# ALLIED HEALTH SCIENCES

## Programme Name-BCCT

**VISION**

- To impart quality education through outcomes-based teaching & Hands-On clinical practice.

- To encourage innovation & interdisciplinary collaboration in solving real world challenges.

- To produce skilled, ethical, ALLIED HEALTH Professionals, who contribute holistic Health Care & enhancement of community health at local & global level.

**MISSION**

- To educate & professionals who contribute to the promotion of health prevention of disease & delivery of high-quality patient care.

- Developing next generation of Allied Health leaders through membership, education & innovation.

- To encourage creative solution and best practice in patient care.

**PROGRAMME EDUCATIONAL OBJECTIVES:**

**PEO 1: Professional Competence and Ethical Practice**
Students will demonstrate strong foundational and applied knowledge in critical care technology, enabling them to provide high-quality patient monitoring and life-support services while adhering to ethical, moral, and professional standards within healthcare institutions.

**PEO 2: Lifelong Learning and Leadership in Healthcare**
Students will continuously update their knowledge and technical skills to adapt to emerging technologies and healthcare advancements, effectively communicating and collaborating with multidisciplinary teams to assume leadership roles in critical care environments.

**PROGRAM SPECIFIC OUTCOME (PSOs)**

**PSO 1: Clinical Application and Technical Proficiency**
Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units.

**PSO 2: Patient-Centered Critical Care and Professional Collaboration**
Graduates will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services.

**PROGRAMME OUTCOMES:**

At the end of the program students should be able to:
**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

**PO2 Communication Skills:** Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

**PO4 Cooperation/Team work:** Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

**PO5 Self-directed learning:** Able to work independently in various healthcare settings and manage situations requiring quick and responsible action

**PO6 Moral and ethical awareness/reasoning:** Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

**PO8: Clinical Competence and Technical Skills:**
Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

## Credit Definition

| Type | Duration (in hours) | Credit |
|---|---|---|
| Lecture (L) | 1 | 1 |
| Tutorial (T) | 0 | 0 |
| Practical (P) | 2 | 1 |

## Total Credit Distribution for the Entire Programme

| Semester | Credit | | | | | | |
|---|---|---|---|---|---|---|---|
| | CC | DSE | GE | AECC | SEC | USC | Total/Sem |
| First | 18 | | | 2 | | | 20 |
| Second | 18 | | 4 | 2 | 1 | | 25 |
| Third | 12 | 6 | 4 | 2 | 1 | 2 | 27 |
| Fourth | 12 | 6 | 4 | 2 | 1 | 2 | 27 |
| Fifth | 18 | 6 | | | 1 | 2 | 27 |
| Sixth | 18 | 6 | | | | 2 | 26 |
| Total Credit/ Course | 96 | 24 | 12 | 8 | 4 | 8 | |
| Total Credit | | | | | | | 152 |

## Category Definition

| Definition of Category/Type | Abbreviation |
|---|---|
| Core Courses; | CC |
| General Elective | GE |
| Ability Enhancement Compulsory Course | AECC |
| Skill Enhancement Courses; | SEC |
| Discipline Specific Elective | DSE |
| University specified course | USC |
| **Skill Enhancement Courses** | **SEC** |

## FIRST YEAR

**SEMESTER-I & II:**

| Category | Course Name | Credit | Teaching Scheme | | |
|---|---|---|---|---|---|
| | | | L | T | P |
| **Semester –I** | | | | | |
| CC – 1 | Basic & Applied Human Anatomy | 4 | 4 | 0 | 0 |
| | Basic & Applied Human Anatomy Lab | 2 | 0 | 0 | 4 |
| CC – 2 | Basic & Applied Human Physiology | 4 | 4 | 0 | 0 |
| | Basic & Applied Human Physiology lab | 2 | 0 | 0 | 4 |
| CC– 3 | Basic Instrument & Equipment | 4 | 4 | 0 | 0 |
| | Basic Instrument & Equipment lab | 2 | 0 | 0 | 4 |
| AECC – 1 | Communicative English –I | 2 | 2 | 0 | 0 |
| **Total Credit = 20** | | | **Teaching Hour = 24** | | |
| **Semester –II** | | | | | |
| CC – 4 | Basic Biochemistry & Microbiology | 4 | 4 | 0 | 0 |
| | Basic Biochemistry & Microbiology Lab | 2 | 0 | 0 | 4 |
| CC – 5 | Basic Nursing | 4 | 4 | 0 | 0 |
| | Basic Nursing Lab | 2 | 2 | 0 | 2 |
| CC-6 | Basic surgery | 4 | 4 | 0 | 0 |
| | Basic surgery Lab | 2 | 0 | 0 | 4 |
| GE – 1 | Clinical Psychology | 4 | 4 | 0 | 0 |
| AECC – 2 | Communicative English – II | 2 | 2 | 0 | 0 |
| SEC – 1 | Mentored Seminar – I | 1 | 1 | 0 | 0 |
| | | | | | |
| **Total Credit = 25** | | | **Teaching Hour = 31** | | |

