جامعة المنصورة الأهلية
كلية تكنولوجيا العلوم الصحية

توصيف المقرر

متطلبات الكلية الاجبارية

(Obligatory Faculty Requirements)

- **L (Lecture)- P (Practical)- T(Tutorial)**

Course code	**HST 101**
Course name	**English Language**
Credit hours	**(2): 2 L**
Course description	**The course will provide student with necessary skills regarding the different types of English writing and the way of writing text under the main specification free of spelling, grammar and verbatim errors, and proper use of punctuation. Report writing, abstract writing using accurate grammar & vocabulary are to be focused on**
Prerequisite	**-**

Course code	**HST 102**
Course name	**Medical Terminology**
Credit hours	**(2): 2 L**
Course description	**This course introduces the language needed for effective communication in healthcare. It covers the structure of medical terms, word-building rules, and terminology related to body structures. The course also focuses on terms used in medical procedures, pharmacology and disease states**
Prerequisite	**-**

Course code	**HST 103**
Course name	**Basic Physics**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course will help students to understand physics principles applied to biological systems. Students will be able to improve function of biological system components depending on concepts of dimensions, heat, temperature, fluid, fluid dynamics, force, power, energy, sound, medical ultrasound, radiation, radiation and x-rays.**
Prerequisite	**-**

Course code	**HST 104**
Course name	**Mathematics**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course will provide student with a review of fundamental operations in Mathematics. Topics include elementary algebra and functions, intermediate algebra and function, Applications of matrices in health sciences (e.g., population models, data organization), geometry and measurement, Integration and its applications (e.g., area under a curve, accumulation), Differential equations and their use in modeling biological systems, probability and random variables, and hypothesis testing**
Prerequisite	**-**

Course code	**HST 105**
Course name	**Basic Computer Skills**
Credit hours	**(2): 1 L + 1 P**
Course description	**This course will provide student with a brief introduction to the world of computers including: number systems and data representation, computer system components: hardware & software, storage and input/output systems, Operating systems and Utility Systems, software applications. Also it gives an overview about computer networks and internet: data communication, transmission modes, transmission media, computer networks and internet services. It practices some**

	computer applications in the laboratory such as Internet Access, word processing, Excel and power point. It gives students basic of chat GPT; how it helps the student in search and developing projects related to the specialty.
Prerequisite	**-**

Course code	**HST 106**
Course name	**Basic Biostatistics**
Credit hours	**(2): 1 L + 1 P**
Course description	**This course will provide student with information about types and sources of data, quantitative & qualitative, scales of measurements. Sampling (definition, types of sampling error and & summarization; list, tables, graphs &numerical methods). Descriptive statistics (The effect of constant changes on measures of central tendency, dispersion & confidence intervals). Application on Excel, SPSS & prism program**
Prerequisite	**-**

Course code	**HST 107**
Course name	**General Pharmacology**
Credit hours	**(3): 2 L + 1 P**
Course description	**This course will handle the basic principles of pharmacology suitable for technologist. Provide comprehensive coverage of the major drug groups affecting different body systems; autonomic nervous system, cardiovascular system and heam system, endocrine, central nervous system, respiratory system, gastrointestinal system, autacoids**
Prerequisite	**-**

Course code	**HST 108**
Course name	**General Anatomy and Histology For Technologists**
Credit hours	**(3): 2 L + 1 P**
Course description	**Anatomy** **The course introduces the student to the structure of body systems, namely integumentary, musculoskeletal, cardiovascular, lymphatic, and respiratory systems, nervous, endocrine, urinary, and reproductive systems. Anatomy of the eye, ear and nose is also included.** **Histology** **The course contents include cell structure, presentation of tissue, epithelial tissue, glandular epithelium, connective tissue, bone & bone marrow, cartilage, nervous and muscle tissues**
Prerequisite	**-**

Course code	**HST 109**
Course name	**General Physiology for Technologists**
Credit hours	**(3): 2 L + 1 P**
Course description	**This course will provide students with concepts of cellular, tissue and system hemostasis. Coverage on the integration of the different body systems to maintain body functions**
Prerequisite	**-**

Course code	**HST 110**
Course name	**General Microbiology**
Credit hours	**(3): 1 L + 1 P + 1 T**
Course description	**This course deals with general microbiology: bacteriology, virology and mycology. The course describes the structure, classification and growth of the microorganisms of medical importance and demonstrates the physical and chemical methods used to control growth of microorganisms. Practical sessions, also, include preparation of stains, all culture media and reagents for various microbiological tests.**
Prerequisite	**-**

