

**PONDICHERRY UNIVERSITY**

**Puducherry**



## **Regulations and Syllabus**

**Bachelor of Science in  
Accident and Emergency Care Technology  
(B.Sc. AECT)**

**2024-2025**

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**PONDICHERRY UNIVERSITY**  
**Puducherry**  
**REGULATIONS OF THE UNIVERSITY**

## **I. SHORT TITLE AND COMMENCEMENT**

These regulations shall be called “**THE REGULATIONS FOR THE BACHELOR OF SCIENCE IN ACCIDENT AND EMERGENCY CARE OF PONDICHERRY UNIVERSITY, Puducherry**”.

They shall come into force from the academic year 2024-25 Session.

The regulation and syllabi are subject to modifications by the standing Under Graduate Board of Studies for Accident and Emergency Care Technology courses from time to time.

## **II. COURSE PHILOSOPHY**

Accident and Emergency Care Technology (AECT) is a specialized branch of medical science focused on the urgent and immediate treatment of patients experiencing acute illnesses or injuries. The field encompasses the principles and practices necessary to provide rapid, effective care in emergency situations. This course covers the study of emergency medical systems, patient assessment, emergency procedures, trauma care, and life-saving techniques, with a strong emphasis on clinical skills, quick decision-making, and patient care.

### **Aim and Objectives**

#### **Aim:**

The B.Sc. in Accident and Emergency Care Technology (A&ECT) is an undergraduate program that focuses on training students in emergency medical care and technology. The course typically covers topics such as emergency procedures, trauma management, patient assessment, medical equipment operation, and disaster management.

#### **Objectives:**

The objectives of B.Sc. Accident and Emergency Care Technology (A&ECT) Program are to:

- Equip students with in-depth knowledge and practical skills in emergency medicine, including advanced life support techniques and trauma care.
- Provide hands-on training with modern medical technologies used in emergency settings, fostering critical thinking and decision-making abilities.
- Prepare graduates as competent Accident and Emergency Care Technologist, Paramedics, and Emergency Room Technician, capable of handling diverse emergency situations effectively.

## **III. Program Outcome:**

- Upon the completion of the course:
- **Clinical Proficiency:** Graduates demonstrate advanced clinical skills in emergency medical procedures, patient assessment, and trauma care, ensuring effective and efficient delivery of emergency healthcare.
- **Technological Competence:** They exhibit expertise in operating and maintaining modern medical equipment and technologies, enhancing diagnostic accuracy and treatment efficacy in emergency situations.

- **Effective Communication:** Graduates communicate clearly and empathetically with patients, families, and healthcare teams, fostering trust, understanding, and collaboration in high-stress environments.
- **Critical Thinking and Decision-making:** They analyze complex situations, prioritize patient needs, and make informed decisions swiftly, optimizing outcomes and safety in emergency care settings.
- **Ethical Practice and Professionalism:** Graduates uphold ethical standards, confidentiality, and patient rights, demonstrating professionalism, integrity, and cultural sensitivity in their interactions and decision-making processes.

## IV. REGULATIONS

### 1. ELIGIBILITY FOR ADMISSION:

The admission for B.Sc in AECT is based on the CENTAC process. The reservation and other process are as per the Government norms. Candidates should have completed a minimum of 17 years of age as on 31st December of the year of admission. The upper age limit is 25 years. (Relaxation up to 5 years for SC/ST candidate and up to 3 years for MBC/OBC candidates.)

Candidates should have a pass in the Higher Secondary Examination conducted by the Board of Higher Secondary Examination of Tamil Nadu, or any other equivalent examination accepted by the University, thereto with a minimum of 50% marks (40% marks for SC, ST, MBC and OBC candidates) in aggregate of Science subjects (Physics, Chemistry, Biology/Botany & Zoology) and should have English as one of the subjects.

Candidate shall be medically fit to undergo the Accident and Emergency Care Technology program.

**For Lateral entry:** Diploma in Accident and Emergency Care Technology courses approved by the Government after completing 12th Class / 10 +2 of CBSE or equivalent with minimum aggregate of 50% marks (40% marks for SC, ST, MBC and OBC candidates) in Physics, Chemistry and Biology provided the candidate has passed in each subject separately. The age limit is 35 years. The Government service candidates will be exempted, if approved by the committee or the Government.

**Provision for lateral entry:** lateral entry to second year for B.Sc Accident and Emergency Care Technology program for candidates who have passed Diploma program in Accident and Emergency Care Technology from the Government Boards and recognized by State / Central University, full filling the conditions specified and these students are eligible to take admission on lateral entry system only if the same subject have been studies at 10+2 scheme and diploma level. The admission process is as per the Government rule and regulations from time to time. Students to be admitted under lateral entry shall be 10% over and above the sanctioned intake.

The lateral entry candidates have the direct entry into the second year (i.e from III semester) are exempted from the first year (Semester – I and Semester – II) curriculum. For the grant of the University degree the lateral entry candidates have to complete the semester – III to Semester – VI, and the internship compulsory and mandatory.

## **2. DURATION OF THE COURSE AND COURSE OF STUDY:**

The duration of the program shall be **Three years / Lateral entry two years** of full-time study and **One year of compulsory rotatory internship.**

## **3. MEDIUM OF INSTRUCTION:**

English shall be the medium of instruction for all the subjects of study and for examinations of the Course.

## **4. PROGRAM DETAIL:**

The program structure is shown in Table I.

***The detailed syllabus in respect of the program is appended to this regulation.***

## **5. ATTENDANCE:**

Examination will be conducted in both theory and practical, as prescribed.

Candidate will be permitted to appear for the University Examination in the subject only if they secure not less than 80% attendance (irrespective of the kind of absence) in each subject of that semester.

Condonation of shortage of attendance in aggregate upto 10% in each semester may be granted by the College Academic Committee and as per regulations of University. For Students internship offered during VII and VIII semesters, 100% attendance is compulsory. However, the students may be condoned upto 15%, under extraordinary situation, by the Dean/Principal based on the genuineness of the case upon the recommendation of the concern program teaching and Head of the Department.

The students failing to attend classes/examinations on non-official ground will be treated as absent. Student deputed for Sports, Cultural Meets, etc with prior permission of Dean/Principal of the College shall be given attendance for the period of absent.

## **6. INTERNAL ASSESSMENT:**

Internal assessment will be done in each subject of study and the marks will be awarded to the candidates as detailed in the scheme of examinations.

The marks awarded will be on the basis of the candidate's performance in assessment, class tests, clinical/laboratory work, preparation and seminar presentation assessed by the concerned faculty.

The marks secured by the candidate during each semester in each subject shall be forwarded to the University at the end of the semester, i.e., before the commencement of the written examination.

## **7. EXAMINATIONS:**

The University Examinations will be conducted in semester pattern for all the three years, each year consisting of two semesters.

The particulars of subjects for various examinations and distribution of marks are shown separately.

The examination for the main subjects will be conducted by the University and for the non-examination subjects by the college.

The maximum number of candidates for practical examination should not exceed 20 per day.

One internal and one external examiner should jointly conduct practical examination for each student.

An examiner should not be below the rank of an Assistant Professor or Tutor/Demonstrator.

## 8. PASSING MINIMUM

Candidate has to pass separately in theory + Viva voce and Practical by getting a minimum of 50% marks in combined internal assessment and University examination. A candidate should secure 50% of the marks in theory and 50% in practical (wherever prescribed)

If a candidate fails in either theory or practical, he/she has to re-appear for both theory and practical.

A candidate should secure 50% of total marks in the test conducted by the college for the non-examination subject.

## 9. PROCEDURE FOR PASSING THE PROGRAMME

The maximum period to complete the program successfully **should not exceed a period of eight years.**

## 10. INTERNSHIP

There shall be a compulsory full-time rotatory internship after the candidate having passed all the subjects prescribed in the scheme of examination.

The internship should be done for a period of one year, in an Institution/ Hospital approved.

No candidate shall be eligible for the award of the degree without successfully completing one-year internship.

**Desirable:** A Research study to be done and submit the report before the one year of Internship. One or more value added courses (like Swayam) during final year or Internship.

## 11. ELIGIBILITY FOR AWARD OF DEGREE:

The candidates shall be eligible for the ***Degree of Bachelor of Accident and Emergency Care Technology and / lateral entry*** when they have undergone the prescribed program of study for a ***period of three years / two years (for lateral entry)*** in an institution approved by the University and have ***passed the prescribed examinations in all subjects*** and ***have completed a compulsory internship over a period of one year*** in an approved institution.

## 12. DECLARATION OF CLASS:

A successful candidate obtaining **75% and more marks** in the grand total aggregate in the **First attempt** shall be declared to have passed these subjects with **Distinction**.

A successful candidate obtaining **60% and more but less than 74.9% marks** in the grand total aggregate in the **First attempt** shall be declared to have passed with **First Class**.

A successful candidate obtaining **50% and more but less than 59.9% marks** in the grand total aggregate in the **First attempt** and the candidate who passed with more than one attempt irrespective of the percentage of marks secured shall be declared to have passed these subjects with **Second Class**.

Ranks shall be declared on the basis of the aggregate marks obtained by a candidate in the University examination subjects of the program.

Only those candidates **who have passed all the subjects in all examinations in the First attempt shall be eligible for the Award of rank**.

## V Program Structure–ACCIDENT AND EMERGENCY CARE TECHNOLOGY

**TABLE - 1**

Year	Sem	Code	Subject Title	Hours			
				Theory	Practical	Clinical	Total
I Year	I Sem	BAECT–001	Anatomy	60	30	-	90
		BAECT–002	Physiology	60	30	-	90
		BAECT–003	Biochemistry	60	30		90
		BAECT–C01	Communication and Soft skill	60	-	-	60
			Library/Co-curricular	30			30
			Clinical Hours			140	140
			<b>Total Hours</b>	<b>270</b>	<b>90</b>	<b>140</b>	<b>500</b>
	II Sem	BAECT–004	Applied Pathology	60	30	-	90
		BAECT–005	Applied Microbiology	60	30	-	90
		BAECT–006	Applied Pharmacology	60	30	-	90
		BAECT–C02	Computer Application	30	30	-	60
			Library/Co-curricular	30			30
			Clinical Hours			240	240
			<b>Total</b>	<b>240</b>	<b>120</b>	<b>240</b>	<b>600</b>
	<b>I Year Over all Total</b>			<b>510</b>	<b>210</b>	<b>380</b>	<b>1100</b>
II Year	III Sem						
		BAECT –007	Introduction to Emergency Medicine	60		210	270
		BAECT–008	Trauma care & First aid related to life threatening emergencies	60	-	210	270
		BAECT–C03	Toxicological and Environmental Emergencies	30	-	-	30
			Library/Co-curricular	30			30
			<b>Total Hours</b>	<b>180</b>		<b>420</b>	<b>600</b>
	IV Sem	BAECT–009	Medical Emergencies I	60	-	210	270
		BAECT–010	Medical Emergencies II	60	-	210	270
		BAECT–C04	Disaster Management and Industrial Emergencies	30	-	-	30
			Library/Co-curricular	30			30
			<b>Total Hours</b>	<b>180</b>		<b>420</b>	<b>600</b>
			<b>II Year Over all Total</b>	<b>360</b>	<b>0</b>	<b>840</b>	<b>1200</b>
III Year	V Sem	BAECT–011	Orthopedic Emergencies, burns & surgical emergencies	60	-	210	270
		BAECT-012	Obstetrics ,Gynaecological& Pediatric Emergencies	60	-	210	270
		BAECT–C05	Biostatistics & Research Methodology	30	-	-	30
			Library/Co-curricular	30			30
			<b>Total</b>	<b>180</b>	<b>0</b>	<b>420</b>	<b>600</b>
	VI Sem	BAECT–013	Neurological & Urological Emergencies	60	-	210	270
		BAECT -014	Emergency Surgery& procedures.	60	-	210	270
		BAECT–C06	Medical Law & Ethics & Practice Management	30	-	-	30
			Library/Co-curricular	30			30
			<b>Total</b>	<b>180</b>	<b>0</b>	<b>420</b>	<b>600</b>
			<b>III Year Over all Total</b>	<b>360</b>	<b>0</b>	<b>840</b>	<b>1200</b>
VI Year	Internship						1 Year

