity - Building an MVP (Minimum Viable Product)

UNIT – IV

MONEY AND TEAM

Revenue Streams: Basics of how companies make money - Understand income, costs, gross and net margins - Identify primary and secondary revenue streams - Pricing and Costs - Financing Your New Venture - Team Building: Role of a good team in a venture's success; What to look for in a team; How do you ensure there is a good fit? Defining clear roles and responsibilities

UNIT – V

MARKETING AND SALES

Positioning – channels and strategy – sales planning – Importance of project management to launch and track progress - Understanding time management, workflow, and delegation of tasks– Business regulation: Basics of business regulations of starting and operating a business - Importance of being compliant and keeping proper documentation

LEARNING OUTCOMES

- This course will give the students the foundational experience of the entire cycle of entrepreneurship, through a combination of theory and practice.
- Students will learn what it takes to be an entrepreneur, recognizing business opportunities and the basics to create launch and manage new businesses.
- The participating students will create a ‘campus venture’ or a "real" venture of their own to practice the concepts taught during the program. The course is built in a modular fashion such that colleges can tailor their offerings to cover either the entire offering (idea to an MVP) or limit to building a business model.

III YEAR

B.Sc – CRITICAL CARE TECHNOLOGY
FACULTY OF ALLIED HEALTH SCIENCES
SRI BALAJI VIDYAPEETH
(Deemed to be University)
Accredited by NAAC with 'A' Grade

III YEAR

CORE SUBJECTS

1. ICU Therapy
2. ICU Administration, Logistics, Ethics & Statistics

Discipline Elective Course (DEC) – Choose any TWO

1. Basic Radiation Biology
2. Palliative care
3. Trauma Evaluation & Management
4. Pharmacovigilance

AHS COURSE CONTENT THIRD YEAR B.SC. CRITICAL CARE TECHNOLOGY

Faculty code	Category	Course title	Hours					Credits				
AHS	Core theory CC	Subjects	Theory	Practical	Tutorials	Clinical training	Total hours	Lecture	Practical	Tutorials	Clinical training	Total credits
AHS	CC -9	ICU Therapy	80		32			5		1		6
AHS	CC -10	ICU Administration, Logistics, Ethics & Statistics	64	64				4	2			6
AHS	CC-CT 2	Clinical Training CC 9 to 10				720					20	20
AHS	DEC	Student's choice	64					4				4
AHS	DEC	Student's choice	64					4				4
			272	**64**	**32**	**720**	**1088**	**17**	**2**	**1**	**20**	**40**

SCHEME OF EXAMINATION

Papers	Subject	Theory		Practical		Theory	Practical	Grand total 600	Min marks to pass % (300)
		UE	IA	UE	IA	UIA*	UIA*		
CC -9	ICU Therapy	80	20					100	50
CC -10	ICU Administration, Logistics, Ethics & Statistics	80	20	80	20			200	100
CC-CT 2	Clinical Training CC 9 to 10						100	100	50
DEC	Discipline elective	80	20					100	50
DEC	Discipline elective	80	20					100	50

ICU THERAPY

PAPER CC-11- ICU THERAPY

DURATION OF THEORY CLASSES	**: 80 HRS**
DURATION OF PRACTICAL SESSIONS	**: 32 HRS**
EXAMINATION	**: 100 MARKS (80 U + 20 IA)**
UNIVERSITY PRACTICAL EXAMINATION	**: NIL**
DURATION OF THEORY EXAMINATION	**: 3 HRS**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to acquire knowledge about basics about critical care medicine. To ensure that the students understand the ICU equipment, procedures in clinical practice.

COURSE OBJECTIVES

- Learn & practice the principles intensive care procedures and monitoring in ICU.
- Learn the principles of equipment and drugs used in intensive care unit.
- Knowledge about the common post-operative problems and their management methods.

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

CCT-PO1: Performs the duty as a Critical care medicineTechnologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E- library.

CCT-PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

CCT-PO3: Understanding the structure and functions of different organs in normal human body.

CCT-PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.

CCT-PO5: To make students assist CCT during administration and monitoring of CCThesia including cardiopulmonary resuscitation.

CCT-PO6: To make students apply anatomy and physiology knowledge gained through this curriculum in their CCtechnology practice.

CCT-PO7: To make students aware of the ethical principles, infection control protocol followed in operating room complex.

CCT-PO8: To make students participate in ccm administration, organization and quality improvement.

CCT-PO9: To make students understand the pharmacological principles pertaining to the drugs used in CCThesia and critical care unit.

CCT-PO10: To build efficient technologist in handling monitors & Equipment's practice.