# Second Year

**Semester III& IV:**

| Category | Course Name | Credit | Teaching Scheme | | |
|----------|-------------|--------|------|------|------|
| | | | L | T | P |
| **Semester –III** | | | | | |
| CC – 7 | Basic and Advance Life support | 4 | 4 | 0 | 0 |
| | Basic and Advance Life support Lab | 2 | 0 | 0 | 4 |
| CC – 8 | Clinical Pathology | 4 | 4 | 0 | 0 |
| | Clinical Pathology Lab | 2 | 0 | 0 | 4 |
| DSE – 1 | Clinical pharmacology | 4 | 4 | 0 | 0 |
| | Clinical pharmacology – Lab | 2 | 0 | 0 | 4 |
| GE – 2 | General Elective-II | 4 | 4 | 0 | 0 |
| AECC – 3 | Fundamentals of Computer Science | 2 | 2 | 0 | 0 |
| SEC – 2 | Mentored Seminar – II | 1 | 1 | 0 | 0 |
| USC – 1 | Environmental Science-I | 2 | 2 | 0 | 0 |
| **Total Credit = 27** | | | **Teaching Hour = 33** | | |
| **Semester – IV** | | | | | |
| CC – 9 | Basic Critical Care Management I | 4 | 4 | 0 | 0 |
| | Basic Critical Care Management I- lab | 2 | 0 | 0 | 4 |
| CC – 10 | Clinical Medicine-I | 4 | 4 | 0 | 0 |
| | Clinical Medicine-I LAB | 2 | 0 | 0 | 4 |
| DSE – 2 | Basic Anaesthesia | 4 | 4 | 0 | 0 |
| | Basic Anaesthesia LAB | 2 | 0 | 0 | 4 |
| GE – 3 | General Elective-III | 4 | 4 | 0 | 0 |
| AECC – 4 | Medical Law & Ethics | 2 | 2 | 0 | 0 |
| SEC – 3 | Mentored Seminar – III | 1 | 1 | 0 | 0 |
| USC – 2 | Environmental Science-II | 2 | 2 | 0 | 0 |
| | | | | | |
| **Total Credit = 27** | | | **Teaching Hour = 33** | | |

**Third Year**

**Semester V & VI:**

| Category | Course Name | Credit | Teaching Scheme | | |
|---|---|---|---|---|---|
| | | | L | T | P |
| Semester – V | | | | | |
| CC –11 | Advance Critical Care Management I | 4 | 4 | 0 | 0 |
| | Advance Critical Care Management I LAB | 2 | 0 | 0 | 4 |
| CC – 12 | Clinical Medicine-II | 4 | 4 | 0 | 0 |
| | Clinical Medicine-II LAB | 2 | 0 | 0 | 4 |
| CC – 13 | CSSD-1 | 4 | 4 | 0 | 0 |
| | CSSD-1 LAB | 2 | 0 | 0 | 4 |
| DSE – 3 | Lab Science -1 | 4 | 4 | 0 | 0 |
| | Lab Science -1 LAB | 2 | 0 | 0 | 4 |
| SEC – 4 | Mentored Seminar – IV | 1 | 1 | 0 | 0 |
| USC – 3 | Health  Statistics | 2 | 2 | 0 | 0 |
| Total Credit = 27 | | | Teaching Hour = 33 | | |
| Semester – VI | | | | | |
| CC – 14 | Advance Critical Care Management II | 4 | 4 | 0 | 0 |
| | Advance Critical Care Management II LAB | 2 | 0 | 0 | 4 |
| CC – 15 | CSSD  II | 4 | 4 | 0 | 0 |
| | CSSD  II– Lab | 2 | 0 | 0 | 4 |
| CC – 16 | Lab Science II & Imaging Study | 4 | 4 | 0 | 0 |
| | Lab Science II & Imaging Study – Lab | 2 | 0 | 0 | 4 |
| DSE-4 | Project | 6 | 0 | 0 | 12 |
| USC-4 | Research Methodology | 2 | 2 | 0 | 0 |
| Total Credit = 26 | | | Teaching Hour 38 | | |

SEMESTER-I

COURSE NAME (BCCT)

**PAPER: BASIC & APPLIED HUMAN ANATOMY**

**PROGRAM OUTCOMES (PO)**

PO1 Disciplinary knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

PO2 Communication Skills: Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

PO3 Problem Solving & Reasoning: Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

PO4 Cooperation/Team work: Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

PO5 Self-directed learning: Able to work independently in various healthcare settings and manage situations requiring quick and responsible action

PO6 Moral and ethical awareness/reasoning: Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

PO7 Lifelong learning: Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

PO8: Clinical Competence and Technical Skills:

Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

**PROGRAM SPECIFIC OUTCOMES (PSOs)**

PSO 1: Clinical Application and Technical Proficiency
Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units.
(Linked to PO1, PO3, and PO8)
PSO 2: Patient-Cantered Critical Care and Professional Collaboration

Graduates will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services.

(Linked to PO2, PO4, PO6, and PO7)

**Course outcome**

CO1.Students will be able to outline position, specified function of skeletal system and respiratory system.

CO2 Students will be able to Demonstrate the parts and functions of Cardiovascular system of human body.

CO3.Students will be able to think critically to differentiate the anatomical position and function of Excretory system of human body.

CO4.Students will be able to Monitoring the functions of gastro-intestinal system with position.

CO5.Students will be able to Design the pathways and correlation of Nervous system with other systems including cardiovascular system, excretory system.

**CO PO and PSO mapping**

|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 1 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 3 |
| CO4 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| CO5 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| TOTAL | 15 | 10 | 14 | 10 | 11 | 10 | 13 | 11 | 14 | 15 |

**PAPER: BASIC &APPLIED HUMAN PHYSIOLOGY**

**Course Outcomes:**

CO1: Students will be able to classify the various blood components and their transfusion according to the clinical physiology.
CO2: Students will be able to demonstrate the physiology of cardio-vascular system, pulmonary system, and renal system, and its abnormalities.
CO3: Students will be able to detect hormonal imbalance.
CO4: Students will be able to monitor cardio-pulmonary parameters and management. CO5: Students will be able to check the reflexes of neuro-muscular system.

**PROGRAM OUTCOMES (PO)**
**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

**PO2 Communication Skills:** Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

**PO4 Cooperation/Team work:** Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

**PO5 Self-directed learning:** Able to work independently in various healthcare settings and manage situations requiring quick and responsible action

**PO6 Moral and ethical awareness/reasoning:** Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

**PO8: Clinical Competence and Technical Skills:** Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

## PROGRAM EDUCATIONAL OUTCOMES (PEOs)

**PEO 1: Professional Competence and Ethical Practice:** Students will demonstrate strong foundational and applied knowledge in critical care technology, enabling them to provide high-quality patient monitoring and life-support services while adhering to ethical, moral, and professional standards within healthcare institutions.

(Derived from PO1, PO3, PO6, and PO8)

**PEO 2: Lifelong Learning and Leadership in Healthcare:** Students will continuously update their knowledge and technical skills to adapt to emerging technologies and healthcare advancements, effectively communicating and collaborating with multidisciplinary teams to assume leadership roles in critical care environments.