**Note: BAECT C01 to BAECT C06 - Subsidiary Subjects**



**SCHEME OF INTERNSHIP PROGRAM (1 YEAR)**

<b>S.No</b>	<b>Clinical Posting Area</b>	<b>Duration (Months)</b>
1	Trauma care & First aid emergencies	2
2	Medical Emergencies	2
3	Orthopedic Emergencies, burns & surgical emergencies	2
4	Obstetrics ,Gynaecological& Pediatric Emergencies	2
5	Neurological & Urological Emergencies	2
6	Emergency Surgery& procedures.	2
<b>Total</b>		<b>12</b>

## VI Scheme of Examination with mark details

TABLE - II

Sem	Code	Subject	University marks		Internal Marks		Viva		Total		Total Theory+Practical	
			Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
		Theory & Practical										
I Sem	BAECT-001	Anatomy -Theory	80	32	25	-	20	10	125	63	200	100
		Anatomy - <b>Practical</b>	50	25	25	-			75	37		
	BAECT-002	Physiology - Theory	80	32	25	-	20	10	125	63	200	100
		Physiology - <b>Practical</b>	50	25	25	-			75	37		
	BAECT-003	Biochemistry-Theory	75	30	25	-			100	50	100	50
	BAECT-C01	Communication and Soft skills	-	-	50	25	-	-	50	25	50	25
II Sem	BAECT-004	Applied Pathology -Theory	80	32	25	-	20	10	125	63	200	100
		Applied Pathology - <b>Practical</b>	50	25	25	-			75	37		
	BAECT-005	Applied Microbiology - Theory	80	32	25	-	20	10	125	63	200	100
		Applied Microbiology - <b>Practical</b>	50	25	25	-			75	37		
	BAECT-006	Applied Pharmacology - Theory	75	30	25	-			100	50	100	50
	BAECT-C02	Computer application	-	-	50	25	-	-	50	25	50	25
III sem	BAECT-007	Introduction to Emergency Medicine	75	30	25	-			100	50	100	50
	BAECT-008	Trauma care & First aid related to life threatening emergencies	80	32	25	-	20	10	125	63	200	100
		Trauma care & First aid related to life threatening emergencies- <b>Practical</b>	50	25	25	-			75	37		
	BAECT-C03	Toxicological and Environmental Emergencies	-	-	50	25	-	-	50	25	50	25
IV sem	BAECT-009	Medical Emergencies I	75	30	25	-			100	50	100	50
	BAECT-010	Medical Emergencies II	80	32	25	-	20	10	125	63	200	100
		Medical Emergencies - <b>Practical</b>	50	25	25	-			75	37		
	BAECT-C04	Disaster Management and Industrial Emergencies	-	-	50	25	-	-	50	25	50	25
V sem	BAECT-011	Orthopedic Emergencies, burns & surgical emergencies	80	32	25	-	20	10	125	63	200	100
		Orthopedic Emergencies, burns & surgical emergencies- <b>Practical</b>	50	25	25	-			75	37		
	BAECT-012	Obstetrics ,Gynaecological& Pediatric Emergencies	80	32	25	-	20	10	125	63		

		Obstetrics ,Gynaecological& Pediatric Emergencies - <b>Practical</b>	50	25	25	-			75	37	200	100
	BAECT–C05	Biostatistics & Research Methodology	-	-	50	25	-	-	50	25	50	25
<b>VI sem</b>	BAECT–013	Neurological & Urological Emergencies	80	32	25	-	20	10	125	63	200	100
		Neurological & Urological Emergencies- <b>Practical</b>	50	25	25	-			75	37		
	BAECT -014	Emergency Surgery& procedures.	80	32	25	-	20	10	125	63	200	100
		Emergency Surgery& procedures - <b>Practical</b>	50	25	25	-			75	37		
	BAECT–C06	Medical Law & Ethics & Practice Management	-	-	50	25	-	-	50	25	50	25

## VII. COURSE DESCRIPTION

### 1. ANATOMY

**Course Code: BAECT-001**

**Placement:** 1<sup>st</sup> Year (1<sup>st</sup> Semester)

**Time:** Theory: 60 Hours

Practical: 30 Hours

**Course Description:** The course is designed to assist students to acquire comprehensive knowledge of the normal structure of human body, to facilitate understanding of anatomical basic health, identify alteration in structure with emphasis on clinical application to practice.

#### UNIT- I (15 Hrs)

##### Introduction to Anatomy and Organization of the Human Body

- Introduction to Anatomical terms relative to position - anterior, ventral, posterior dorsal, superior, inferior, median, lateral, proximal distal superficial, deep, prone, supine, palmar and plantar
- Anatomical planes (axial/ transverse /horizontal, sagittal /vertical plane and coronal/ frontal/ oblique plane)
- Movement (flexion, extension, abduction, adduction, medial, rotation lateral rotation, inversion, eversion, supination, pronation, plantar flexion, dorsi flexion and circumduction)
- Cell structure, cell division
- Tissues – Definition, types, characteristic, classification, location
- Membranes and glands -classification and structures
- Identify major surface and body landmarks in each body region organization of human body
- Hyaline, fibro cartilages elastic cartilages
- Features of skeletal, smooth and Cardiac muscles

#### UNIT-II (5Hrs)

##### The Respiratory System

- Structures of organ of Respiration
- Muscles of Respiratory System

#### UNIT-III (5Hrs)

##### The Digestive System

- Structures of alimentary canal and organs of digestion

#### UNIT-IV (5 Hrs)

##### The Circulatory and Lymphatic system

- Structures of blood components, arterial and venous system
- Position of heart related to Associated structures
- Chambers of heart, layers of heart
- Nerve supply to and blood supply to heart
- Veins used for IV injections
- Lymphatic tissues

## **UNIT-V (3 Hrs)**

### **The Endocrine System**

- Structures of hypothalamus, Pineal gland, Pituitary gland, Thyroid Parathyroid, Thymus, Pancreas and Adrenal gland.

## **UNIT-VI (3 Hrs)**

### **The Sensory organ**

- Structures of skin, eyes, ears, nose and tongue.

## **UNIT – VII (10 Hrs)**

### **The Musculo Skeletal System**

#### **Muscular Systems**

- Types and structures of muscles
- Muscle groups - Muscles of head, neck, thorax, abdominal, pelvis upper and lower Limb
- Principles of Muscles – deltoid, biceps, triceps, respiratory, abdominal, pelvic floor muscles gluteal muscle and vastus laterals
- Major muscles involved in procedure

#### **Skeletal System**

- Anatomical position
- Bones - type, structures, growth and ossification
- Axial and appendicular skeleton
- Joints – Classification, major joints and structures

## **UNIT-VIII (5 Hrs)**

### **The Nervous Systems**

- Review and structures of neurons
- Central Nervous system, Autonomic Nervous system, and Peripheral Nervous system
- Structures of brain, spinal cord, cranial nerve, spinal nerves, functional areas of cerebral cortex
- Ventricles of the brain- formation, circulation and drainage

## **UNIT-IX (4Hrs)**

### **The Renal System**

- Structures of Kidney, Ureters, bladder, urethra

## **UNIT-X (5Hrs)**

### **The Reproductive System**

- Structures of Male Reproductive Organs
- Structures of Female Reproductive Organs
- Structures of Breast

### **PRACTICAL'S:**

- 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, parathyroid and Suprarenal glands
- Histology of peripheral nerve and optic nerve.
- Demo of all parts of brain.

**Reference Books:**

1. Inderbir Singh, Textbook of Anatomy, Jaypee, 7th Edi, Vol I to III, 2019
2. Chaurasia, Human Anatomy, CBS Publisher, 5th Edi, Vol 1 to 3, 2010.
3. Ross and Wilson Anatomy and Physiology in Health and illness, Elsever, 13th Edi, 2018.

**Examination Pattern****Subject****Duration**

Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	
	-----	
	200 marks	
	-----	

**The practical examination will have the following components:**

Identification of Gross Spotters	30 marks
Identification of Histological slides	20 marks
	-----
	50 marks
	-----

**Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

**Pattern of Question Paper:**

- Long answer question - 2 X 10 = 20 marks
- Short answer question - 8 X 5 = 40 marks
- Very Short answer - 10 X 2 = 20 marks

## 2. PHYSIOLOGY

**Course Code: BAECT-002**

**Placement:** I<sup>st</sup> Year (I<sup>st</sup> Semester)

**Time:** Theory: 60 Hours

**Practical:** 30 Hours (Lab)

**Course Description:** The course is designed to assist students to acquire comprehensive knowledge of the normal functions of the organ systems of the human body to facilitate understanding of physiological basis of health, identify alteration in functions and provide the student with necessary physiological knowledge to practice.

### COURSE OUTLINE

#### UNIT - I (4 Hrs)

##### General Physiology – Basic concepts

- Cell physiology including transportation across cell membrane
- Body fluid compartments, Distribution of total body fluid, intracellular and extracellular compartments, major electrolytes and maintenance of homeostasis
- Cell cycle
- Tissue – formation, repair
- Membranes and glands – functions

#### UNIT - II (6 Hrs)

##### Respiratory system

- Functions of respiratory organs
- Physiology of respiration
- Pulmonary circulation – functional features
- Pulmonary ventilation, exchange of gases
- Carriage of oxygen and carbon-dioxide
- Exchange of gases in tissue
- Regulation of respiration
- Hypoxia, cyanosis, dyspnea, periodic breathing
- Respiratory changes during exercise

#### UNIT III (8 Hrs)

##### Digestive system

- Functions of the organs of digestive tract
- Saliva – composition, regulation of secretion and functions of saliva
- Composition and functions of gastric juice, mechanism and regulation of gastric secretion
- Composition of pancreatic juice, functions, regulation of pancreatic secretion
- Functions of liver, gall bladder and pancreas
- Composition of bile and functions
- Secretion and functions of small and large intestine
- Movements of alimentary tract
- Digestion in mouth, stomach, small intestine, large intestine, absorption of food



#### **UNIT- IV (6 Hrs)**

##### **Circulatory and Lymphatic system**

- Functions of heart, conduction system, cardiac cycle, Stroke volume and cardiac output
- Blood pressure and Pulse • Circulation – principles, factors influencing blood pressure, pulse
- Coronary circulation, Pulmonary and systemic circulation
- Heart rate – regulation of heart rate • Normal value and variations
- Cardiovascular homeostasis in exercise and posture

#### **UNIT-V (5Hrs)**

##### **Blood**

- Blood – Functions, Physical characteristics
- Formation of blood cells
- Erythropoiesis – Functions of RBC, RBC life cycle
- WBC – types, functions • Platelets – Functions and production of platelets
- Clotting mechanism of blood, clotting time, bleeding time, PTT
- Homeostasis – role of vasoconstriction, platelet plug formation in hemostasis, coagulation factors, intrinsic and extrinsic pathways of coagulation
- Blood groups and types
- Functions of reticuloendothelial system, immunity

#### **UNIT-VI (5Hrs)**

##### **The Endocrine system**

- Functions and hormones of Pineal Gland, Pituitary gland, Thyroid, Parathyroid, Thymus, Pancreas and Adrenal glands.
- Other hormones
- Endocrine Alterations in diseases

#### **UNIT-VII (4Hrs)**

##### **The Sensory Organs**

- Functions of skin
- Vision, hearing, taste and smell
- Errors of refraction, aging changes

#### **UNIT-VIII (6Hrs)**

##### **Musculoskeletal system**

- Bones – Functions, movements of bones of axial and appendicular skeleton, Bone healing
- Joints and joint movements
- Joint diseases
- Properties and Functions of skeletal muscles – mechanism of muscle contraction
- Structure and properties of cardiac muscles and smooth muscles

#### **UNIT- IX (4Hrs)**

##### **Renal system**

- Functions of kidney in maintaining homeostasis
- GFR
- Functions of ureters, bladder and urethra
- Micturition
- Regulation of renal functions

## **UNIT- X (4Hrs)**

### **The Reproductive system**

- Female reproductive system – Menstrual cycle, function and hormones of ovary, oogenesis, fertilization, implantation, Functions of breast
- Male reproductive system – Spermatogenesis, hormones and its functions, semen

## **UNIT- XI (8 Hrs)**

### **Nervous system**

- Overview of nervous system
- Review of types, structure and functions of neurons
- Nerve impulse
- Review functions of Brain-Medulla, Pons, Cerebrum, Cerebellum
- Sensory and Motor Nervous system
- Peripheral Nervous system
- Autonomic Nervous system
- Limbic system and higher mental Functions - Hippocampus, Thalamus, Hypothalamus
- Vestibular apparatus
- Functions of cranial nerves
- Autonomic functions
- Physiology of Pain-somatic, visceral and referred
- Reflexes
- CSF formation, composition, circulation of CSF, blood brain barrier and blood CSF barrier

### **Practical's :**

- 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 pressure
- Auscultation for Heart sounds
- Artificial Respiration
- Determination of Vital capacity.