CCT-PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.

CCT-PO 12: To make students assist in ICU emergency procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.

CCT-PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies:

CCT ICU CO 1: Learn & practice basic life support and advanced cardiac life support.

CCT ICU CO 2: Learn& practice ICU administration, organization and quality improvement.

CCT ICU CO 3: Learn practice the pharmacological principles pertaining to the drugs used in critical care.

CCT ICU CO 4: Learn& practice ICU Equipment's and monitoring.

CCT ICU CO 5: Learn&practicelike emergency procedures including cardiopulmonary resuscitation.

COURSE CONTENT

UNIT	TITLE	THEORY +TUTORIALS (80 + 32)HOURS
I.	**Mechanical ventilation/ventilator dependence/difficult weaning** Basic Concepts - Mechanics of ventilation, Mechanics of exhalation Work of breathing, Distribution of ventilation, Efficiency and effectiveness of ventilation, Indications, Mechanical Ventilators, How ventilators work, Operator interface, Types of ventilators, Modes of Mechanical Ventilation, Basic and newer modes, Ventilator initiation, Initial ventilator settings, Adjusting ventilatory settings, Oxygenation, Ventilation Timing – Inspiratory of gas / Expiratory, inspiratory hold, Flow, **Tidal volume, Pressure**- Peak /Plateau, PEEP, POP – OFF,	

	Pressure support, Proximal airway (VS) distal, FiO2, Humidification & Humidifier types. **Advantages & disadvantages, Non-Invasive Ventilation** • Types of NIV (CPAP, BIPAP), Goals of & indications of NIV • Patient selection and exclusion criteria for NIV • Equipment used in the application of NIV • Instituting and managing NIV • Complications of NIV • Time & cost associated with NIV • Trouble shooting and alarms **Weaning and Extubation** Definitions- Reasons for ventilator dependence,Patient evaluation Preparing the patient, newer techniques for facilitating ventilator discontinuance Selecting an approach, Monitoring the patient during weaning, chronically ventilator dependent patients & difficulty in weaning, Terminal weaning, Extubation, Indications Procedure, Post extubation care,Nebulization and MDI • Suctioning and chest physiotherapy • Incentive Spirometry • Inspiratory resistance exercises • Care of Patient on Ventilator • Ensuring proper placement • Cuff pressure • Tracheo bronchial hygiene & suctioning • Humidification, chest physiotherapy • Ventilator settings • Monitoring ventilatory parameters • Care of the chest tube • Drainage systems of pleural with fluid • Extubation failure	
II.	**Airway Assistance** • Tracheal intubation (oral, nasal) • Cricothyrotomy • Open/percutaneous tracheostomy • Fiberoptic bronchoscopy • FOB Intubation • Therapeutic BAL • Decanulation of tracheostomy	
III.	**Cardiovascular system** • Fluid resuscitation and inotropes • Basic of IABP /ECMO Pericardiocentesis	
IV.	**Life support** • Basic life support	

	• AED, Mask ventilation, Chest compression • Advanced cardiac life support • Drugs, defibrillation **Trauma life support** A –Airway and cervical spine stabilization B – Breathing C –Circulation and hemorrhage control D –Disability E -Exposure Manual in line stabilization **Basic care of surgical wounds and fractures** • Burns Assessment • History and physical assessment • Assessment of burns and fluid and electrolyte loss • Etiology classification, Pathophysiology, clinical manifestations, Diagnosis, treatment modalities	
V.	**Renal / Abdomen** • Basics of Renal Replacement Therapy, modes of dialysis • Intra-abdominal pressure, abdominal compartment syndrome	
VI.	**Central Nervous system** • Care of Unconscious Patient, Comfort • Skin integrity assessment and care • Physiotherapy – chest & limbs • Nutritional needs & supply • Pain Control, Care of epidural, Patient controlled analgesia **Infection Control** • Hand hygiene • Universal precautions	

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Clinical postings
- Log book

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations

PRACTICAL

- Clinical rotations in selected Medical and Surgical areas
- Patient assignments for patient centered comprehensive care
- Case presentations,
- Drug study discussion

REFERENCE BOOKS

1. ICU protocols -springer Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James K Stoller,
2. The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)
3. Practical Methods for Respiratory Care – Raymond Sibberson (Mosby)
4. Respiratory Physiology – The Essentials l John B West (Williams & Wilkins)
5. Ventilation / Blood Flow & Gas Exchange – John B West (Blackwell Scientific Publications)
6. Techniques in Bedside haemodynamic Monitoring – Elaine Kiess Daily &Johnspeer Schroeder (Mosby)
7. All you really need to know to interpret arterial blood gases – Lawrence Martin (Lea &Febiger)
8. Text book of Advanced Cardiac Life Support. American Heart Association
9. Mechanical Ventilation – Susan P Pilbeam& J M Cairo (Elsevier)
10. Critical Care Secrets: Parsons, Wiener – Kronish, Jaypee Brothers