(Derived from PO2, PO4, PO5, and PO7)

## PROGRAM SPECIFIC OUTCOMES (PSOs)

**PSO 1: Clinical Application and Technical Proficiency**

Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units. (Linked to PO1, PO3, and PO8)

**PSO 2: Patient-Centered Critical Care and Professional Collaboration**

Graduates will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services.

(Linked to PO2, PO4, PO6, and PO7)

| CO / PO–PSO–PEO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 | PEO1 | PEO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 2 | 2 | 1 | 1 | 2 | 1 | 3 | 3 | 2 | 3 | 2 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
| CO5 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 3 | 2 |
| TOTAL | 15 | 9 | 12 | 9 | 10 | 10 | 8 | 13 | 13 | 12 | 15 | 12 |

## PAPER: BASIC INSTRUMENT & EQUIPMENT

**Course Outcomes:**

CO1: Students will be able to identify the parts and functions of basic clinical equipment.

CO2: Students will be able to demonstrate the use of basic diagnostic tools.

CO3: Students will be able to compare various patient care accessories used in clinical practice.

CO4: Students will be able to differentiate between types of surgical instruments.

CO5: Students will be able to evaluate the handling strategies of surgical and emergency instruments in clinical settings.

**Program Outcomes (POs)**

At the end of the program, students should be able to:

PO1 Disciplinary knowledge:
Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

PO2 Communication Skills:
Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

PO3 Problem Solving & Reasoning:
Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

PO4 Cooperation/Team work:Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

PO5 Self-directed learning:
Able to work independently in various healthcare settings and manage situations requiring quick and responsible action.

PO6 Moral and ethical awareness/reasoning: Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

PO7 Lifelong learningAble to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

PO8: Clinical Competence and Technical Skills:Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

**Program Specific Outcomes (PSO)**

PSO 1: Clinical Application and Technical Proficiency

Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units.

PSO 2: Patient-Centered Critical Care and Professional Collaboration

Graduates will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services.

**Program Educational Objectives (PEO)**

PEO 1: Professional Competence and Ethical Practice

Students will demonstrate strong foundational and applied knowledge in critical care technology, enabling them to provide high-quality patient monitoring and life-support services while adhering to ethical, moral, and professional standards within healthcare institutions.

PEO 2: Lifelong Learning and Leadership in Healthcare

Students will continuously update their knowledge and technical skills to adapt to emerging technologies and healthcare advancements, effectively communicating and collaborating with multidisciplinary teams to assume leadership roles in critical care environments.

**CO, PO and PSO mapping**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO 1 | PSO 2 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| CO1 | 3 | 2 | 2 | 1 | 1 | 2 | 1 | 0 | 1 | 2 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| CO3 | 3 | 1 | 2 | 1 | 2 | 2 | 2 | 3 | 3 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO5 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 3 | 2 |
| TOTAL | 15 | 9 | 12 | 9 | 10 | 10 | 8 | 11 | 13 | 12 |

## PAEER: BASIC BIOCHEMISTRY AND MICROBIOLOGY

CO1: Discuss the classification, function and metabolism of carbohydrate.
CO2: Discuss the classification, function, and metabolism of protein.
CO3: Describe the types, function and metabolism of lipids, including their physiological roles.
CO4: Explain the historical background and basic concepts of microbiology including classification and morphology of bacteria.
CO5: Explain the structural and functional features of prokaryotic cells including gram positive and gram-negative bacteria.

## PROGRAMME OUTCOME PO-

**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

**PO2 Communication Skills:** Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

**PO4 Cooperation/Team work:** Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

**PO5 Self-directed learning:** Able to work independently in various healthcare settings and manage situations requiring quick and responsible action

**PO6 Moral and ethical awareness/reasoning:** Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

**PO8: Clinical Competence and Technical Skills:**
Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

## PROGRAM EDUCATIONAL OUTCOMES (PEOs)
**PEO 1: Professional Competence and Ethical Practice**
Students will demonstrate strong foundational and applied knowledge in critical care technology, enabling them to provide high-quality patient monitoring and life-support services while adhering to ethical, moral, and professional standards within healthcare institutions.
(Derived from PO1, PO3, PO6, and PO8)

**PEO 2: Lifelong Learning and Leadership in Healthcare**
Students will continuously update their knowledge and technical skills to adapt to emerging technologies and healthcare advancements, effectively communicating and collaborating with multidisciplinary teams to assume leadership roles in critical care environments.
(Derived from PO2, PO4, PO5, and PO7)

## PROGRAM SPECIFIC OUTCOMES (PSOs)
**PSO 1: Clinical Application and Technical Proficiency**
Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units.

(Linked to PO1, PO3, and PO8)

## PSO 2: Patient-Centered Critical Care and Professional Collaboration

Graduates will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services.

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO 1 | PSO 2 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| CO1 | 3 | 1 | 3 | 0 | 1 | 1 | 2 | 2 | 3 | 2 |
| CO2 | 3 | 1 | 3 | 2 | 1 | 1 | 2 | 2 | 3 | 2 |
| CO3 | 3 | 1 | 3 | 0 | 1 | 1 | 2 | 2 | 3 | 2 |
| CO4 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 3 |
| CO5 | 15 | 2 | 3 | 1 | 2 | 2 | 3 | 3 | 3 | 3 |
| TOTAL | 3 | 7 | 14 | 4 | 6 | 7 | 11 | 11 | 14 | 12 |

## PAPER BASIC NURSING

CO1-Students will be able to interpret various aseptic techniques before doing any procedure.
CO2-Students will be able to practice post-surgical patient care.
CO3-Students will be able to differentiate the cannulas, catheters which are needed for required patients.
CO4-Students will be able to monitor the critically ill patients who are on ventilators.
CO5- Students will be able to plan suitable patient management in emergency situations.

## PROGRAM OUTCOMES (PO)

**PO1. Disciplinary Knowledge**:
Demonstrate comprehensive theoretical and practical understanding of the core and allied areas with the ability to apply this knowledge effectively in surgical and clinical environments.