Course code	**HST 111**
Course name	**General Chemistry**
Credit hours	**(3): 1 L + 1 P + 1 T**
Course description	**The course includes an introduction to the fundamental concepts of general chemistry (physical, organic inorganic and analytical chemistry). Focus areas include atomic structure, balancing equations, and stoichiometry of chemical reactions. Moreover, focus areas include intermolecular forces and molecular geometry, organic structure, chemical nomenclature, and basic chemical reactions. Besides, focusing on scientific measurements and various structure elucidation analysis methods.**
Prerequisite	**-**

Course code	**HST 112**
Course name	**Effective Communication and Presentation Skills**
Credit hours	**(2): 2 L**
Course description	**This course aims to fortify the necessary written and oral communication and presentation skills for students to improve inter- and intra-professional collaboration and communication with peers and others in different career paths. The course will also deal with the underlying attitudes, which form an interpersonal skill. It focuses on concept and meaning of communication; verbal and non verbal communication; active listening skills; communication styles and presentation skills. Additionally, this course describes effective personal branding, networking, and team building to succeed in recent work environment.**
Prerequisite	**-**

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متطلبات الجامعة الاجبارية

(Obligatory University Requirements)

Course code	**MNU 101**
Course name	**Research and Analysis Skills**
Credit hours	**(1): 1 L**
Course description	**The course will provide student with concepts in research. Types of knowledge sources. International aggregated databases. Different research methods, Surface web, deep web and dark web. Documentation software for research sources. Ethics of scientific research. Plagiarism checking software. Open science and the consequent open access to knowledge**
Prerequisite	**-**

Course code	**MNU 102**
Course name	**Social Issues**
Credit hours	**(1): 1 L**

Course description	**يتكون همقرر قضايا مجتمعية من قسمين: الجزء الأول (إلزامى) - ويحتوي على أربعة فصول على النحو التالي :** **الفصل الأول: متطلبات النمو السكاني وأثره على الصحة الإنجابية.** **الفصل الثاني: حقوق الإنسان.** **الفصل الثالث: الشفافية ومكافحة الفساد.** **الفصل الرابع: التسامح مع الأديان وآداب الحوار مع الآخرين** **الجزء الثاني (اختيارى) - ويتكون من فصلين** **:الفصل الخامس: التعليم الرقمي.** **.الفصل السادس: يحدده مجلس الجامعة.**
Prerequisite	**-**

Course code	**MNU 103**
Course name	**Law and Human Rights**
Credit hours	**(1): 1 L**
Course description	**حقوق الانسان من حيث خصائصها ومصادرها الدولية والوطنية، وأنواعها المختلفة، وأساسها في الشرائع السماوية، والكرامة الانسانية، والحق في الجنسية، وارتباط حقوق الانسان بالعولمة والتنمية بمختلف انواعها، وحقوق المرأة العاملة، وحقوق ذوي الاحتياجات الخاصة، ودور الدولة في حماية حقوق الإنسان على المستويين الدولي والمحلي.**
Prerequisite	**-**

Course code	**MNU 104**
Course name	**Professional Ethics and Morals**
Credit hours	**(1): 1 L**

Course description	**This course explores the ethical principles, professional responsibilities, and moral dilemmas faced by medical sciences technologists.** **Students will Learn the ethical foundations of healthcare, including confidentiality, patient autonomy, patient rights, informed consent, beneficence, non-maleficence, justice and the equitable distribution of healthcare resources. Emphasis is placed on understanding professional codes of conduct, legal obligations, cultural sensitivity, and the role of ethics in decision-making.**
Prerequisite	**-**

متطلبات الكلية الإختيارية

(Elective Faculty Requirements)

Course code	**HSTE 01**
Course name	**Health Coaching**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course equips students with the knowledge and skills necessary to guide individuals and groups toward healthier lifestyles through personalized support, behavior change strategies, and goal setting. Students will learn evidence-based coaching techniques, communication skills, and approaches to foster motivation, accountability, and sustainable health**

	behavior changes. The course emphasizes the integration of wellness principles, the role of a health coach, and strategies for addressing diverse health challenges, including nutrition, fitness, stress management, and chronic disease prevention
Prerequisite	**-**