BLUE PRINT

S.NO	UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
1	Mechanical ventilation /ventilator dependence / difficult weaning	24	19	1 1*	1	1 1*
2	Airway resistance	16	13	1	-	1 1*
3	Cardiovascular system	15	12	-	1	2
4	Life support	15	12	1*	1	2
5	Renal/Abdomen	8	6	-	1*	2
6	Central nervous system	11	9	-	1	1
7	Infection control	11	9	-	1	1

PAPER CC- 9 – ICU THERAPY

MODEL QUESTION PAPER

DURATION:3 HRS **MAXIMUM:80 MARKS**

Illustrate your answers with suitable diagram wherever necessary

A. Long Answer Questions: **(2x10 =20)**

1. (a)Define Acute respiratory failure? list the causes and management of Type 2 respiratory failure.
(OR)
(b)List out the equipment and drugs for transferring the critically ill patient.
2. (a)What is mean by intra cranial pressure? Explain how to measure the intracranial Pressure (OR)
(b). describe sofa in detail. Explain the compound involved in sofa score

B. Short Answer Questions - (Any 5) **(5X6 =30)**

1. Mention the indication and contraindications of arterial cannulation.
2. Write about the diagnosis, treatment, consideration of
3. Adult BLS algorithm.
4. Write down the criteria for extubation procedure
5. Write about the complication of mechanical ventilator .
6. Write about the cause and management of respiratory alkalosis.

C. Very Short Answer Questions - (Any 10): **(10x3= 30)**

1. Mention the complications of arterial cannulation.
2. Write about Allen's test.
3. Mention the indications of parenteral nutrition.
4. Write about the diagnosis, treatment, anesthetic consideration of
5. Hypokalemia.
6. Mention the auscultatory areas of after intubation.
7. Define sinus bradycardia.
8. What is atrial flutter.
9. Name any 2 anti arrhythmic drugs.
10. Define defibrillation.
11. Define ARDS.
12. Indications of for ABG analysis.

ADMINISTRATION, LOGISTICS, ETHICS, COMMUNICATIONS, MANAGEMENT AND STATISTICS

CC-10-ICU ADMINISTRATION, LOGISTICS, ETHICS, COMMUNICATIONS, MANAGEMENT AND STATISTICS

DURATION OF THEORY CLASSES	**: 64 HRS**
DURATION OF PRACTICAL SESSIONS	**: 64 HRS**
THEORY EXAMINATION	**: 100 MARKS (80 U + 20 IA)**
UNIVERSITY PRACTICAL EXAMINATION	**: 100 MARKS**
DURATION OF THEORY EXAMINATION	**: 3 HRS**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: III YEAR**

COURSE DESCRIPTION

The course is designed to acquire knowledge about basics about critical care medicine. To ensure that the students understand the ICU administration, logistic ethis, communication in clinical practice

COURSE OBJECTIVES

- Learn & practice the principles intensive care unit.
- Learn the principles of logistics,ethics usedin intensive care unit.
- Knowledge about the communications and management and statistics.

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

CCMT-PO1: Performs the duty as a critical care Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E- library.

CCMT-PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

CCMT-PO3: Understanding the structure and functions of different organs in normal human body and acquire knowledge of the fundamentals of pathology & pathophysiology in disease states.

CCMT-PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.

CCMT-PO5: To make students participate in palliative care and also aware of basic radiology principles.

CCMT-PO6: To make students apply basic science knowledge gained through this curriculum in their critical care technology practice.

CCMT-PO7: To make students assist in ICU emergency procedures including cardiopulmonary resuscitation and also in participation of trauma evaluation & management.

CCMT-PO8: To make students aware of the ethical principles pertinent to critically ill patients.

CCMT-PO9: To make students participate in ICU administration, organization and quality improvement.

CCMT-PO10: To make students understand the pharmacological principles and pharmacovigilance pertaining to the drugs used in critical care.

CCMT-PO11: To build efficient technologist in handling ICU Equipment's and practice.

CCMT-PO12: To identify various life style disorders and with due counselling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies:

CCMT ICU ADM CO 1: Learn & practice ICU administration, organization and quality improvement.

CCMT ICU ADM CO 2: Learn & practice CSSD procedures.

CCMT ICU ADM CO 3: Learn & practice the ethical principles pertinent to critically ill patients.