**PO2. Communication Skills:**
Exhibit proficiency in verbal and written communication for effective interaction with healthcare professionals, patients, and multidisciplinary teams, maintaining clarity, accuracy, and professionalism.

PO3. Problem Solving and Analytical Reasoning:
Apply critical and analytical thinking to identify, interpret, and resolve issues through evidence-based and situation-specific approaches.

PO4. Teamwork and Collaboration:
Work efficiently and respectfully within multidisciplinary healthcare teams, fostering cooperation and coordination to achieve safe and effective surgical outcomes.

PO5. Self-Directed Learning:
Demonstrate initiative, responsibility, and independence in professional practice, utilizing appropriate resources and adapting to advancements in surgical technologies and techniques.

PO6. Ethical and Professional Conduct:
Uphold ethical principles, professional standards, and legal frameworks while maintaining integrity, confidentiality, and accountability in all aspects of healthcare delivery.PO7.
Lifelong Learning:

Commit to continuous learning and professional development to remain competent, adaptable, and responsive to ongoing advancements in medical science and healthcare practices.

PO8.Technological Competence and Innovation:
Demonstrate proficiency in utilizing modern surgical instruments, digital technologies, and information systems to enhance the precision, safety, and efficiency of operation theatre practices, while embracing innovation and adaptability to emerging healthcare technologies.

## Program Specific Outcomes (PSO)
PSO1: Surgical Equipment Management
Students will be able to identify, operate, maintain, and troubleshoot various operation theatre instruments and advanced surgical equipment, ensuring their proper sterilization, calibration, and functionality for safe surgical procedures.
PSO2: Perioperative Patient Care and Safety
Students will be able to assist in preoperative, intraoperative, and postoperative patient care by applying aseptic techniques, infection control measures, and emergency response protocols to enhance patient safety and surgical efficiency.

## Program Educational Objectives (PEO)
PEO1: Professional Competence and Employability
Graduates will be competent operation theatre technologists capable of performing effectively in hospitals, surgical centers, and research settings, contributing to quality surgical care and patient management.
PEO2: Leadership, Research, and Innovation
Graduates will demonstrate leadership qualities, engage in evidence-based practice, and contribute to innovations in surgical technology, patient safety, and healthcare management through research and professional growth.

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1 | 3 | 2 | 3 | 4 | 2 | 3 | 2 | 3 | 3 | 3 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 4 | 2 | 3 | 3 | 3 |
| **TOTAL** | **15** | **11** | **15** | **14** | **11** | **16** | **10** | **15** | **15** | **14** |

## PAPER: BASIC SURGERY

CO1 Explain the principles and the use of hemostatic agents.
CO2 Demonstrate correct preoperative skin preparation
CO3 Differentiate between various abdominal incisions and surgical positions based on indication and approach.

CO4 Critique the selection of suture materials for different surgical cases.
CO5 Design a comprehensive pre-operative preparation protocol for a patient undergoing surgery.

## PROGRAM OUTCOMES (PO)

**CRITICAL CARE TECHNOLOGISTS ARE ABLE TO**
**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
**PO2 Communication Skills:** Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.
**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.
**PO4 Cooperation/Team work:** Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.
**PO5 Self-directed learning:** Able to work independently in various healthcare settings and manage situations requiring quick and responsible action
**PO6 Moral and ethical awareness/reasoning:** Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.
**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.
**PO8:** Clinical Competence and Technical Skills: Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

**Co Po mapping for BCCT**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1 | 3 | 2 | 3 | 1 | 2 | 3 | 2 | 2 | 3 | 2 |
| CO2 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 1 | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 2 |
| CO4 | 3 | 2 | 3 | 1 | 2 | 2 | 3 | 2 | 3 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| SUM | 15 | 10 | 14 | 10 | 11 | 13 | 12 | 11 | 14 | 12 |

## PAPER: BASIC LIFE SUPPORT

**Course Outcomes:**

CO1: Students will be able to explain the fundamental principles of basic and advanced life support.

CO2: Students will be able to demonstrate appropriate life-saving techniques and emergency procedures in clinical situations.

CO3: Students will be able to distinguish the use of various life support tools and technologies in the management of critically ill patients.

CO4: Students will be able to monitor the administration and effects of emergency interventions and medications in life-threatening conditions.

CO5: Students will be able to formulate the post-resuscitation care strategies to support recovery and prevent complications.

**Program Outcomes (POs)**

At the end of the program, students should be able to:

PO1. Disciplinary Knowledge:

Demonstrate comprehensive theoretical and practical understanding of the core and allied areas with the ability to apply this knowledge effectively in surgical and clinical environments.

PO2. Communication Skills:

Exhibit proficiency in verbal and written communication for effective interaction with healthcare professionals, patients, and multidisciplinary teams, maintaining clarity, accuracy, and professionalism.

PO3. Problem Solving and Analytical Reasoning:

Apply critical and analytical thinking to identify, interpret, and resolve issues through evidence-based and situation-specific approaches.

PO4. Teamwork and Collaboration:

Work efficiently and respectfully within multidisciplinary healthcare teams, fostering cooperation and coordination to achieve safe and effective surgical outcomes.

PO5. Self-Directed Learning:

Demonstrate initiative, responsibility, and independence in professional practice, utilizing appropriate resources and adapting to advancements in surgical technologies and techniques.

PO6. Ethical and Professional Conduct:

Uphold ethical principles, professional standards, and legal frameworks while maintaining integrity, confidentiality, and accountability in all aspects of healthcare delivery.

PO7. Lifelong Learning:

Commit to continuous learning and professional development to remain competent, adaptable, and responsive to ongoing advancements in medical science and healthcare practices.

PO8. Technological Competence and Innovation:Demonstrate proficiency in utilizing modern surgical instruments, digital technologies, and information systems to enhance the precision,

safety, and efficiency of operation theatre practices, while embracing innovation and adaptability to emerging healthcare technologies.

**Program Specific Outcomes (PSO)**

PSO1: Surgical Equipment Management

Students will be able to identify, operate, maintain, and troubleshoot various operation theatre instruments and advanced surgical equipment, ensuring their proper sterilization, calibration, and functionality for safe surgical procedures.