Course code	**HSTE 02**
Course name	**Basic Nutrition**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course provides an introduction to the science of nutrition, focusing on the fundamental principles of how nutrients affect human health. Students will explore the biological functions of macronutrients (carbohydrates, proteins, and fats) and micronutrients (vitamins and minerals), dietary guidelines, and their relationship to health and disease prevention. The course also emphasizes the importance of balanced diets, nutritional requirements at different life stages, and the role of nutrition in promoting overall well-being.**
Prerequisite	**-**

Course code	**HSTE 03**
Course name	**Artificial Intelligence in Modern Healthcare Systems**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course explores the transformative role of Artificial Intelligence (AI) in modern healthcare systems. It provides a comprehensive understanding of AI principles, applications, and challenges within the healthcare industry. The course covers foundational AI techniques, machine learning models, and their implementation in diagnostics, treatment, patient**

	management, and operational efficiency. It emphasizes ethical considerations, data security, and regulatory compliance. By the end of the course, participants will be equipped to evaluate, design, and implement AI-driven solutions in healthcare settings.
Prerequisite	**-**

Course code	**HSTE 04**
Course name	**Foodborne Diseases**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course provides an in-depth exploration of foodborne diseases, focusing on their causes, prevention, and control. Students will learn about various pathogens, toxins, and contaminants that lead to foodborne illnesses and how they affect human health. The course emphasizes public health strategies, food safety protocols, and outbreak investigation methods to ensure food quality and safety in different settings.**
Prerequisite	**-**

Course code	**HSTE 05**
Course name	**Occupational Health**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course provides an introduction to the principles and practices of occupational health, emphasizing the promotion of safe and healthy workplaces. It explores the identification, evaluation, and control of workplace hazards, as well as the roles of health professionals, employers, and workers in ensuring occupational safety. Topics include ergonomics,**

	workplace safety standards, occupational diseases, and strategies for prevention and management. The course equips students with the knowledge and skills needed to address occupational health challenges in diverse work environments.
Prerequisite	**-**

Course code	**HSTE 06**
Course name	**Principles of Marketing**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course introduces the fundamental concepts, strategies, and practices in marketing. It provides an overview of the marketing process, including market research, consumer behavior, segmentation, targeting, and positioning. Students will learn about the marketing mix (product, price, place, promotion) and its role in developing effective marketing strategies. By the end of the course, participants will have a solid understanding of how to create value for customers and build long-term relationships in a competitive marketplace.**
Prerequisite	**-**

Course code	**HSTE 07**
Course name	**Scientific Writing**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course is designed to equip students and professionals with the skills needed to effectively communicate scientific research and findings through written formats. It covers the principles of clear, concise, and structured scientific writing, with an emphasis on writing research papers, proposals, reviews, and reports. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript,**

	appropriate use of tables and figures in data presentation and evaluation of literature and information sources. The course includes exercises to develop critical writing skills, understand scientific ethics, and navigate the publication process. The course enable students to have the confidence to produce high-quality scientific documents suitable for academic and professional contexts.
Prerequisite	**-**

Course code	**HSTE 08**
Course name	**Complementary and Alternative Medicine**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course provide students with information about the different herbal preparations, nutritional supplements, and homeopathies, herbal preparations that are widely used by the general public as self-selected OTC (over-the-counter) products/NPDs (nonprescription drugs). Also, the student should have information about food items for therapeutic, disease prevention or health promotion purposes.**
Prerequisite	**-**

Course code	**HSTE 09**
Course name	**Experimental Animal Model**
Credit hours	**(2): 1 L + 1 T**
Course description	**In this course student will identify laws and ethical regulatory frameworks for the handling of laboratory animals in Egypt. Identify how environmental factors and common infections among laboratory animals can influence experiment results, and give examples of areas of application. Apply different techniques for screening and bioassay of new drugs belongs to different pharmacological categories.**
Prerequisite	**-**

Course code	**HSTE 10**
Course name	**Entrepreneurship**
Credit hours	**(2): 1 L + 1 T**
Course description	**This course covers business acumen, team-building, industry-academia relationships, and ethical/regulatory principles. Emphasizes design thinking, interprofessional collaboration, and leadership in healthcare innovation. Students engage in hands-on activities, case studies work on real-world projects to develop and test innovative processes and products**
Prerequisite	**-**

Course code	**CEMC 201**
Course name	**Applied anatomy**
Credit hours	**(3): 2 L + 1 P**
Course description	**This course integrates fundamental and applied aspects of human anatomy with real-world applications in critical and emergency medical care. Students will explore the anatomical basis for assessing and managing traumatic injuries, medical emergencies, and acute medical conditions. Through case studies and simulations, students will apply anatomical knowledge to interventions such as airway management, trauma assessment, vascular access, and emergency surgical procedures.**
Prerequisite	**General Anatomy and histology For Technologists (HST 108)**