### **Reference Books :**

1. Sembulingam (K), Essentials of Medical Physiology, Jaypee, 8th Edi, 2019.
2. Guyton & Hall, Textbook of Medical Physiology, Elsevier, 2nd Edi, 2018.
3. Pal (GK), Comprehensive Textbook of Medical Physiology, Jaypee, 2nd Edi, Vol I & II, 2019.
4. Surinder Singh, Principles of Human Physiology for Course in Nursing & Allied Health Sciences, CBS, 2017.
5. Ross and Wilson Anatomy and Physiology in Health and illness, Elsevier, 13th Edi, 2018.

**Examination Pattern****Subject****Duration**

Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	

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200 marks  
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**The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks

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50 marks  
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**Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

**Pattern of Question Paper:**

Long answer question	- 2 X 10 = 20 marks
Short answer question	- 8 X 5 = 40 marks
Very Short answer	- 10 X 2 = 20 marks

### 3. BIOCHEMISTRY

Course Code: BAECT-003

Placement: 1<sup>st</sup> Year (1<sup>st</sup> Semester)

Time: Theory: 60 Hours

Practical: 30 Hours (Lab)

**Course Description:** The course is designed to assist the students to acquire knowledge of the normal biochemical composition and functioning of human body, its alterations in disease conditions and to apply this knowledge in to practice.

#### COURSE OUTLINE

##### UNIT - I (3 Hrs)

- Introduction to Biochemistry

##### UNIT - II (3 Hrs)

- Biophysical aspects of Biochemistry

##### UNIT-III (7 Hrs)

###### Carbohydrates

- Chemistry of carbohydrates, Classification and biological importance
- Digestion and absorption, Glycolysis, glycogen metabolism, glucono-genesis, TCA cycle
- Regulation of blood glucose, Diabetes mellitus

##### UNIT-IV (7 Hrs)

###### Proteins

- Biological importance, Classification of amino acids & proteins
- Digestion and absorption
- Urea synthesis, Transamination

##### UNIT-V (7 Hrs)

###### Lipids

- Biological importance
- Classification of lipids, lipoproteins, Overview of lipid metabolism

##### UNIT-VI (6 Hrs)

###### Enzymes

- Classification, Factors affecting enzyme action
- Enzyme inhibition & Chemical enzymology

##### UNIT-VII (7 Hrs)

###### Endocrinology

- Hormones, Role of biological important hormones
- Pituitary, thyroid, adrenal cortex and medulla
- Sex hormones

##### UNIT-VIII (7 Hrs)

###### Mineral metabolism

- Regulation of blood level
- Consequences of excess and deficiency of calcium, Phosphate, iron, copper & zinc

### UNIT-IX (7 Hrs)

#### Vitamins

- Fat soluble vitamins, Water soluble vitamins
- Biochemical function, Deficiency, Manifestation, Source & RDA

### UNIT-X (6 Hrs)

#### Clinical Biochemistry

- LFT& RFT
- Urine analysis

#### Practical's:

- 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.

#### Reference Books:

1. Vasudevan (DM), Text Book of Biochemistry for Medical Students, Jaypee Pub, 9th Edi, 2019.
2. Wilson & Walkers Principles & Techniques of Biochemistry & Molecular Biology, University Press, 8th Edi, 2018.
3. Harbans Lal and Rajesh Pandey Textbook of biochemistry, CBS, 3rd Edi, 2017
4. Harold Varley, Practical Clinical Biochemistry, CBS, 4th Edi, 2010.

#### Examination Pattern

##### Subject

Theory exam:	75 marks
Internal assessment (Theory)	25 marks
	-----
	100 marks
	-----

##### Duration

3 hours

#### Guidelines for setting Question Paper for Theory Examination:

1. Prepare the question papers for 75 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

#### Pattern of Question Paper:

- Long answer question - 2 X 10 = 20 marks
- Short answer question - 7 X 5 = 35 marks
- Very Short answer - 10 X 2 = 20 marks

**COMMUNICATION AND SOFT SKILLS**  
**Course Code: BAECT-C01**

**Placement:** I<sup>st</sup> Year (I<sup>st</sup> Semester)

**Time:** Theory: 60 Hours

**Course Description:** The course is designed to enable students to enhance their ability to speak and write the language (and use English) required for effective communication in their professional work. Students will practice their skills in verbal and written English during clinical and classroom experience.

**UNIT - I (10 Hrs)**

**Review of Grammar**

- Remedial study of Grammar
- Building Vocabulary
- Phonetics
- Public Speaking

**UNIT - II (3 Hrs)**

**Communication**

- What is communication?
- What are communication roles of listeners, speakers, readers and writers as health care professionals?

**UNIT- III (5 Hrs)**

**Introduction to LSRGW**

- L–Listening: Different types of listening
- S–Speaking: Understanding Consonants, Vowels, Word and Sentence Stress, Intonation
- R–Reading: Medical vocabulary
- Gr–Grammar: Understanding tenses, linkers
- W–Writing simple sentences and short paragraphs –emphasis on correct grammar

**UNIT- IV (7 Hrs)**

**Attentive Listening**

- Focusing on listening in different situations, announcements, descriptions, narratives ,instructions, discussions, demonstrations
- Reproducing Verbatim
- Listening to academic talks/lectures
- Listening to presentation

**UNIT – V (12Hrs)**

**Effective Conversation**

- Conversation situations–informal ,formal and neutral
- Factors influencing way of speaking–setting ,topic, social relationship ,attitude and language
- Greetings,introductions,requesting,askingforandgivingpermission,speakingpersonallyandcasualconversations
- Asking for information, giving instructions and directions

- Agreeing and disagreeing ,giving opinions
- Describing people, places, events and things, narrating, reporting & reaching conclusions
- Evaluating and comparing
- Complaints and suggestions
- Telephone conversations
- Delivering presentation

#### **UNIT-VI (8 Hrs)**

##### **Reading**

- Reading strategies ,reading notes and messages
- Reading relevant articles and news items
- Vocabulary for everyday activities ,abbreviations and medical vocabulary
- Understanding visuals ,graphs, figures and notes on instructions
- Reading reports and interpreting them
- Using idioms and phrases, spotting errors, vocabulary for presentations
- Remedial Grammar

#### **UNIT- VII (7 Hrs)**

##### **Writing Skills**

- Writing patient history
- Note taking
- Summarizing
- Anecdotal records
- Letter writing
- Diary/Journal writing
- Report writing
- Paper writing skills
- Abstract writing

#### **UNIT VIII (8 Hrs)**

##### **LSRW Skills**

- Critical thinking strategies for listening and reading
- Oral reports ,presentations
- Writing instructions, letters and reports
- Error analysis regarding LSRW

##### **Reference Books:**

1. Clement, I, Essentials of English for Paramedical Courses, EMMESS, 2<sup>nd</sup> Edi, 2018.
2. Lakshminarayanan K.R., English for Technical Communication, Scitech publication, 2<sup>nd</sup> Edi 2015

#### **4. APPLIED PATHOLOGY**

**Course Code: BAECT-004**

Placement: I Year (II Semester)

Time: Theory: 60 Hours  
Practical: 30 Hours

##### **Course Description:**

The course is designed to understand pathology laboratory reports, the normal ranges of investigations, severity and specificity of disease conditions which will help to perform International Classification of diseases to clinical pertinence.

##### **Course Outline**

##### **UNIT-I (3Hrs)**

##### **Basic Concepts in Cellular Adaption's**

- Cell injury and Cell death
- Cellular response to stress and other stimuli
- Over view of Cell injury and Cell death

##### **UNIT-II (5Hrs)**

##### **Basic Principles in Inflammatory Process**

- General features including inflammatory mediators and Basic Mechanisms of disorders of Immunity, General features of the immune system, Disorders of the Immune System,
- Acute and Chronic inflammation

##### **UNIT-III (5Hrs)**

##### **Infectious Diseases**

- Infectious diseases, Bacterial Infections (Typhoid, Tuberculosis and Leprosy) Viral infections (HIV, HbSAg and Polio)
- Specific Examples of Fungal, Parasitic and Syphilis infections

##### **UNIT-IV (3Hrs)**

##### **Neoplasia**

- Neoplasia Nomenclature, Rudimentary aspects on Tumor growth and Metastasis
- Definition of Neoplasia, Differences between Benign and Malignant tumors
- Staging and Grading of Tumors (Basic Aspects), Oncogenes and Tumor Suppressor genes

##### **UNIT-V (5Hrs)**

##### **Hematology**

- Structure and functions of Formed elements
- Objective use of anticoagulants, Mechanisms of Hemostasis
- Tests to monitor Coagulation, Blood Grouping and Blood Bank (Basic aspects on Blood Components)
- Fixatives and Basic details in Cytology, Aspiration Cytology of Bone marrow
- Basic concepts in Anemia, Cellular aspects of Leukemia (Basic Concepts)

##### **UNIT-VI (3Hrs)**

##### **Histopathology**

- Use of Microscopes, Grossing and Mounting Techniques
- Processing of Biopsy specimen, Paraffin sections



### **UNIT-VII (3Hrs)**

#### **Biomedical Waste Management and Environmental Pathology**

- Biomedical waste management from perspectives of Pathology
- Environment and Disease – Smoking hazards, Asbestosis and Silicosis & Occupational Exposure

### **UNIT-VIII (3Hrs)**

#### **Clinical Pathology**

- Collection, transport, preservation and processing of Clinical Specimen
- Clinical Pathology of specialized Body Fluids (CSF), Synovial fluid, Pleural Fluid
- Urine Examination (Urinalysis)

### **UNIT-IX (20Hrs)**

#### **Overview of Systemic Pathology**

- Rheumatic Heart Disease
- Lungs: Pneumonia, COPD, Asthma, ARDS
- Liver: Hepatitis, Cirrhosis
- Muscle: Myasthenia Gravis
- Brain: Meningitis, Aspergillosis, CNS Tumor – (Classification)

### **UNIT-X (10Hrs)**

#### **Practical Demonstration**

- Demo of Coagulation Profile, Phlebotomy techniques Blood Grouping and Rh typing, Urine Routine, Hemogram, Fecal Examination Safety Precautions in Clinical Pathology

#### **Practical's:**

- Blood Grouping and Rh typing
- Urine Routine
- Hb, TLC, DLC
- Gross Specimens
- Slides

#### **Reference Books:**

1. Mohan (H), Textbook of Pathology, Jaypee Pub, 5th Edi, 2019.
2. Kumar, Robbins & Cotran Pathologic Basis of Disease, WB Saunders, 10th Edi, 2020.
3. Kawthalkar(S), Essentials of Clinical Pathology, Jaypee Brothers, 2nd edi, 2018.
4. Nayak (R), Essentials of Hematology & Clinical Pathology, Jaypee Brothers, 2nd Edi, 2017.
5. Sengupta, Synopsis of Clinical Pathology & Microbiology, CBS Pub, 8th Edi, 2017.