PSO2: Perioperative Patient Care and Safety

Students will be able to assist in preoperative, intraoperative, and postoperative patient care by applying aseptic techniques, infection control measures, and emergency response protocols to enhance patient safety and surgical efficiency.

**Program Educational Objectives (PEO)**

PEO1: Professional Competence and Employability
Graduates will be competent operation theatre technologists capable of performing effectively in hospitals, surgical centers, and research settings, contributing to quality surgical care and patient management.
PEO2: Leadership, Research, and Innovation
Graduates will demonstrate leadership qualities, engage in evidence-based practice, and contribute to innovations in surgical technology, patient safety, and healthcare management through research and professional growth.

**CO, PO and PSO mapping**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1 | 3 | 2 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 3 |
| CO2 | 3 | 2 | 3 | 0 | 2 | 0 | 3 | 2 | 3 | 3 |
| CO3 | 3 | 0 | 3 | 0 | 2 | 0 | 3 | 2 | 3 | 3 |
| CO4 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| CO5 | 3 | 0 | 3 | 0 | 0 | 0 | 2 | 2 | 3 | 3 |
| TOTAL | 15 | 6 | 13 | 2 | 6 | 4 | 11 | 10 | 13 | 15 |

# PAPER: Clinical Pathology
*Program Educational Objectives (PEOs)*
**PEO 1:** Graduates will develop strong foundational knowledge and technical competence in clinical pathology to perform and interpret laboratory investigations.
**PEO 2:** Graduates will demonstrate professionalism, ethics, communication, and teamwork in healthcare and laboratory practice.
**PEO 3**: Graduates will pursue lifelong learning, research, and innovation to improve healthcare outcomes.
**PEO 4**: Graduates will contribute responsibly to society by ensuring safety, quality, and ethical standards in healthcare services.

*Program Specific Outcomes (PSOs)*

**PSO 1**: Apply advanced knowledge and laboratory skills in clinical pathology for accurate diagnosis and ethical practice.

**PSO 2**: Design, implement, and evaluate laboratory procedures for body fluid, hematology, and inflammatory investigations to support patient care and public health.

*Program Outcomes (POs)*

**PO1**: Demonstrate sufficient concepts in performing routine clinical laboratory tests.
**PO2**: Skilled in specimen collection, handling, processing, and analysis.
**PO3**: Identify, analyze, and interpret laboratory data for clinical decision making.
**PO4**: Exhibit professional conduct, ethical values, and accountability.
**PO5**: Communicate effectively and collaborate within a multidisciplinary healthcare team.
**PO6**: Use modern instruments, information systems, and quality assurance practices.
**PO7**: Engage in continuous learning and adopt research-based approaches.
**PO8**: Apply professional responsibility and contribute to community health and national development. (added for PSO mapping consistency)

*Course Outcomes (COs)*

**CO1**: Explain principles and procedures of collection and processing of CSF and its investigations.
**CO2**: Demonstrate examination techniques for urine analysis.
**CO3**: Differentiate between transudate and exudate in serous fluids.
**CO4**: Appraise diagnostic significance of bone marrow aspiration and biopsy.
**CO5**: Design a laboratory workflow for inflammation analysis including granuloma identification.

**Integrated CO–PO–PSO Mapping Table**

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1 | 3 | 3 | 2 | 1 | 3 | 2 | 2 | 2 | 3 | 2 |
| CO2 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| CO3 | 2 | 2 | 3 | 2 | 1 | 2 | 1 | 2 | 2 | 3 |
| CO4 | 2 | 2 | 3 | 2 | 1 | 2 | 3 | 2 | 3 | 3 |
| CO5 | 2 | 2 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |

**PAER: Clinical Pharmacology**
**Course Outcome (CO):**
CO1: List different routes of drug administration and their impact on PK.
CO2: Describing how drugs interact with the body (pharmacokinetics).
CO3: Classify the major classes of drugs (e.g., antibiotics, analgesics, Cholinergic etc).
CO4: Comparing the efficacy and safety profiles of different drugs within the same class.
CO5: Evaluating the effectiveness of a treatment plan based on patient outcomes.

**Program Outcomes (POs):**

PO1 Disciplinary knowledge:
Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
PO2 Communication Skills:
Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.
PO3 Problem Solving & Reasoning:

Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

PO4 Cooperation/Team work:

Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

PO5 Self-directed learning:

Able to work independently in various healthcare settings and manage situations requiring quick and responsible action.

PO6 Moral and ethical awareness/reasoning:

Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

PO7 Lifelong learning:

Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1   | 3   | 0   | 0   | 2   | 1   | 1   | 1   | 2   | 1    | 3    |
| CO2   | 2   | 1   | 1   | 2   | 3   | 1   | 2   | 0   | 2    | 0    |
| CO3   | 3   | 0   | 2   | 3   | 2   | 1   | 2   | 2   | 3    | 3    |
| CO4   | 3   | 2   | 3   | 0   | 2   | 3   | 2   | 0   | 0    | 0    |
| CO5   | 3   | 1   | 3   | 2   | 2   | 2   | 2   | 3   | 3    | 3    |
| TOTAL | 14  | 4   | 9   | 9   | 10  | 8   | 9   | 7   | 9    | 9    |

## SEMESTER-V

**PAPER: ADVANCED CRITICAL CARE MANAGEMENT I**

**COURSE OUTCOMES:**

**CO1:** Define and identify the causes and different types of respiratory diseases, and explain their pathophysiology and management.

**CO2:** Demonstrate the application of non-invasive and invasive mechanical ventilation, and implement appropriate ventilator modes, settings, and monitoring in critically ill patients.

**CO3:** Examine the process of weaning from mechanical ventilation, differentiate between successful and failed extubation, and distinguish factors contributing to ventilator-associated pneumonia

**CO4:** Appraise metabolic and endocrine emergencies, and prioritize appropriate ICU management strategies for critically ill patients.

**CO5:** Design integrated management plans for different renal diseases and renal replacement therapies, and formulate safe protocols for blood transfusion by generating preventive measures against hazards and complications.