Course code	**CEMC 202**
Course name	**Medical Microbiology I**

Credit hours	**(3): 2 L + 1 P**
Course description	**This course will provide students with information about the hospital acquired infections and microbial diseases among patients in the ICU and emergency department. The course emphasizes on respiratory infections, bloodstream infections (Sepsis), gastrointestinal infections. The students will learn the identification, prevention and appropriate treatment for infectious diseases**
Prerequisite	**General Microbiology (HST 110)**
Course code	**CEMC 203**
Course name	**Pathology for Medical emergency Technologist**
Credit hours	**(3): 2 L + 1 P**
Course description	**This course will provide the principles of general pathology with a focus on applications in critical and emergency medical care. Students will explore the mechanisms of disease, including cellular injury, inflammation, immune responses, and systemic pathologies, with an emphasis on conditions commonly encountered in emergency and critical care settings.**
Prerequisite	**-**

Course code	**CEMC 204**
Course name	**Essential of Critical Care**
Credit hours	**(2): 1 L + 1 P**

Course description	**This course is designed to enable students to understand types and design of intensive care units (ICU) and their objectives, basic equipment and supplies. Students will learn to provide high-quality care for patients with life-threatening conditions, covering core topics such as patient monitoring, respiratory and cardiovascular support, medication administration, and ethical considerations in critical care.**
Prerequisite	**-**

Course code	**CEMC 205**
Course name	**Patient Safety**
Credit hours	**(2): 1 L + 1 T**
Course description	**The course provides an introduction to the science of safety, and how it relates to problems with patient safety in health care. The course enables student to explain the role of individuals and systems in improving patient safety, review institutional responses to adverse events, including the topics of risk management and medical malpractice and emphasize the importance of communication and teamwork. Students learn the basics of conducting an incident investigation, gain an understanding of advantages and limitations of error reporting, learn how to disclose errors and adverse events, learn models for improving safety and explore safety protocols in hospitals and health care organizations, error prevention strategies, and quality improvement initiatives that support safe, effective patient care in fast-paced, high-stress environments**
Prerequisite	**-**

Course code	**CEMC 206**
Course name	**Patient Monitoring and Intensive Care Equipment I**

Credit hours	**(3): 2 L + 1 P**
Course description	**This course introduces students to core equipment used in critical care settings, including physiological monitoring device, ventilator monitoring and parameters, infusion pumps, monitors, and dialysis machines. Students learn to operate, calibrate, and troubleshoot various types of ICU equipment, understanding their role in supporting critically ill patients. Emphasis is placed on safety protocols, proper equipment maintenance, and the integration of devices to support continuous patient monitoring.**
Prerequisite	**-**

Course code	**CEMC 207**
Course name	**Medical Microbiology II**
Credit hours	**(2): 1 L + 1 P**
Course description	**This course will provide students with information about microbial diseases among patients in the ICU and emergency department. The course emphasizes on urinary tract infections, neurological Infections, skin and soft tissue infections, opportunistic infections in immunocompromised patients, other serious infections including endocarditis, osteomyelitis and toxic shock syndrome. The students will learn the identification, prevention and appropriate treatment for infectious diseases.**
Prerequisite	**Medical Microbiology I (CEMC 202)**

Course code	**CEMC 208**
Course name	**Biochemistry for Emergency & Critical Care Technologist**
Credit hours	**(3): 2 L + 1 P**
Course description	**This course focuses on the fundamental biochemical principles relevant to medical emergencies and critical care. It provides an understanding of biochemical processes, cellular biochemistry, metabolic pathways, and the molecular basis of disease that are critical in diagnosing and managing acute and life-threatening conditions. The course also focuses on biochemical Basis of diseases including: acid-base balance and disturbances, electrolyte imbalances, role of free radicals and oxidative stress in critical care and biochemical markers of organ function (e.g., cardiac, hepatic, renal). Clinical biochemistry and biochemical analysis methods is also emphasized**
Prerequisite	**-**

Course code	**CEMC 209**
Course name	**Basic Airway Management**
Credit hours	**(2): 1 L + 1 P**
Course description	**This course is designed to prepare students to study basic airway management techniques, including bag/mask ventilation, oral and nasal airway procedures, laryngeal mask airway placement, and alternative device placement. Examine pediatric airway considerations and difficult airway management, as well as extubation and complications of airway management**
Prerequisite	**-**