**Examination Pattern****Subject****Duration**

Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	

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200 marks  
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**The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks

-----  
50 marks  
-----

**Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

**Pattern of Question Paper:**

Long answer question	- 2 X 10 = 20 marks
Short answer question	- 8 X 5 = 40 marks
Very Short answer	- 10 X 2 = 20 marks

## 5. APPLIED MICROBIOLOGY

Course Code: BAECT-005

Placement: I Year (II Semester)

Time: Theory: 60 Hours

Practical: 30 Hours

**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 Outline

#### UNIT-I (5Hrs)

##### Introduction:

- History of microbiology- (contribution of Louis Pasteur, Robert Koch, Joseph Lister, Edward Jenner, Alexander Fleming)
- Importance of Microbiology in clinical practice
- Microscope –Types & Uses

#### UNIT-II (5Hrs)

##### General Microbiology:

- Infection, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate
- Routes of infection and spread, endogenous and exogenous infections at reservoir of infections
- Antimicrobials: mode of action, interpretation of susceptibility tests, resistance spectrum of activity
- Staining techniques: Gram staining, Acid fast staining, Culture methods Laboratory diagnosis of infection

#### UNIT-III (10Hrs)

##### Sterilization & Disinfection:

- Definition of Asepsis, Sterilization and Disinfection Hospital Acquired infection
- Universal safety precautions and Biomedical waste Disposal & Management

#### UNIT-IV (10Hrs)

##### Immunology:

- Antigen- Antibody-reaction & application for Diagnosis
- Immune response- Normal / Abnormal, Innate Immunity & acquired immunity (Vaccination)
- Hyper sensitivity & auto-immunity, Serological tests, Immunoprophylaxis

#### UNIT-V (10Hrs)

##### Bacteriology:

- Morphology, Classification according to the Pathogenicity,
- Mode of Transmission, methods of prevention,
- Collection and transport of samples for laboratory diagnosis, Interpretation of laboratory reports
- Staphylococci, Streptococci, & Pneumococci Neisseria, Mycobacterium: Tuberculosis, M. Leprae, Enterobacteriaceae, Escherichia Coli, Salmonella, Corynebacterium, Vibrios, V. Cholerae and other medically important Vibrios, Campylobacters and Helicobacters Pseudomonas, Mycoplasma, Rickettsiae, Chlamydia, Bacillus anthracis, Sporing & nonsporing anaerobes, Clostridium

## **UNIT-VI (10Hrs)**

### **Virology:**

- General Properties, Basic structure and broad Classification of Viruses.
- Pathogenesis and Pathology of viral infection (HIV, Hepatitis, Polio, Measles, Congenital viral infections, Rubella, CMV, Herpes)
- Immunity and Prophylaxis of viral Diseases, Principles of viral diseases
- List of commonly used antiviral agents

## **UNIT-VII (5Hrs)**

### **Parasitology:**

- Amoebiasis, Malaria, Filaria, Toxoplasma, cystisarcosis, Roundworm, Hookworm, &Echinococcus.

## **UNIT-VIII (5Hrs)**

### **Mycology:**

- General Properties of Fungi, Classification based on fungal infection Candidiasis, Cryptococcosis, Dermatophytosis, Mycetoma, Aspergillosis.

### **Practical's:**

- Introduction & visit to microbiology lab + Morphology of bacteria + Identification of bacteria (Culture plates &Basic biochemical reactions)
- Gram stain,Acid fast Stain
- 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

### **Reference Books:**

1. Ananthanarayanan (R), Textbook of Microbiology, Orient Longman Ltd.,10th Edi, 2017.
2. Mackie and McCartney Practical Medical Microbiology, Relx India Pvt Ltd, 14th Edi, 2018.
3. Baveja CP, Textbook of Microbiology, APC, 6th edi, 2021.
4. Sriram Kumar (S), Textbook of Microbiology, All win Publication, 1st Edi, 2019

**Examination Pattern****Subject****Duration**

Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	

-----  
200 marks  
-----

**The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks

-----  
50 marks  
-----

**Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

**Pattern of Question Paper:**

Long answer question	- 2 X 10 = 20 marks
Short answer question	- 8 X 5 = 40 marks
Very Short answer	- 10 X 2 = 20 marks

## 6. APPLIED PHARMACOLOGY

Course Code: BAECT-006

Placement: I Year (II Semester)

Time: Theory: 60 Hours  
Practical: 30 Hours

**Course Description:** This course is designed to enable students to acquire understanding of Pharmacodynamics, Pharmacokinetics, principles of therapeutics & possible implications.

### COURSE OUTLINE

#### UNIT - I (5Hrs)

##### Introduction to Pharmacology

- Definitions & Branches
- Nature & Sources of drugs
- Dosage Forms and Routes of drug administration
- Terminology used
- Classification, Abbreviations, Prescription
- Drug Calculation, Weights and Measures
- Pharmacodynamics: Actions, Drug Antagonism, Synergism, Tolerance, Receptors, Therapeutic, adverse, toxic effects, pharmacovigilance
- Pharmacokinetics: Absorption, Bioavailability, Distribution, Metabolism, Interaction, Excretion
- Review-Principles of drug administration and treatment individualization, Factors affecting dose, route etc
- Indian Pharmacopoeia: Legal Issues, Drug Laws, Schedule Drugs • Rational Use of Drugs • Principles of Therapeutics

#### UNIT - II(3Hrs)

##### Pharmacology of commonly used antiseptics and disinfectants

- Antiseptics and Disinfectants
- Composition, action, dosage, route, indications, contraindications, Drug interactions, side effects, adverse effects, toxicity

#### UNIT - III(4Hrs)

##### Drugs acting on G.I system

- Pharmacology of commonly used drugs - Emetics and Antiemetics, Laxatives and Purgatives, -Antacids and anti-peptic ulcer drugs, Anti diarrhoea, Fluid and electrolyte therapy, Furazolidone, dicyclomine.
- Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity

#### UNIT - IV(4Hrs)

##### Drugs acting on respiratory system

- Pharmacology of commonly used - Anti-asthmatics - Bronchodilators (Salbutamol inhalers) - Decongestants - Expectorants, Antitussives and Mucolytics - Broncho-constrictors and Antihistamines
- Composition, action, dosage, route, indications, contraindications, drug Interactions, side effects, adverse effects, toxicity

#### **UNIT - V(5Hrs)**

##### **Drugs used in treatment of Cardiovascular system and blood disorders**

- Hematinic in treatment of anemia
- Cholinergic and anti-cholinergic
- Adrenergic Drugs for CHF, anti-adrenergic & vasodilators
- Anti-anginal
- Antiarrhythmic
- Antihypertensive
- Coagulants & Anticoagulants • Antiplatelet & thrombolytic
- Hypolipidemics
- Plasma expanders & treatment of shock
- Drugs used to treat blood disorders
- Composition, action, dosage, route, indications, contraindications, drug Interactions, side effects, adverse effects, toxicity

#### **UNIT - VI(4Hrs)**

##### **Drugs used in treatment of endocrine system disorders**

- Insulin & oral hypoglycemic agents
- Thyroid and anti-thyroid drugs
- Steroids, Corticosteroids, Anabolic steroids
- Calcitonin, parathormone, vit D3, calcium metabolism, Calcium salts

#### **UNIT - VII(4Hrs)**

##### **Drugs used in treatment of integumentary system**

- Antihistaminic and antipruritic
- Topical applications for skin Benzyl benzoate, Gamma BHC, Clotrimazole, Miconazole, Silver Sulphadiazine (burns)
- Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects toxicity

#### **UNIT - VIII(4Hrs)**

##### **Drugs used in treatment of communicable diseases (common infections, infestations)**

- General Principles for use of Antimicrobials
- Pharmacology of commonly used drugs: - Penicillin, Cephalosporin's, Aminoglycosides, Macrolide & broad-spectrum antibiotics, Sulfonamides, quinolones, Misc. antimicrobials
- Anaerobic infections
- Anti- tubercular drugs
- Anti-leprosy drugs
- Antimalarial
- Antiretroviral drugs
- Antiviral agents
- Anthelmintic, Anti scabies agents
- Antifungal agents
- Composition, action, dosage, route, indications, contraindications, Drug Interactions, side effects, adverse effects, toxicity.

#### **UNIT - IX(3Hrs)**

##### **Drugs used in disorders of ear, nose, throat & Eye**

- Antihistaminic

- Topical applications for eye (Chloramphenicol, Gentamycin eye drops), ear (Soda glycerin ear drops, boric acid ear drops, spirit boric ear drops), nose and buccal cavity-chlorhexidine mouthwash
- Composition, action, dosage, route, indications, contraindications, drug Interactions, side effects, adverse effects, toxicity.

#### **UNIT - X(3Hrs)**

##### **Drugs used on urinary system**

- Pharmacology of commonly used drugs Renin angiotensin system, Diuretics and antidiuretics Drugs toxic to kidney Urinary antiseptics Treatment of UTI – acidifiers and alkalinizers
- Composition, action, dosage, route, indications, contraindications, Drug Interactions, side effects, adverse effects, toxicity.

#### **UNIT - XI (5Hrs)**

##### **Drugs acting on nervous system**

- Basis & applied pharmacology of commonly used drugs
- Analgesics and anaesthetics Analgesics - Non steroidal anti-inflammatory (NSAID) drugs Antipyretics Opioids & other I analgesics, General (techniques of GA, preanesthetic medication) & local anesthetics Gases: oxygen, nitrous oxide, carbon-dioxide & others
- Hypnotics and sedatives, Skeletal muscle relaxants, Anti-psychotics, Mood stabilizers Antidepressants, Anti-Anxiety Drugs, Anticonvulsants
- Drugs for neurodegenerative disorders & miscellaneous drugs, Stimulants, ethyl alcohol and treatment of methyl alcohol poisoning
- Composition, action, dosage, route, indications, contraindications, drug Interactions, side effects, adverse effects toxicity.

#### **UNIT - XII (3Hrs)**

##### **Drugs used for hormonal, disorders and supplementation, contraception and medical termination of pregnancy**

- Estrogens and progesterone's
- Oral contraceptives and hormone replacement therapy
- Vaginal contraceptives
- Drugs for infertility and medical termination of pregnancy, Uterine stimulants and relaxants
- Composition, actions, dosage, route, indications, contraindications, drugs interactions, side effects, adverse effects, adverse effects, toxicity.