CCMT ICU ADM CO 4: Learn & practice the basic principles of communication and counseling of ICU patients.

CCMT ICU ADM CO 5: Learn & practice the basics of statistics, principles of ICU management.

CCMT ICU ADM CO 6: Learn & practice patient transport and fire safety management in ICU

COURSE CONTENT

UNIT	TITLE	THEORY 64 HOURS
I.	**Basic administration** • Economic issues in ICU • Raisingpurchaseordersforequipment • Maintaining consumablestock • Equipment repair	
II.	**CSSD Procedures** Waste disposal collection of used items from user	

	area, reception protective clothing and disinfection safe guards. Disinfection in ICU – • Surfaces • Reusableequipmentandaccessories: Wrapping & packing General principles of sterilization Moist heat sterilization Dry heat sterilization Chemical sterilization • EO gas sterilization • H2O2 gas plasma vapour sterilization	
III.	**Medical ethics** Medical ethics –Definition – Goal – Scope Code of conduct • Introduction • Basicprinciplesofmedicalethics • Confidentiality • Autonomy and Informed consent – Right of patients Care of the terminally ill – Euthanasia, withdrawal, withholding support **Organ transplantation** • Medico legal aspects of medical records • Medico-legal case and type – Records and document related to MLC • Ownership of medical records – • Confidentiality Privilege communication – Release of medical information – • Unauthorized disclosure – retention of medical records – other various aspects.	
IV.	**Basics of statistics** Basic concepts in measurement •Scalesofmeasurements •validity,reliability,variation, measurement system, conversion. Basic descriptive statistics • Central tendency, mean, mode, median. • Dispersion range,variance,standard deviation • Concept of normal and abnormal	
V.	**Patient safety and transport**	

	• Electrical safety • Fire safety • Intra-hospital Patient transport ,Inter-hospital Patient transport	
VI.	**Principles of management** • Basic principles of Management – functions, types, importance, motivation etc. • Personnel management – staffing, orientation, disciplining, complaints etc • Financial management – short and long term	

PRACTICAL- 64 hours

- Clinical rotations in selected Medical and Surgical areas
- Patient assignments for patient centered comprehensive care
- Case presentations,
- Drug study discussion

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Clinical postings
- Log book

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations

REFERENCE BOOKS

1. ICU protocols -springer

Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James K Stoller,

2. The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)

3. Text book of Advanced Cardiac Life Support. American Heart Association

4. Mechanical Ventilation – Susan P Pilbeam& J M Cairo (Elsevier)

BLUE PRINT

S.NO	UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
I	Basic administration	8	6	-	-	2
II	CSSD procedures	35	28	1 1*	2	2 1*
III	Medical ethics	15	12	1*	1 1*	2 1*
IV	Basics of statistics	11	9	-	1	1
V	Patient safety &transport	11	9	-	1	2
VI	Principles of management	6	13	1	-	1

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100 marks.

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of 4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)

Very Short Answer Questions: 10 X3 = 30 marks (Choice 10 out of 12)

TOTAL = Theory 80 + IA 20 = 100 marks

PAPER CC – 10 - ICU ADMINISTRATION, LOGISTICS, ETHICS, COMMUNICATIONS, MANAGEMENT AND STATISTICS

MODEL QUESTION PAPER

DURATION:3 HRS **MAXIMUM:80 MARKS**

Illustrate your answers with suitable diagram wherever necessary

I. Write any two of the following: **(2X10=20)**

1. (a) Basic principles of Management – functions, types, importance, motivation

(OR)

(b) How to Raising purchase orders for equipment in icu

2. (a)What is mean by sterilization .list out the type of sterilization. Explain briefly a Moist heat sterilization (OR)

(b).Describe the communication. Explain the communication tools used in ICU.

II. Write short note on any FIVE of the following: **(5X6=30)**

1. Mention the advantage and disadvantages of disinfectent
2. Write about the fire safety protocol.
3. Define Confidentiality
4. Write down the criteria for end of life care
5. Write about the Medico legal aspects of medical records
6. Write down the patients right

III. Write very short notes ten of the following: **(10X3=30)**

1. Mention the communication process
2. What is mean by CSSD recall procedure
3. What is mean by Confidentiality Privilege communication
4. Mention the protocol for medico legal case.
5. Define Central tendency.
6. What is surfacre cleaning?
7. Write about the Basic principles of medical ethics.
8. What is mean by Informed consent
9. List down the Reusable equipments in ICU
10. What is meant EO gas sterilization
11. Explain the spikes model communication
12. How to Maintaining consumable stock