Course code	**CEMC 210**
Course name	**Infection Control and Hospital Safety**
Credit hours	**(3): 1 L + 1 P + 1 T**
Course description	**This course introduces infection prevention practices tailored to critical and emergency care environments, focusing on maintaining a safe environment for patients, healthcare workers and visitors. Students will learn about chain of infection, standard transmission-based precautions, sterilization and disinfection techniques, hand hygiene, and proper use of personal protective equipment (PPE). Handling hazardous materials, fire and electrical safety, spill management, and emergency preparedness is also emphasized**
Prerequisite	**General Microbiology (HST 110)**

Course code	**CEMC 211**
Course name	**First Aid and Emergency Care**
Credit hours	**(2): 1 L + 1 P**
Course description	**This course enables students to recognize emergencies and make appropriate decisions for first aid care. It teaches skills that students need to know in order to provide immediate care for a suddenly ill or injured person until more advanced medical care arrives to take over. Basic life support is emphasized to recognize several life-threatening emergencies, provide Cardiopulmonary resuscitation, use an automated external defibrillator, and relieve choking in a safe, timely and effective manner.**
Prerequisite	**-**

Course code	**CEMC 301**
Course name	**Basics of Respiratory Care**
Credit hours	**(3): 1 L + 1 P + 1 T**
Course description	**This course covers essential respiratory care principles and practices that are critical in emergency and critical care settings. Students will learn to assess respiratory function, manage airway and ventilation needs, and use respiratory support equipment effectively. With an emphasis on practical skills and evidence-based interventions, the course equips students to respond quickly and competently to respiratory emergencies, ensuring effective patient care in high-stakes situations.**
Prerequisite	**Basic Airway Management (CEMC 209)**

Course code	**CEMC 302**
Course name	**Patient Monitoring and Intensive Care Equipment II**
Credit hours	**(3): 2 L + 1 P**

Course description	**This course introduces technologists to specialized equipment used in ICU settings, such as intra-aortic balloon pumps, extracorporeal membrane oxygenation (ECMO) systems, advanced hemodynamic monitoring devices, neurological monitoring and continuous EEG monitors. Through hands-on labs, case-based learning, and scenario-based troubleshooting, students gain a thorough understanding of the setup and operation of equipment.**
Prerequisite	**Patient Monitoring and Intensive Care Equipment I (CEMC 206)**

Course code	**CEMC 303**
Course name	**Maintenance of Medical Equipment in Intensive Care Unit**
Credit hours	**(3): 2 L + 1 P**
Course description	**This course provides an exploration of the essential maintenance practices for medical equipment commonly used in ICU settings. Students will learn to conduct preventive maintenance, identify potential malfunctions, perform minor repairs, and ensure equipment meets safety and operational standards. Through hands-on practice, students gain skills in handling complex ICU equipment, including ventilators, monitors, infusion pumps, and defibrillators, with a focus on maintaining reliability, safety, and compliance.**
Prerequisite	**-**

Course code	**CEMC 304**
Course name	**Cardiovascular and Diabetic Emergencies**

Credit hours	**(3): 2 L + 1 P**
Course description	**This course provides overview of cardiac and diabetic emergencies commonly encountered in critical and emergency care environments. Students learn to identify early warning signs, understand the underlying mechanisms, and support rapid intervention techniques for these emergencies. The course covers conditions such as myocardial infarction, arrhythmias, diabetic ketoacidosis, and hypoglycemia, emphasizing the role of technologists in monitoring vital signs, managing emergency equipment, and assisting healthcare teams with diagnostic and therapeutic procedures**
Prerequisite	**Biochemistry for Emergency & Critical Care Technologist (CEMC 208)**

Course code	**CEMC 305**
Course name	**Therapeutics I**
Credit hours	**(2): 1L + 1 P**
Course description	**This course will provide the students to an essential guide for emergency cardiovascular disease (hypertensive crisis, heart failure, myocardial infarction & deep vein thrombosis), emergency pulmonary disease (status asthmatics & COPD) and emergency endocrine disease (diabetic ketoacidosis, diabetic coma, thyroid storm, hypothyroid crisis, Addison crisis)**
Prerequisite	**-**