#### **UNIT - XIII (3Hrs)**

##### **Drugs used for pregnant women during antenatal, labor and postnatal period**

- Tetanus prophylaxis
- Iron and Vit K1 supplementation
- Oxytocin, Misoprostol
- Ergometrine
- Methyl prostaglandin F2-alpha
- Magnesium sulphate
- Calcium gluconate

#### **UNIT - XIV (5Hrs)**

##### **Miscellaneous**

- Drugs used for de-addiction
- Drugs used in CPR and emergency-adrenaline, Chlorpheniramine, hydrocortisone, Dexamethasone • IV fluids & electrolytes replacement



- Common poisons, drugs used for treatment of poisoning Activated charcoal Ipecac Antidotes Anti-snake venom (ASV)
- Vitamins and minerals supplementation
- Vaccines & sera (Universal immunization program schedules)
- Anticancer drugs, Chemotherapeutic drugs commonly used
- Immuno-suppressants and Immunostimulants

#### **UNIT - XV (4Hrs)**

##### **Introduction to drugs used in alternative systems of medicine:**

- Ayurveda, homeopathy, unani and siddha etc.
- Drugs used

#### **Reference Books:**

1. PadmajaUdaykumar, Text book of Medical Pharmacology, CBS , 7th Edition, 2022.
2. Sharma.H.L&Sharma.K.K, Principles of Pharmacology, Paras Medical, 3rd Edi, 2017.
3. Tripathi.KD, Essentials of Medical Pharmacology, Jaypee Brothers, 8th Edition, 2018.

#### **Examination Pattern**

##### **Subject**

Theory exam:

75 marks

Internal assessment (Theory)

25 marks

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100 marks  
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##### **Duration**

3 hours

#### **Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 75 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

#### **Pattern of Question Paper:**

Long answer question - 2 X 10 = 20 marks

Short answer question - 7 X 5 = 35 marks

Very Short answer - 10 X 2 = 20 marks

## **COMPUTER APPLICATION**

**Course Code: BAECT-C02**

**Placement:**IYear (IISemester)

**Time:** Theory:30 Hours

**Practical:**30Hours(Lab)

### **Course Description:**

The course is designed for student to acquire the knowledge, develop basic understanding, use of computer and its applications in clinical field.

### **UNIT- I (10 Hrs)**

#### **Introduction to Computer**

- Concepts of computers
- Hardware and Software
- Trends and Technology
- Applications of Computer

### **UNIT- II (10 Hrs)**

#### **Introduction to Disk Operating System (DOS)**

- Windows (all version)
- MS Word
- MS Excel with Pictorial Presentation
- MS-Access
- MS-PowerPoint

### **UNIT- III (5 Hrs)**

#### **Statistical packages**

- Types and their features

### **UNIT- IV (5 Hrs)**

#### **Hospital Management System**

- Types and uses
- Electronic patient records

### **Reference Books:**

1. Bansal Surabhi, Computer Applications for Allied Health Sciences, AITBS, 1st Edi, 2022.
2. Priyanka Randhir, Computer for Paramedical, CBS, 1st Edi, 2020
3. Pooja Jain & Neelam Kumari, Introduction to Computer, S.Vikas & Co, 5th edi, 2019
4. Shah Y.I, Paradkar A.R et.al, Introduction to Biostatistics and Computer Science, Nirali Prakashan Pub, 16th Edi, 2019.

## 7. INTRODUCTION TO EMERGENCY MEDICINE-THEORY

Course Code: BAECT-007

Placement: II Year (III Semester)

Time: Theory: 60 Hours  
Clinical: 210 Hours

**Course Description:** "Introduction to Emergency Medicine" covers fundamental concepts like patient assessment, medical procedures, trauma management, and legal/ethical issues. It also emphasizes communication, teamwork, and preparedness for handling emergencies and disasters. This provides practical skills and knowledge crucial for emergency care providers.

### UNIT –I (15 Hrs)

#### VITAL SIGNS

- Temperature -definition and normal body temperature, factors affecting normal body temperature, assessment of normal body temperature.
- Pulse - definition and normal pulse rate, characteristics of normal pulse, factors influencing pulse, alterations in pulse, assessment of pulse.
- Respiration - definition and normal respiratory rate, characteristics of normal respiration, factors influencing respiratory rate, alterations in respiration, assessment of respiration.
- Blood pressure –definition systolic and diastolic blood pressure - Definition and normal blood pressure, factors influencing normal blood pressure ,assessment of blood pressure ,alterations in blood pressure
- Blood glucose level- Definition and normal glucose level, alterations in normal glucose level

### UNIT- II(25 Hrs

#### Advance Cardiac Life Support)

##### Airway

- Oxygen supplementations, Obstruction
- Airway - Obstructions, reorganisation, maintenance, airway ventilation and control,
- primary and secondary conformation of tracheal tube placement

##### ReorganizationOf Rhythm

- Reorganization of cardiac arrest rhythms
- Reorganization of non-VF/VT Rhythms

##### Defibrillation

- Procedure-steps involving in defibrillation

##### Cardioversion

- Procedure-steps involving in cardio-version

##### Intravenous Canulation

- Purpose and Procedures of IV cannulation

##### Respiratory Compromise

- Management of respiratory compromise: from shortness of breath to respiratory arrest

##### Ventricular Fibrillation/Pulseless Ventricular Tachycardia

- Management of VF/ pulse less VT: persistent/ refractory/ recurrent/ shock resistant

##### Pulseless Electrical Activity

- Management of PEA

##### Asystole

- Management of asystole: the silent heart algorithm, Acute coronary artery syndrome- initial management, Bradycardia- initial management, unstable tachycardia -- initial management

- acute ischemic stroke -- initial management

#### **Advance Cardiac Life Support Skills: CPR and AED**

- The ABCs of CPR
- Barrier devices and masks
- Bag mask ventilation
- Performance of pulse check
- Performance of chest compression
- Chocking: airway obstruction by foreign body

#### **Automated External Defibrillators**

- Description and indications
- Major automated functions
- Operation of AED – Universal Steps

#### **The Heart Saver AED Protocol**

- Combining CPR with using an AED
- CPR and AED with two or more rescuer

### **UNIT-III (20 Hrs)**

#### **Advanced Trauma Life Support**

- Initial assessment and management – Primary survey/secondary survey
- The upper airway, Chest injuries, Hypovolemic shock, Head injuries, Maxillofacial injuries
- Spine and spinal cord
- Abdomen
- The urinary tract
- Limb injuries
- Handling distressed relatives breaking bad news
- Trauma in pregnancy
- Pediatric trauma
- Trauma in elderly
- Prehospital care
- Transportation to hospital
- Management of severe burns
- Chemical incidents
- Blast and gunshot injuries
- Trauma in hostile environments
- Major incidents

#### **Practical's**

- Basic Life Support
- Medical terms
- Organization and management
- Moving and Lifting patients
  - General Principle
  - Carrying Chair
  - Lifting Aids
  - Rescue Stretchers
  - Multi-Posture Cot
  - Blankets

- Patient Positioning
- Light Rescue
- Examination and Assessment
- Blood Pressure
- Management of Trauma
- Airway Management and Resuscitation
- Airway management
- Adult cardiopulmonary Resuscitation (CPR)
- Child Cardiopulmonary Resuscitation (CPR)
- CPR for Laryngectomy and Tracheostomy patients
- CPR in Pregnancy
- Airway Adjuncts and Resuscitation Equipment
- Oxygen Equipment
- Suction Equipment

### Reference Books

1. First Aid For Nurses, Karesh Prasad, First edition, Jaypee Brothers Medical Publishers Ltd, 2012
2. Text book on first aid and emergency nursing, I.Clement, first edition, Jaypee Brothers Medical Publishers Ltd, 2013
3. American College of Emergency Physicians First Aid Manual, Jon R. Krohmer, second edition, DK publishers, 2004 :Emergency and Trauma Care for Nurses and Paramedics, Kate Curtis, revised edition, Elsevier Health Sciences, 2011
4. Oxford Handbook of Accident and Emergency Medicine, Jonathan P. Wyatt, illustrated edition, Oxford University Press, 2005
5. Oxford Handbook of Critical Care, Andrew Webb, illustrated edition, Oxford University Press, 2009

### Examination Pattern

Subject		Duration
Theory exam:	75 marks	3 hours
Internal assessment (Theory)	25 marks	
	----- 100 marks -----	

### Guidelines for setting Question Paper for Theory Examination:

1. Prepare the question papers for 75 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

### Pattern of Question Paper:

- Long answer question - 2 X 10 = 20 marks
- Short answer question - 7 X 5 = 35 marks
- Very Short answer - 10 X 2 = 20 marks

## **8 .TRAUMA CARE & FIRST AID RELATED TO LIFE THREATENING**

**Course Code: BAECT-008**

**Placement:** II Year (III Semester)

**Time:** Theory: 60 Hours  
Clinical: 210 Hours

**Course Description:** This course covers assessment, stabilization, and initial management techniques for trauma victims and life-threatening emergencies. Students learn crucial interventions such as CPR, hemorrhage control, airway management, and basic trauma care protocols. Practical simulations and hands-on training enhance proficiency in emergency response.

### **UNIT – I (20 Hrs)**

#### **Trauma Care**

- Chest injuries –indication for chest decompression, open chest wounds, tension pneumothorax, and chest drains-under water seal.
- Hypovolemic shock –assess circulation, signs of hypoperfusion, monitoring, bleeding control of external haemorrhage, fluid resuscitation. Intravenous access, oxygen supplementation, venous cut down.
- Head injuries –glasgow coma scale. Pupil size-method to assess pupil size, normal and abnormal pupil size, differentiate between dilated and constricted pupil, differentiate between reacting and non-reacting pupil.
- Maxillofacial injuries –basic nursing care. Spine and spinal cord –rule out unstable cervical spine, spine immobilization, log rolling,
- Abdomen –peritoneal lavage, ryles tube insertion. The urinary tract-bladder catheterization.
- Limb injuries –basic nursing care. Trauma in pregnancy –basic nursing care. Paediatric trauma – basic nursing care. Trauma in elderly –basic nursing care.
- Burns- Management of severe burns –percentage of burns, degree of burns, Decontamination, dressing.

### **UNIT – II (10 Hrs)**

#### **Mechanism of Trauma:**

#### **Assessment and Examination of General Trauma:**

- Primary survey and prioritise patient management as necessary, Secondary survey as appropriate  
Re-assessment, Revised trauma score

#### **Airway management (including cervical collars)**

- Spine immobilization (spinal boards), Oxygenation, Management of haemorrhage (splint)

### **UNIT III (20 Hrs)**

#### **Trauma Emergencies:**

##### **Head trauma:**

- Types
- Pathophysiology
- Management

##### **Thoracic Trauma:**

- Mechanism of injury and causative effects to include specific blunt and penetrating trauma.