**PROGRAM OUTCOMES (PO)**

**CRITICAL CARE TECHNOLOGISTS ARE ABLE TO**

**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

**PO2 Communication Skills:** Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

**PO4 Cooperation/Team work:** Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

**PO5 Self-directed learning:** Able to work independently in various healthcare settings and manage situations requiring quick and responsible action

**PO6 Moral and ethical awareness/reasoning:** Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---|---|---|---|---|---|---|---|
| **CO1** | 1 | 0 | 2 | 1 | 2 | 1 | 2 |
| **CO2** | 3 | 1 | 3 | 1 | 2 | 1 | 2 |
| **CO3** | 2 | 1 | 3 | 1 | 2 | 1 | 2 |
| **CO4** | 3 | 1 | 3 | 1 | 2 | 2 | 2 |
| **CO5** | 3 | 1 | 3 | 2 | 3 | 2 | 2 |
| **Total** | 12 | 4 | 14 | 6 | 11 | 7 | 10 |

## PAPER: CLINICAL MEDICINE-II

## PROGRAM OUTCOMES (PO)

CRITICAL CARE TECHNOLOGISTS ARE ABLE TO

PO1 Disciplinary knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

PO2 Communication Skills: Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

PO3 Problem Solving & Reasoning: Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

PO4 Cooperation/Team work: Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

PO5 Self-directed learning: Able to work independently in various healthcare settings and manage situations requiring quick and responsible action

PO6 Moral and ethical awareness/reasoning: Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

PO7 Lifelong learning: Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

PO8: Clinical Competence and Technical Skills:

Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

PEO 1: Professional Competence and Ethical Practice

Students will demonstrate strong foundational and applied knowledge in critical care technology, enabling them to provide high-quality patient monitoring and life-support services while adhering to ethical, moral, and professional standards within healthcare institutions.

PEO 2: Lifelong Learning and Leadership in Healthcare

Students will continuously update their knowledge and technical skills to adapt to emerging technologies and healthcare advancements, effectively communicating and collaborating with multidisciplinary teams to assume leadership roles in critical care environments.

PSO 1: Clinical Application and Technical Proficiency

Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units.(Linked to PO1, PO3, and PO8)

PSO 2: Patient-Centered Critical Care and Professional Collaboration

Students will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services. (Linked to PO2, PO4, PO6, and PO7)

**CO:**

CO 1: Students will be able to explain the etiology, clinical features, and management of common respiratory diseases such as pneumonia, tuberculosis, bronchiectasis, and COPD.

CO2:  Students will be able to demonstrate gastrointestinal and hepatobiliary disorders including peptic ulcer, jaundice, cirrhosis, and hepatitis, and interpret related diagnostic findings.

CO3: Students will be able to contrast in kidney diseases such as glomerulonephritis, acute and chronic renal failure, and urinary tract infections, and select appropriate treatment strategies.

CO4:  Students will be able to detect hematological diseases including different types of anemia, leukemia, hemophilia, and lymphoma, with a focus on diagnosis and clinical approach.CO5: Students will be able to generate the clinical presentation and management of cardiovascular, infectious, and systemic diseases including rheumatic fever, valvular disorders, malaria, and AIDS

**CO–PO–PSO Mapping:**

| Course Outcomes (COs) | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PSO 1 | PSO 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 3 | 3 | 2 |
| CO2 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 3 | 3 | 2 |
| CO3 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 3 | 3 | 2 |
| CO4 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 3 | 3 | 2 |
| CO5 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 |
| TOTAL | 15 | 10 | 15 | 6 | 6 | 11 | 10 | 15 | 15 | 11 |

**PAPER: Adv. CLINICAL NUTRITION**

**Course Outcomes (CO):**

CO1: Recall and list the sources, functions, deficiency symptoms, and toxicities of major vitamins and minerals essential to human health and the techniques used in nutritional assessment and describe the structure and goals of national nutrition programs in India.
CO2: Demonstrate the principles of therapeutic nutrition in the planning of diet charts for common liver, cardiovascular, renal, and gastrointestinal disorders.
CO3: Differentiate between dietary requirements for various pathological states and analyze the impact of diet modifications in chronic diseases.
CO4: Monitor the Micronutrients deficiencies by observing Clinical signs and the effectiveness of community nutrition programs and evaluate nutritional interventions based on clinical and biochemical indicators
CO5: Designing diagnosis plan for confirmation of deficiencies and biochemical markers for the nutritional deficiencies based on clinical manifestations

**Program outcomes (PO):**

Critical care technologists are able to –
**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
**PO2 Communication Skills:**Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.
**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.
**PO4 Cooperation/Team work:**Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.
**PO5 Self-directed learning:**Able to work independently in various healthcare settings and manage situations requiring quick and responsible action
**PO6 Moral and ethical awareness/reasoning:**Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.
**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.
**PO8: Clinical Competence and Technical Skills:** Able to apply practical and technical skills in operating, maintaining and troubleshooting critical care equipment, perform patient

monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

**Program Specific Outcome (PSO):**
**PSO 1:** Clinical Application and Technical Proficiency

Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units.

**PSO 2:** Patient- Cantered Critical Care and Professional Collaboration

Graduates will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services.

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|------|------|------|------|------|------|------|------|------|------|------|
| CO1 | 3 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 0 | 1 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| CO5 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| TOTAL | 15 | 14 | 13 | 11 | 11 | 12 | 11 | 7 | 6 | 10 |

## SEMESTER VI

## COURSE NAME (BCCT)

### ADVANCED CRITICAL CARE MANAGEMENT II
**COURSE OUTCOME:**
**CO1**: Students will be able to describe the causes, types, and management of various Cardiovascular diseases.
**CO2**: Students will be able to demonstrate the appropriate care and postoperative Management techniques for patients after bypass surgery and with definite procedures.
**CO3**: Students will be able to differentiate between MODS, SIRS, and Immunocompromised conditions in terms of clinical presentation and management Protocols.
**CO4**: Students will be able to prioritize critical care interventions in obstetric emergencies.
**CO5**: Students will be able to formulate an emergency response and management plan for Toxicological cases such as snake bites and organo-phosphorus poisoning etc.

### PROGRAM OUTCOMES (PO)
**CRITICAL CARE TECHNOLOGISTS ARE ABLE TO**
**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
**PO2 Communication Skills:** Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.

**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.

**PO4 Cooperation/Team work:** Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.

**PO5 Self-directed learning:** Able to work independently in various healthcare settings and manage situations requiring quick and responsible action

**PO6 Moral and ethical awareness/reasoning:** Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.

**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.

**PO8    Clinical competence & technical skills** – Operate, maintain, and troubleshoot critical care instruments and ensure safe and effective delivery of ICU services.

**PROGRAM SPECIFIC OUTCOMES (PSOs):**
**PSO1** Clinical application and technical proficiency — Operate, calibrate, and manage critical care instruments for accurate data collection and patient monitoring in ICUs.

**PSO2** Patient-centred critical care and professional collaboration — Assess patient conditions, assist clinicians, and coordinate with healthcare teams for safe and ethical care.

**PROGRAM EDUCATIONAL OUTCOMES (PEOs):**
**PEO1** Professional competence and ethical practice — Apply foundational and applied knowledge in critical care while maintaining ethical and professional standards.

**PEO2** Lifelong learning and leadership in healthcare — Continuously update knowledge, communicate effectively, and assume leadership roles in multidisciplinary critical care teams.

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 3 | 2 | 2 | 1 | 1 | 2 | 1 | 3 | 3 | 2 |
| **CO2** | 3 | 2 | 3 | 2 | 2 | 2 | 1 | 3 | 3 | 3 |
| **CO3** | 3 | 2 | 3 | 2 | 1 | 2 | 1 | 3 | 3 | 2 |
| **CO4** | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 3 |
| **CO5** | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 |
| **Total** | 15 | 10 | 13 | 10 | 8 | 11 | 7 | 15 | 14 | 13 |

**PAPER CSSD**
**Course Outcomes:**
CO1:  Students will be able to explain about basic concepts of CSSD and its management.
CO2:  Students will be able to execute various sterilization techniques and procedures.
CO3: Students will be able to distinguish between different disinfection and sterilization methods.
CO4: Students will be able to monitor the effectiveness of disinfection and sterilization processes.
CO5: Students will be able to design the sterilization protocol for an instrument, device and healthcare facility.

**Program Outcomes (POs)**
At the end of the program, students should be able to:
PO1. Disciplinary Knowledge:

Demonstrate comprehensive theoretical and practical understanding of the core and allied areas with the ability to apply this knowledge effectively in surgical and clinical environments.PO2. Communication Skills:

Exhibit proficiency in verbal and written communication for effective interaction with healthcare professionals, patients, and multidisciplinary teams, maintaining clarity, accuracy, and professionalism.

PO3. Problem Solving and Analytical Reasoning:

Apply critical and analytical thinking to identify, interpret, and resolve issues through evidence-based and situation-specific approaches.

PO4. Teamwork and Collaboration:

Work efficiently and respectfully within multidisciplinary healthcare teams, fostering cooperation and coordination to achieve safe and effective surgical outcomes.

PO5. Self-Directed Learning:

Demonstrate initiative, responsibility, and independence in professional practice, utilizing appropriate resources and adapting to advancements in surgical technologies and techniques.

PO6. Ethical and Professional Conduct:

Uphold ethical principles, professional standards, and legal frameworks while maintaining integrity, confidentiality, and accountability in all aspects of healthcare delivery.

PO7. Lifelong Learning:

Commit to continuous learning and professional development to remain competent, adaptable, and responsive to ongoing advancements in medical science and healthcare practices.

PO8. Technological Competence and Innovation:

Demonstrate proficiency in utilizing modern surgical instruments, digital technologies, and information systems to enhance the precision, safety, and efficiency of operation theatre practices, while embracing innovation and adaptability to emerging healthcare technologies.

**Program Specific Outcomes (PSO)**PSO1: Surgical Equipment Management

Students will be able to identify, operate, maintain, and troubleshoot various operation theatre instruments and advanced surgical equipment, ensuring their proper sterilization, calibration, and functionality for safe surgical procedures.

PSO2: Perioperative Patient Care and Safety

Students will be able to assist in preoperative, intraoperative, and postoperative patient care by applying aseptic techniques, infection control measures, and emergency response protocols to enhance patient safety and surgical efficiency.

**Program Educational Objectives (PEO)**

PEO1: Professional Competence and Employability

Graduates will be competent operation theatre technologists capable of performing effectively in hospitals, surgical centers, and research settings, contributing to quality surgical care and patient management.

PEO2: Leadership, Research, and Innovation

Graduates will demonstrate leadership qualities, engage in evidence-based practice, and contribute to innovations in surgical technology, patient safety, and healthcare management through research and professional growth.

**CO-PO and PSO mapping**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO 1 | PSO 2 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| CO1 | 3 | 2 | 1 | 0 | 0 | 2 | 0 | 2 | 3 | 3 |
| CO2 | 3 | 2 | 3 | 0 | 2 | 0 | 3 | 2 | 3 | 2 |
| CO3 | 3 | 0 | 3 | 0 | 2 | 0 | 3 | 1 | 3 | 2 |
| CO4 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 3 | 2 |
| TOTAL | 15 | 6 | 13 | 2 | 6 | 4 | 11 | 9 | 14 | 12 |

**PAPER: LAB SCIENCE AND IMAGING**

**PROGRAM OUTCOMES (POS)**
**CRITICAL CARE TECHNOLOGISTS ARE ABLE TO**
**PO1 Disciplinary knowledge**: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
**PO2 Communication Skills:** Able to share ideas clearly in writing and speech, listen actively, and communicate well with all healthcare professionals and patients.
**PO3 Problem Solving & Reasoning:** Able to analyze situations, think critically, and use knowledge to solve real-life healthcare problems effectively.
**PO4 Cooperation/Team work:** Able to work respectfully and efficiently with hospital team and other staff as part of a coordinated healthcare team.
**PO5 Self-directed learning:** Able to work independently in various healthcare settings and manage situations requiring quick and responsible action
**PO6 Moral and ethical awareness/reasoning:** Able to follow ethical principles, maintain honesty in all work, and respect confidentiality and professional conduct.
**PO7 Lifelong learning:** Able to continue learning new skills and knowledge to keep up with changes in healthcare and professional growth.
**PO8: Clinical Competence and Technical Skills:**
Able to apply practical and technical skills in operating, maintaining, and troubleshooting critical care equipment, perform patient monitoring procedures accurately, and ensure safe and effective delivery of critical care services in emergency and ICU settings.