#### **Recognition and Management of**

- Tension pneumothorax
- Open pneumothorax
- Flail chest
- Hemothorax
- Cardiac tamponade

**Abdominal Trauma:**

- Types of injury
- Evaluation and stabilization
- Diagnostic strategy
- FAST examination

**Spinal Trauma:**

- Kinematics of injury including Hyperflexion, Hyperextension, – Hyper Rotation, Vertical compression, Extension – Rotation, Flexion – Rotation, Direct force, Dislocation injury, Including neck injury.
- Management

**Pelvis Trauma:[Including Major Pelvis disruption with hemorrhage]**

- Mechanism, Signs and symptoms, Management

**Genitourinary:**

- Mechanism, Types, Clinical Findings, Diagnosis and Management of injury to urethra Bladder, Ureter and kidney injuries

**Extremities Trauma:**

- Fracture, Dislocation, Sprain, Strain (Signs, Symptoms and Management)

**UNIT IV (5 Hrs)****Trauma in Pregnancy:**

- Types of injuries, Evaluation, Management of the pregnant patient

**UNIT V (5 Hrs)****Trauma in Paediatrics:**

- Types of injuries, Evaluation, Management

**Practicals**

- Equipments Used in Emergency Medicine – Working principles, parts & Handling
- Triage
- Vital Signs Measurement Using Monitors And Normal Values
- Blood pressure using sphygmomanometer
- Setting up of iv infusion
- Hypovolemic shock and management
- Application of bandage and spint
- Cervical spine immobilisation
- Clinical features, diagnosis and management of MI, Heart failure
- Basic Life Support
- Advanced Cardiac Life Support
- Skill Of Artificial Ventilation

**Reference Books:**

1. First Aid For Nurses, Karesh Prasad, First edition, Jaypee Brothers Medical Publishers Ltd, 2012
2. Text book on first aid and emergency nursing, I.Clement, first edition, Jaypee Brothers Medical Publishers Ltd, 2013
3. American College of Emergency Physicians First Aid Manual, Jon R. Krohmer, second edition, DK publishers, 2004
4. Emergency and Trauma Care for Nurses and Paramedics, Kate Curtis, revised edition, Elsevier Health Sciences, 2011
5. Oxford Handbook of Accident and Emergency Medicine, Jonathan P. Wyatt, illustrated edition, Oxford University Press, 2005
6. Oxford Handbook of Critical Care, Andrew Webb, illustrated edition, Oxford University Press, 2009

**Examination Pattern****Subject**

Theory exam:	80 marks
Practical exam:	50 marks
Oral exam	20 marks
Internal assessment (Theory)	25 marks
Internal assessment (Practical)	25 marks

**Duration**

3 hours

3 hours

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200 marks

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**The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks

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50 marks

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**Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

**Pattern of Question Paper:**

Long answer question	- 2 X 10 = 20 marks
Short answer question	- 8 X 5 = 40 marks
Very Short answer	- 10 X 2 = 20 marks



**Toxicological and Environmental Emergencies**  
**Course Code: BAECT-C03**

**Placement:** II Year (III Semester)

**Time:** Theory: 30 Hours

**Course description:**

To understand commonly encountered toxicological and environmental emergencies  
To know specialized evaluation and care of poisoned patients.  
To focus on diagnosis, management and prevention of poisoning.  
Factors associated with adverse drug events.  
Consideration of “environmental health” or “environmental toxicology”.

**Unit I(5 Hrs)**

**Toxicology:**

- Definition of poison, ways in which a poison may enter the body, General principles of assessment and management of poison and overdose
- Opiates toxicity
- Clinical presentation and management of Organophosphates, Carbonmonoxide, CyanideCaustics, Coppersulphate, Digoxin toxicity,Hydrocarbons,Tricyclic toxicity,Metals, Acetaminophen overdose,Poisonous alcohols,Poisonous plants

**Unit II (5Hrs)**

**Emergencies due to venomous bites and stings:**

- Snake bite, Scorpion stings, Spider bite, Bee and wasp stings, Fish stings, Dog biteCat bite, Leech bite, Human bite

**Unit III (5Hrs)**

**Homeostasis and body temperature**

- Thermoregulatory mechanisms, Physiologic responses to heat and cold  
Heat illness, Heat cramps, Heat syncope, Heat exhaustion, Heat stroke  
Local cold injury, Risk factors for frost bite, Superficial and deep frost bite  
Trench foot,

**Unit IV (10 Hrs)**

**Hypothermia**

- Risk factors,Treatment,Resuscitative efforts
- Drowning or submersion,Pathophysiology,Management

**Diving injuries**

- Physiology, Injuries during descent, Injuries during ascent, Management

**Unit V (3 Hrs)**

- **Altitude illness**-Physiology and Management

**Unit VI (2 Hrs)**

- **Electrical and Lightning injuries**

**Reference Books**

1. Gold Franks Toxicological Emergencies 8th edition, Neal E. Flomenbaum,Lewis R. Goldfrank-McGraw Hill
2. Rosens emergency medicine-7th edition Marx ,Hockberger Walls, Adams-Mosby Elsevier
3. Medical toxicology of natural substances – Donald G Barceloux  
Emergency medicine-2ndedition,Plantz ,Wipfler-Lippincott Williams And Wilkins

## **9 .MEDICAL EMERGENCIES - I**

**Course Code: BAECT-009**

**Placement:**III Year (IV Semester)

**Time:** Theory: 60 Hours  
Clinical: 210 Hours

**Course Description:**This course covers the assessment and initial management of common medical emergencies, including cardiac arrest, respiratory distress, and diabetic emergencies. Students learn essential skills in rapid evaluation, intervention, and patient stabilization in critical situations.

### **UNIT-I (5 Hrs)**

#### **FLUID AND ELECTROLYTES**

- Concepts of fluid and electrolytes balance, management of fluid and electrolytes balance

### **UNIT-II (5 Hrs)**

#### **RESPIRATORY EMERGENCIES**

- Chronic obstructive pulmonary disease (COPD), asthma, pneumonia, pulmonary edema, pneumothorax, common medications in respiratory problems. respiratory tract infections

### **UNIT -III (8 Hrs)**

#### **CARDIAC EMERGENCIES**

- Angina pectoris, myocardial infarction (MI), congestive cardiac failure (CCF), cardiac arrhythmias, 12 lead ECG, heart block, hypertensive emergencies, aortic aneurysm

### **UNIT -IV (7 Hrs)**

#### **GASTROINTESTINAL EMERGENCIES**

- Abdominal pain, gastrointestinal bleeding, peptic & duodenal ulcer diseases, abdominal aortic aneurysm, bowel obstruction, appendicitis, cholecystitis, cholelithiasis, pancreatitis, hepatitis, renal calculi

### **UNIT - V (8 Hrs)**

#### **CENTRAL NERVOUS SYSTEM**

- Stroke, head injuries, meningitis, seizure, status epilepticus, syncope

### **UNIT - VI (7 Hrs)**

#### **GENITO URINARY EMERGENCIES**

- Renal failure, urolithiasis, urinary tract infection, hematuria.

### **UNIT -VII (10 Hrs)**

#### **ENDOCRINE AND METABOLIC EMERGENCIES:**

- Diabetic Ketoacidosis
- Hyperosmolar coma
- Thyroid crisis
- Diabetes insipidus
- Vomiting
- Diarrhoea

### **UNIT -VIII(10 Hrs)**

**Emergency Drugs** - Drug introduction, indication, contra-indications, side – effects and routes of administration with doses of medicine used in emergency.

- Adrenaline (Epinephrine), Aspirin, Atropine, Amiodarone, Antiarrhythmic, Antidotes, Benzylpenicillin, Beta blockers, Calcium channel blockers, Calcium chloride, Calcium gluconate, Chlorpromazine, Diazepam, Dexamethasone, Dextrose, Dopamine, Dobutamine, Furosemide, Flumazenil, Fentanyl, Glucagon, Glyceryltrinitrate, Hydrocortisone, Lidocaine, Lorazepam, Mannitol, Morphine Sulphate, Midazolam, Naloxone hydrochloride, Norepinephrine, Phenytoin, Paracetamol, Salbutamol, Sodab carbonate, Vasopressors, Drugs in obstetrics, IV fluids.

### Text Book

1. Oxford hand book of Accident, Emergency Medicine
2. Tintinalli, text book of Emergency Medicine, Editor: V.V.Pillai.
3. Emergency care in the street, Editor. Nancy L. Carolin
4. ATLS -8<sup>th</sup> Edition 2008

### Examination Pattern

#### Subject

Theory exam:

75 marks

Internal assessment (Theory)

25 marks

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100 marks  
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#### Duration

3 hours

### Guidelines for setting Question Paper for Theory Examination:

1. Prepare the question papers for 75 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

### Pattern of Question Paper:

Long answer question - 2 X 10 = 20 marks

Short answer question - 7 X 5 = 35 marks

Very Short answer - 10 X 2 = 20 marks

## **10 .MEDICAL EMERGENCIES - II**

**Course Code: BAECT-010**

**Placement:** III Year (IV Semester)

**Time:** Theory: 60 Hours  
Clinical: 210 Hours

**Course Description:** This course delves deeper into advanced medical emergencies such as stroke, trauma, and severe allergic reactions. The course focuses on advanced assessment techniques, specialized interventions, and interdisciplinary collaboration to manage complex emergency cases effectively.

### **UNIT-I (10 Hrs)**

#### **Toxicology:**

- Definition for poison
- General principles of assessment and management of poison and overdose of Opiates toxicity, Organophosphates, Carbon monoxide, Cyanide, Caustics, Copper sulphate, Digoxin toxicity, Hydrocarbons, Tricyclic toxicity, Metals, Acetaminophen overdose, Poisonous alcohols, Poisonous plants

### **UNIT II (10 Hrs)**

#### **Emergencies due to venomous bites and stings:**

- Snake bite, Scorpion stings, Spider bite, Bee and wasp stings, Fish stings, Dog bite, Cat bite, Leech bite, Human bite

### **UNIT III(10 Hrs)**

#### **Electrical and Lightning injuries**

- Assessment and medical management of Electrical and Lightning injuries

### **UNIT IV( 10 Hrs)**

#### **Natural disasters and management**

- Earthquakes, Tornadoes, Hurricanes, Winter storm, Floods, Firestorm and wildfires, Tsunamis, Volcanic eruptions, Heat related disaster

### **UNIT V(10 Hrs)**

#### **Manmade disasters and management**

- Hazardous material emergencies, Radiation injuries, Air crash disaster, Maritime disasters, Derailing, Terrorist bombing, Fire and burn care, Chemical disasters, Biologic weapons, Mass shooting, Research in disaster management

### **UNIT VI(10 Hrs)**

#### **Industrial Hazards and management**

- Electrocution, Amputation, Crush injury, Fall from height, Assaults

### **Practicals**

1. Performance & Interpretation of 12 Lead ECG
2. Collection of Venous and Arterial blood Samples
3. Interpretation of blood gas report
4. Mechanical ventilator settings based on clinical conditions.

5. Setting up various emergency requirements like Invasive Monitoring Arterial and Central Venous Monitoring
6. Critical Care: Diagnosis and Management of
  - Shock
  - Renal failure
  - Liver failure
  - Patient on mechanical ventilation
  - Diabetic ketoacidosis
  - Hypoglycemia

### **Text Book**

1. Oxford hand book of Accident, Emergency Medicine
2. Tintinalli, text book of Emergency Medicine, Editor: V.V.Pillai.
3. Emergency care in the street, Editor. Nancy L. Carolin
4. ATLS -8<sup>th</sup> Edition 2008

### **Examination Pattern**

<b>Subject</b>		<b>Duration</b>
Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	
	-----	
	200 marks	
	-----	

### **The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks
	-----
	50 marks
	-----

### **Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

### **Pattern of Question Paper:**

- Long answer question - 2 X 10 = 20 marks
- Short answer question - 8 X 5 = 40 marks
- Very Short answer - 10 X 2 = 20 marks

**DISASTER MANAGEMENT AND INDUSTRIAL EMERGENCIES**  
**Course Code:BAECT–C04**

**Placement:** II Year (IV Semester)

**Time:** Theory: 30 Hours

**Course description:**

- To learn the critical need to establish healthcare preparedness for disaster.
- To learn “all Hazards” and list possible etiologies.
- To learn various disasters and mass casualty incident and its management.
- To identify the components of disaster paradigm.

**Unit -I (5 Hrs)**

Basic perspectives on disaster, Triage, Principles of Hospital disaster planning  
Emergency medical services in disaster

**Unit - II (10 Hrs)**

**Natural disasters**

- Earthquakes, Tornadoes, Hurricanes, Winter storm, Floods, Firestorm and wildfires  
Tsunamis, Volcanic eruptions, Heat related disaster

**Unit- III (10 Hrs)**

**Manmade disasters**

- Hazardous material emergencies, Radiation injuries, Air crash disaster, Maritime disasters,  
Derailing, Terrorist bombing, Fire and burn care, Chemical disasters, Biologic weapons, Mass  
shooting

**Unit - IV (5 Hrs)**

**Industrial Hazards**

- Electrocution, Amputation, Crush injury, Fall from height, Assaults

**PRACTICALS:**

- 1) Triage (Evaluation and Management)
- 2) Removal of Crash Helmet
- 3) Wireless Communication

**Text Books**

1. Disaster medicine – 2<sup>nd</sup> edition David E. Hogan, Jonathan-Lippincott Williams and Wilkins
2. Rosen's emergency medicine-7<sup>th</sup> edition Marx, Hockberger Walls, Adams-Mosby Elsevier
3. EMS and disaster management – A holistic approach PK Dane
4. Disaster medicine 2<sup>nd</sup> edition – David E. Hogar Jonathan L. Burstein

## **11. ORTHOPEDIC EMERGENCIES, BURNS & SURGICAL EMERGENCIES**

**Course Code: BAECT-011**

**Placement:** III Year (V Semester)

**Time:** Theory: 60 Hours

Clinical: 210 Hours

**Course Description:** This course focuses on the assessment, stabilization, and initial management of musculoskeletal injuries, burns, and surgical emergencies. Students learn specialized techniques such as splinting, wound care, and triage protocols to provide timely and effective care in these critical situations.

### **UNIT – I ( 10Hrs)**

#### **Orthopaedic Emergencies**

Fractures and Dislocations, General Principles of Fracture Treatment, Fractures of Lower Extremity, Fractures of Hip, Fractures of Acetabulum And Pelvis, Fractures of Shoulder, Arm, and Forearm, Malunited Fractures, Delayed Union and Nonunion Of Fractures, Acute Dislocations, Old Unreduced Dislocations, Fractures, Dislocations and Ligamentous Injuries of the hand, Fractures and Dislocations of Foot, Fractures and Dislocations In Children

### **UNIT - II (15Hrs)**

#### **Regional Orthopaedic emergencies**

Fractures, Dislocations, And Fracture-Dislocations Of Spine, Ankle Injuries, Knee Injuries, Shoulder And Elbow Injuries, Arthritic Hand, Compartment Syndromes and Volkmann Contracture, Dupuytren Contracture, Carpal Tunnel, Ulnar Tunnel, and Stenosing Tenosynovitis, Tumors and Tumorous Conditions of Hand, Hand Infections, Congenital Anomalies of Hand, Neurogenic Disorders, Disorders of Nails and Skin, Disorders of Tendons and Fascia Mastering Plastering Techniques, Debridement of Open Fractures

### **UNIT – III (15Hrs)**

#### **Burns**

Epidemiology, organisation of burn care, long term outcomes, local and systemic responses to burn injury, pediatric and geriatric considerations, prehospital and interhospital transport, primary survey, burn specific secondary survey, initial wound care, Escharotomies and fasciotomies, Fluid resuscitation, Evaluation of wound, Techniques of burn wound excision, techniques to minimize blood loss, graft fixation and post-operative wound care, skin substitutes, Donor site management, neurological and pain control issues, hemodynamic and electrolyte issues, vascular access, nutritional support, Definitive wound closure – massive burns, facial burns, eyelid burns, ear burns, scalp burns, neck burns, hand burns, Special injuries and illness – electrical injuries, chemical burns, hot tar burns, toxic epidermal necrolysis, injuries of abuse, combined burns and trauma, burns rehabilitation and scar management

### **UNIT – IV (10Hrs)**

#### **Surgical emergencies (Part I)**

Assessment of general surgical patients, Fluid balance, blood transfusion, Analgesia, Antibiotics and emergency general surgery, Analgesia, Antibiotics and general emergencies, MRSA, deep venous thrombosis prophylaxis, preparing patient for theatre, Abdominal trauma, urological trauma, Vascular trauma, spinal trauma, Assessment and management of head injury.

### **UNIT – V (10Hrs)**

#### **Surgical Emergencies (Part II)**

Abdominal emergencies – acute abdomen, abdominal masses, peritonitis, Gallstones, acute cholecystitis, acute cholangitis, jaundice, dyspepsia, Oesophageal perforation, Acute and chronic pancreatitis, acute appendicitis, Emergencies in inflammatory bowel disease (IBD), Gastrointestinal

fistulae, small bowel obstruction, large bowel obstruction, pseudo obstruction, Acute haemorrhage, Anorectal emergencies

## **PRACTICALS**

### **A. Orthopaedic**

- 1) Identification of different fractures
- 2) First aid for closed and compound fractures
- 3) First aid for cervical spinal fracture
- 4) Procedures for shifting of patient with unstable cervical spine

### **B. Burns:**

- 5) Types of burns identification
- 6) First aid in burns management.
- 7) Fluid resuscitation in burns.
- 8) First aid for Electrical burns

### **C. Surgery:**

- 9) FAST scan
- 10) ATLS
- 11) Resuscitation of a trauma patient.
- 12) First aid for acute abdominal emergencies

## **Text Books:**

1. Burns: A Practical Approach to Immediate Treatment and Long Term Care, Robert L. Sheridan, illustrated edition, CRC Press, 2011.
2. Handbook of General Surgical Emergencies, Sam Mehta, Andrew Hindmarsh (MB.), Leila Rees, illustrated edition, Radcliffe Publishing, 2006.
3. Orthopedic Emergencies: Expert Management for the Emergency Physician, Michael C. Bond, illustrated edition, Cambridge University Press, 2013.

## **Examination Pattern**

<b>Subject</b>		<b>Duration</b>
Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	
	-----	
	200 marks	
	-----	

### **The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks
	-----
	50 marks
	-----

### **Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.



2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

**Pattern of Question Paper:**

Long answer question - 2 X 10 = 20 marks

Short answer question - 8 X 5 = 40 marks

Very Short answer - 10 X 2 = 20 marks

## 12.OBSTETRICS, GYNAECOLOGICAL & PEDIATRIC EMERGENCIES

Course Code: BAECT-012

**Placement:** III Year (V Semester)

**Time:** Theory: 60 Hours

Clinical :210 Hours

**Course Description:** This course covers the assessment and management of emergency situations related to pregnancy, gynecological conditions, and pediatric patients. Students learn specialized protocols for obstetric emergencies, gynecological emergencies, and pediatric resuscitation, emphasizing rapid response and effective care in critical scenarios.

### UNIT – I (15Hrs)

#### **Obstetrics and Gynaecological Emergencies (Part I)**

Medical emergencies in pregnant patients, Acute abdominal pain in pregnancy, Ectopic pregnancy, Trauma in pregnancy, CPR during pregnancy, Premortem caesarean delivery, Obstetrical hemorrhages, Puerperal infections, Hypertensive disorders of pregnancy, Preeclampsia, Eclampsia, bleeding in pregnancy, postpartum emergencies, Early and rare dysgravidias, Acute abdomen in gynecology (abnormal uterine bleeding, intra-abdominal hemorrhages), Acute abdomen in gynecology (pelvic inflammatory diseases, septic shock), role of imaging modalities in obstetric emergencies

### UNIT II (10 Hrs)

#### **Obstetrics and Gynaecological Emergencies (Part II)**

Complications of medical and surgical abortion, Sexually transmitted diseases, Vulvular and vaginal diseases, menorrhagia and vaginal bleeding, Pelvic mass, Torsion of ovary, postoperative complications and emergencies, treatment of sexual assault victims, Gynaecologic traumas, Urogynaecologic emergencies

### UNIT – III (15 Hrs)

#### **Paediatric Emergencies (Part I)**

Approach to resuscitation and advanced life support to infants and children, respiratory distress and failure, rapid sequence intubation, intubation, rescue device and airway adjuncts, monitoring in critically ill children, neonatal resuscitation, critically ill neonate, circulatory emergencies, cerebral resuscitation, General approach to poisoning, Altered mental status/ coma, approach to multisystem trauma, sepsis and anaphylaxis, trauma in infants, oral, ocular and maxillofacial trauma, Head trauma, Neck trauma, upper and lower extremities trauma, pelvic and genitourinary trauma, compartment syndrome, spinal trauma, thoracic trauma, abdominal trauma, burns, neurovascular injuries

### UNIT – IV (10 Hrs)

#### **Paediatric Emergencies (Part II)**

Apparent life threatening events in infants, inborn errors of metabolism, congenital heart disease, Excessive crying, Fever in well appearing young infant, Urinary tract infections in infants, stridor in infant, vomiting, spitting up and feeding disorders, failure to thrive, minor infant problems, neonatal skin disorders, Seizures, headaches, conditions causing increased intracranial pressure, CNS infections, CNS vascular disorders, disorders of movements, peripheral neuromuscular disorders, eye disorders, epistaxis, neck infections, neck masses

## UNIT – V (10 Hrs)

### Paediatric Emergencies (Part III)

Acute asthma, bronchiolitis, pneumonia, upper airway disorders, chest pain, dysrhythmias, pericarditis, myocarditis and endocarditis, gastrointestinal bleeding, pyloric stenosis, Constipation, gastrointestinal foreign bodies, hepatitis, pancreatitis, inflammatory bowel disease, abdominal hernias, gall bladder disorders, serum sickness, vaccination related complaints and side effects, Tetanus prophylaxis, steroid dependent child, Addisonian crisis, Thyrotoxicosis, musculoskeletal disorders in systemic diseases, disorders of sodium balance, metabolic acidosis and alkalosis, platelet disorders, disorders of coagulation, common paediatric overdoses, Psychotropic agents, procedures for sedation, pain management and devices

### PRACTICALS

#### **A. Obstetrics and Gynaecology:**

1. CPR in pregnancy.
2. Trauma in pregnancy
3. Ectopic pregnancy resuscitation.
4. Obstetric hemorrhage
5. Pre eclampsia and eclampsia

#### **B. Paediatrics:**

6. Advanced pediatric life support
7. Child with seizures in the casualty.
8. Child with dehydration
9. Child with respiratory distress.

### Text Books:

1. Handbook of Obstetric and Gynecologic Emergencies, Guy I. Benrubi, 4th edition, Lippincott Williams & Wilkins, 2012
2. Pediatric Emergency Medicine, Jill M. Baren, Steven G. Rothrock, John Brennan, Lance Brown, illustrated edition, Elsevier Health Sciences, 2007
3. PALS ; AHA GUIDELINES 2008

### **Examination Pattern**

<b>Subject</b>		<b>Duration</b>
Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	
	-----	
	200 marks	
	-----	

#### **The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks
	-----
	50 marks
	-----

### **Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

**Pattern of Question Paper:**

Long answer question - 2 X 10 = 20 marks  
Short answer question - 8 X 5 = 40 marks  
Very Short answer - 10 X 2 = 20 marks

## **BIOSTATISTICS & RESEARCH METHODOLOGY**

**Course Code: BAECT–C05**

**Placement:** III Year (V Semester)

**Time:** Theory: 30 Hours

### **Course Description:**

At the end of the course, the students will be able to understand the statistical methods and apply them in conducting research studies.

### **UNIT- I (5 Hrs)**

#### **Introduction:**

- Concepts, types, significance and scope of statistics, Meaning of data, Sample, parameter
- Type and level of data and their measurement
- Organization and presentation of data – Tabulation of data; Frequency distribution – Graphical and tabular presentations

### **UNIT- II (5 Hrs)**

#### **Measures of central tendency:**

- Mean, Median, Mode

#### **Measures of variability:**

- Range, Percentiles, average deviation, quartile deviation, standard deviation

#### **Normal Distribution:**

- Probability,
- Characteristics and application of normal probability curve;
- Sampling

### **UNIT- III (5 Hrs)**

#### **Measures of relationship:**

- Correlation – need and meaning
- Rank order correlation
- Scatter diagram method
- Product moment correlation
- Simple linear regression analysis and prediction.

### **UNIT- IV (5 Hrs)**

#### **Significance of Statistic and Significance of difference between two statistics (Testing hypothesis)**

- Non parametric test – Chi-square test, Sign, median test, Mann Whitney test.
- Parametric test – 't' test, ANOVA, MANOVA, ANCOVA

### **UNIT- V (5 Hrs)**

#### **Research Methods:**

- Research Meaning-
- Scope and Objectives
- Research methods vs. Methodology.