**PROGRAM SPECIFIC OUTCOMES (PSOs)**
**PSO 1: Clinical Application and Technical Proficiency**
Students will be able to competently operate, calibrate, and manage critical care instruments such as ventilators, defibrillators, and monitoring systems, ensuring accurate data collection and effective patient care in ICUs and emergency units.
**PSO 2: Patient-Centered Critical Care and Professional Collaboration**
Graduates will be able to assess patient conditions, support clinicians in emergency decision-making, and effectively communicate and coordinate with healthcare teams to deliver safe, ethical, and efficient critical care services.
**COURSE OUTCOME (CO)**
**CO1 :**Students will be able to recall and explain the fundamental principles of hematology, biochemistry, serology, body fluid analysis, biopsy, and imaging modalities.
**CO2 :**Students will be able to execute different diagnostic procedures including laboratory tests, tissue examinations, and imaging investigations using standard protocols.

**CO3 :**Students will be able to interpret laboratory and imaging findings to differentiate normal physiology from pathological conditions across various systems.

**CO4 :**Students will be able to check the accuracy, reliability, and clinical significance of integrated laboratory and imaging results in patient care.

**CO5 :**Students will be able to design comprehensive diagnostic approaches by integrating laboratory sciences and imaging techniques for holistic disease evaluation.

**CO PO and PSO mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 |
|------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 1 |
| CO2 | 3 | 1 | 2 | 1 | 2 | 2 | 1 | 3 | 3 | 2 |
| CO3 | 3 | 1 | 3 | 1 | 2 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 1 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 |
| CO5 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |
| TOTAL | 13 | 8 | 13 | 8 | 11 | 10 | 10 | 13 | 14 | 12 |

# Bloom's Taxonomy Verbs:

| Remember (BT1) | Understand (BT2) | Apply (BT3) | Analyze (BT4) | Evaluate (BT5) | Create (BT6) |
|---|---|---|---|---|---|
| Cite | Add | Acquire | Analyze | Appraise | Abstract |
| Define | Approximate | Adapt | Audit | Assess | Animate |
| Describe | Articulate | Allocate | Blueprint | Compare | Arrange |
| Draw | Associate | Alphabetize | Breadboard | Conclude | Assemble |
| Enumerate | Characterize | Apply | Break down | Contrast | Budget |
| Identify | Clarify | Ascertain | Characterize | Counsel | Categorize |
| Index | Classify | Assign | Classify | Criticize | Code |
| Indicate | Compare | Attain | Compare | Critique | Combine |
| Label | Compute | Avoid | Confirm | Defend | Compile |
| List | Contrast | Back up | Contrast | Determine | Compose |
| Match | Convert | Calculate | Correlate | Discriminate | Construct |
| Meet | Defend | Capture | Detect | Estimate | Cope |
| Name | Describe | Change | Diagnose | Evaluate | Correspond |
| Outline | Detail | Classify | Diagram | Explain | Create |
| Point | Differentiate | Complete | Differentiate | Grade | Cultivate |
| Quote | Discuss | Compute | Discriminate | Hire | Debug |
| Read | Distinguish | Construct | Dissect | Interpret | Depict |
| Recall | Elaborate | Customize | Distinguish | Judge | Design |
| Recite | Estimate | Demonstrate | Document | Justify | Develop |
| Recognize | Example | Depreciate | Ensure | Measure | Devise |
| Record | Explain | Derive | Examine | Predict | Dictate |
| Repeat | Express | Determine | Explain | Prescribe | Enhance |
| Reproduce | Extend | Diminish | Explore | Rank | Explain |
| Review | Extrapolate | Discover | Figure out | Rate | Facilitate |
| Select | Factor | Draw | File | Recommend | Format |
| State | Generalize | Employ | Group | Release | Formulate |
| Study | Give | Examine | Identify | Select | Generalize |
| Tabulate | Infer | Exercise | Illustrate | Summarize | Generate |
| Trace | Interact | Explore | Infer | Support | Handle |
| Write | Interpolate | Expose | Interrupt | Test | Import |
| | Interpret | Express | Inventory | Validate | Improve |
| | Observe | Factor | Investigate | Verify | Incorporate |
| | Paraphrase | Figure | Layout | | Integrate |
| | Picture graphically | Graph | Manage | | Interface |
| | Predict | Handle | Maximize | | Join |
| | Review | Illustrate | Minimize | | Lecture |
| | Rewrite | Interconvert | Optimize | | Model |
| | Subtract | Investigate | Order | | Modify |
| | Summarize | Manipulate | Outline | | Network |
| | Translate | Modify | Point out | | Organize |
| | Visualize | Operate | Prioritize | | Outline |
| | | Personalize | Proofread | | Overhaul |
| | | Plot | Query | | Plan |
| | | Practice | Relate | | Portray |
| | | Predict | Select | | Prepare |
| | | Prepare | Separate | | Prescribe |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Price | Subdivide | | Produce | |
| | | Process | Train | | Program | |
| | | Produce | Transform | | Rearrange | |
| | | Project | | | Reconstruct | |
| | | Provide | | | Relate | |
| | | Relate | | | Reorganize | |
| | | Round off | | | Revise | |
| | | Sequence | | | Rewrite | |
| | | Show | | | Specify | |
| | | Simulate | | | Summarize | |
| | | Sketch | | | | |
| | | Solve | | | | |
| | | Subscribe | | | | |
| | | Tabulate | | | | |
| | | Transcribe | | | | |
| | | Translate | | | | |
| | | Use | | | | |