#### **Types of research**

- Descriptive vs. Analytical
- Applied vs. Fundamental
- Quantitative vs. Qualitative
- Conceptual vs. Empirical

**Concept of applied and basic research process,**

- Defining and formulating the research problem
- Selecting the problem, necessity of defining the problem,
- Importance of literature review in defining a problem,
- Criteria of good research.

**Literature review**

- Primary and secondary sources,
- Reviews, monograph, patents,
- Research databases, web as source, searching the web,
- Critical literature review,
- Identifying gap areas from literature and research database, development of working hypothesis

**UNIT- VI(5 Hrs)****Data Collection and Sampling:**

- Data collection
- Classification of data
- Class intervals
- Continuous and discrete measurements
- Drawing frequency polygon
- Types of frequency polygon
- Histogram
- Accepts of method validation, observation and collection of data, methods of data collection

**Sampling methods,****Data processing and analysis strategies and tools, data analysis with statistical package**

- SigmaSTAT, SPSS for student t-test, ANOVA, etc.
- Hypothesis testing.

**Correlation**

- Historical contribution
- Meaning of correlation
- Types: Product, moment, content correlation, variation of product, movement correlation, rank correlation,

**Regression analysis.**

- Tests of significance-need for
- sampling error
- significance of the mean
- significance of differences between means
- Interpretation of probability levels—small samples—large samples.

**Reference Books:**

1. Mahajan B.K., Methods in Biostatistics for Medical Students and Research Workers, Jaypee, 9<sup>th</sup> Ed, 2018.
2. Sundar Rao & Richard, Introduction to Biostatistics & Research Methods, Prentice Hall of India, New Delhi, 5<sup>th</sup> edition, 2012.
3. Negi K.S., Biostatistics, A.I.I.B.S, 1<sup>st</sup> Ed, 2013.
4. Rao & Murthy, Applied Statistics in Health Sciences, J.B. Brothers, New Delhi 2010.
5. Visweswara Rao, Biostatistics & Manual of Statistical Methods for use in Health, Nutrition and Anthropology, J.B. Brothers Publishers Pvt. Ltd., 2009.

### **13.NEUROLOGICAL & UROLOGICAL EMERGENCIES**

**Course Code: BAECT-013**

**Placement:**III Year (VI Semester)

**Time:** Theory: 60 Hours

Clinical:120 Hours

**Course Description:** Students learn to recognize symptoms, perform diagnostic evaluations, and implement interventions for neurological emergencies like strokes and seizures, as well as urological emergencies such as urinary tract infections and kidney stones. The course emphasizes rapid response, critical thinking, and specialized care techniques in these critical situations.

#### **UNIT – I (15 Hrs)**

##### **Neurological Emergencies (Part I)**

Coma – Causes, emergency management, history, general examination, neurological examination, emergency investigations, Serial monitoring, emergency treatment – Glucose, thiamine, increased intracranial pressure, seizures, hypothermia / hyperthermia, acid-base balance, metabolic disturbance, infection, transtentorial herniation, Acute infective Encephalitis – Emergency treatment, stupor / coma, raised intracranial pressure, specific antiviral therapy, non – viral infective encephalitis, Meningitis – types, clinical features, laboratory findings, emergency treatment, antibiotic treatment, other treatment, problems in diagnosis and treatment, focal neurological signs, partially treated meningitis, neonatal meningitis, tuberculous meningitis, other infective meningitis

#### **UNIT II (10 Hrs)**

##### **Neurological Emergencies (Part II)**

Intracranial abscess and venous thrombosis / thrombophlebitis – cerebral abscess, clinical features, investigations, Emergency treatment, intracranial extradural abscess, cerebral and cortical venous thrombosis / thrombophlebitis, cavernous sinus thrombosis / thrombophlebitis, underlying causes, Stroke and subarachnoid haemorrhage - Causes, emergency management, history, general examination, emergency investigations, diagnosis, Cerebral angiography, identification of site of damage and underlying cause, head injury – open head injury, laceration, linear skull fracture, depressed skull fracture, acute extradural haemorrhage, subdural haemorrhage, intracerebral haemorrhage, cranial nerve injury, inappropriate ADH secretion

#### **UNIT – III (10 Hrs)**

##### **Neurological Emergencies (Part III)**

Spinal cord dysfunction – Clinical features, Acute spinal cord compression, Acute non-compressive spinal cord lesions, emergency management, emergency assessment, movement of patient, diagnosis, Acute respiratory failure due to neurological disease – diagnosis, underlying cause, respiratory failure, emergency management, investigations, immediate assessment of ventilation, Brain death – etiology, evaluation of clinical status, investigations and management

#### **UNIT – IV (7 Hrs)**

##### **Urological Emergencies (Part II)**

Presenting symptoms of urological emergencies, Lower urinary tract emergencies, nontraumatic renalemergencies, infective urological emergencies, Traumatic urological emergencies

#### **UNIT – V (8 Hrs)**

##### **Urological Emergencies (Part III)**

Scrotal and genital emergencies, post-operative emergencies after urological surgery, Ureteric colic in pregnancy, management of neoplastic conditions presenting as emergencies, urological emergencies in paediatrics, common emergency urological procedures

## PRACTICALS

First aid and Management of

- Status epilepticus
- Stroke
- Head injury
- Glasgow coma scale
- Spinal cord injury
- Ureteric colic
- Traumatic renal injury
- Acute bladder distension

### Text Books:

1. Neurological Emergencies, S.D. Shorvon , illustrated edition, Butterworth-Heinemann, 2013
2. Urological Emergencies In Clinical Practice, HashimHashim, John Reynard, Nigel C. Cowan, Dan Wood, Noel Armenakas, 2nd edition, Springer Science & Business Media, 2013

### Examination Pattern

Subject		Duration
Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	
	-----	
	200 marks	
	-----	

### The practical examination will have the following components:

Practical Major	30 marks
Practical Minor/ Spotters	20 marks
	-----
	50 marks
	-----

### Guidelines for setting Question Paper for Theory Examination:

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

### Pattern of Question Paper:

Long answer question	- 2 X 10 = 20 marks
Short answer question	- 8 X 5 = 40 marks
Very Short answer	- 10 X 2 = 20 marks



## 14. EMERGENCY SURGERY & PROCEDURES

Course Code: BAECT-014

**Placement:** III Year (VI Semester)

**Time:** Theory: 60 Hours

**Course Description:** Students learn about surgical triage, sterile techniques, wound management, and emergency surgical procedures such as appendectomies, trauma surgeries, and wound debridement. The course emphasizes rapid decision-making, teamwork, and patient safety in emergency surgical settings.

### UNIT I

#### Principles of Anaesthesia:

- General Anaesthesia, Local Anaesthesia, Regional Anaesthesia

#### Wounds and Suturing:

- Types of common wounds, Treatment & Cleansing the wound, Wound healing, Principles of incision and closure (including suturing)

### UNIT II

#### Acute Abdominal Pain

#### Esophageal Obstruction and Foreign Bodies

- Esophageal pharmacologic Maneuvers, Foley catheter manipulation of Esophageal Foreign Bodies, Special situations: Fish Bones in the Throat, Button, Battery ingestion, Childhood coin ingestion

#### Gastrointestinal Bleeding

- Upper GI Bleed & Lower GI Bleed

### UNIT III

#### Stomach

- Peptic ulcer: Clinical features, Difference between duodenal and gastric ulcer, Investigations and Treatment

### UNIT IV

#### Cholecystitis

- Definition & Pathophysiology, Causes, Signs and symptoms, Investigations & Treatment

### UNIT V

#### Pancreas:

- Acute Pancreatitis: Definition & Pathophysiology, Causes, Signs and symptoms, investigations & Treatment

#### Chronic Pancreatitis:

- Clinical features, Investigations & Treatment

#### Appendix

- Acute Appendicitis: Pathology, Clinical features, Physical Examination, Investigations & Treatment

#### Intestinal obstruction: Clinical presentation and management

#### Anorectal Disorders: Clinical presentation and management

#### Renal Colic:

- History & Causes, Presentation & Examination of the Kidney, Investigations & Management

### UNIT VI

Torsion Testis and Special emergency surgical procedures

### PRACTICALS

1. Chest tube insertion
2. Tracheostomy
3. Needle cricothyroidectomy
4. Needle decompression
5. Suturing of wounds
6. Washing and bandaging of wounds
7. Incision & drainage
8. Supra-pubic catheterization

### **Recommended Books**

1. Bailey & Love's Short practice of Surgery,
2. A Concise Textbook of Surgery, S.Das, Publisher S.Das, 2<sup>nd</sup> edition, 1999
3. Manual on Clinical Surgery, S.Das

### **Examination Pattern**

<b>Subject</b>		<b>Duration</b>
Theory exam:	80 marks	3 hours
Practical exam:	50 marks	3 hours
Oral exam	20 marks	
Internal assessment (Theory)	25 marks	
Internal assessment (Practical)	25 marks	
	-----	
	200 marks	
	-----	

### **The practical examination will have the following components:**

Practical Major	30 marks
Practical Minor/ Spotters	20 marks
	-----
	50 marks
	-----

### **Guidelines for setting Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

### **Pattern of Question Paper:**

Long answer question	- 2 X 10 = 20 marks
Short answer question	- 8 X 5 = 40 marks
Very Short answer	- 10 X 2 = 20 marks

**MEDICAL LAW & ETHICS & PRACTICE MANAGEMENT**  
**Course Code: BAECT–C06**

**Placement:** III Year (VI Semester)

**Time:** Theory: 30Hours

**Course Description:** The Course is designed to understand the basics of Medical Law and Ethics in relation to clinical science.

**UNIT- I(5 Hrs)**

**Introduction to Ethics**

- what is ethics
- what are values and norms
- Hippocratic oath

**UNIT- II(15 Hrs)**

**Ethics of individual**

- Doctor patient relationship.
- Right to be respected.
- Truth and confidentiality
- Autonomy of decision
- The patient as a person

**UNIT- III(10Hrs)**

**Professional Ethics**

- Code of conduct
- Malpractice and negligence.
- Contract and confidentiality.

**Reference Books:**

1. Erich H Loewy, Text book of Medical Ethics, Springer publications, 1st edition, 2014.
2. Shaun.D.Pattinson, Medical Laws and Ethics, Sweet and Maxwell, 5th Edition, 2015.
3. Princy Louis Palatty et.al - A Textbook of Bioethics for Healthcare Professionals, 1st Edi, 2018

**VIII. Question Paper Pattern**  
(Subject with Theory and Practical Exam)

**Guidelines for setting a Question Paper for Theory Examination:**

1. Prepare the question papers for 80 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

Time: 3 hours

Max Marks: 80

**Pattern of Question Paper**

I. Write essay on **any TWO** (2x 10 =20 marks)

- 1.
- 2.
- 3.

II. Write short notes on **any EIGHT**(8 x 5 =40 marks)

- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.

III. Very Short Answer – Answer **all questions**: (10 x 2 = 20 marks)

- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.
- 21.
- 22.
- 23.

**VIII. Question Paper Pattern**  
(Subject with only Theory Exam and no Practical Exam)

**Guidelines for setting a Question Paper for Theory Examination:**

1. Prepare the question papers for 75 marks.
2. Set questions within the course syllabus covering entire syllabus with equal distribution from all topics in each section.

Time: 3 hours

Max Marks: 75

**Pattern of Question Paper**

I. Write essay on **any TWO** (2x 10 =20 marks)

- 1.
- 2.
- 3.

II. Write short notes on **any SEVEN** (7 x 5 =35 marks)

- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.

III. Very Short Answer – Answer **all questions**: (10 x 2 = 20 marks)

- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.
- 21.
- 22.