Course code	**CEMC 306**
Course name	**Gastrointestinal Emergencies**
Credit hours	**(3): 2L + 1 P**
Course description	**This course provides students with the knowledge and skills to support the diagnosis and management of gastrointestinal (GI) emergencies. It focuses on assisting healthcare teams during acute GI conditions, such as gastrointestinal bleeding, perforations, obstructions, and infections, which require prompt intervention. Students will learn about the pathophysiology and symptoms of various GI emergencies, as well as the critical laboratory tests and imaging techniques used to diagnose these conditions. The course provides students with essential training in the preparation, operation, and maintenance of equipment used in gastrointestinal (GI) emergencies including endoscopy tools, suction devices, coagulation instruments, and monitoring systems**
Prerequisite	**-**

Course code	**CEMC 307**
Course name	**Renal and Hepatic Emergencies**
Credit hours	**(3): 2L + 1 P**
Course description	**This course provides overview of hepatic and renal emergencies commonly encountered in critical and emergency care environments. Students learn to identify early warning signs, understand the underlying mechanisms, and support rapid intervention techniques for these emergencies. The course covers conditions such as acute kidney injury, hepatic encephalopathy, toxic exposures, and metabolic derangements, emphasizing the role of technologists in monitoring vital signs, managing emergency, laboratory and diagnostic equipment essential for managing renal and hepatic emergencies. Emphasis is placed on understanding the principles, operation, and application of tools used in assessing renal and liver function, detecting acute dysfunctions and assisting healthcare teams with diagnostic and therapeutic procedures.**
Prerequisite	**Patient Monitoring and Intensive Care Equipment I (CEMC 206)**

Course code	**CEMC 308**
Course name	**Transfusion Practice in Critical and Emergency Care**
Credit hours	**(2): 1L + 1 P**
Course description	**This course provides students with principles of blood transfusion in critical and emergency care settings. Students will learn about the indications for transfusion, blood product types, compatibility testing, and the steps involved in safe administration. Emphasis is placed on recognizing transfusion-related complications, managing acute blood loss, and making rapid, evidence-based decisions in high-stakes situations. The students will learn how to apply transfusion protocols for trauma, hemorrhage, and other critical conditions in hospital and clinical settings.**
Prerequisite	**-**

Course code	**CEMC 309**
Course name	**Therapeutics II**
Credit hours	**(2): 1L + 1 P**
Course description	**This course will provide the students to an essential guide for, emergency gastrointestinal disease (acute stress ulcer, GI bleeding, IBD, acute pancreatitis, liver failure& hepatic encephalopathy) and emergency urology system disease (hemodialysis, acute severe hydronephrosis, acute urine retention & acute BPH)**
Prerequisite	**-**

Course code	**CEMC 310**

Course name	**Intensive Care Technology I**
Credit hours	**(3): 2L + 1 P**
Course description	**This course gives the students the needed skills in respiratory support including all procedures for therapy and monitoring of respiratory disorders. The course also provides students with the needed skills in cardiovascular support including all procedures for therapy and monitoring of cardiovascular disorders. The course will equip students with practice skills regarding Physical Therapy management in critical care/ICU**
Prerequisite	**- Basics of Respiratory Care (CEMC 301)** **- Cardiovascular and diabetic emergencies (CEMC 304)**

Course code	**CEMC 311**
Course name	**Field Training for Critical and Emergency Medical Care Technologist I**
Credit hours	**(2): 2 F**
Course description	**Field Training I is designed to provide students hands-on, supervised clinical experience in critical and emergency medical care. The course bridges theoretical knowledge with practical application, enabling students to work alongside experienced healthcare providers in real-world settings. Students will develop foundational skills in medical emergency and critical care under the guidance of preceptors and instructors.**
Prerequisite	**-**

Course code	**CEMC 401**
Course name	**Neurological Emergencies**
Credit hours	**(3): 1L + 1 P + 1T**
Course description	**This course is designed to prepare students to recognize, assess, and manage neurological emergencies. Focusing on conditions such as stroke, seizures, traumatic brain injuries, and altered mental states. The course also emphasized on using equipment essential for assessing and managing neurological emergencies. Students will learn to operate and interpret results from various tools and devices used in neurological assessment and care, such as portable electroencephalograms (EEGs), intracranial pressure (ICP) monitors, neurological assessment kits, and advanced airway management devices. Emphasis is placed on understanding the indications, proper usage, and limitations of each piece of equipment in hospital and clinical settings.**
Prerequisite	**Patient Monitoring and Intensive Care Equipment II (CEMC 302)**

Course code	**CEMC 402**
Course name	**Clinical Anesthesia**
Credit hours	**(2): 1L + 1 P**
Course description	**This course provides students with summary of skills and deep knowledge of techniques and procedures needed to assist in a property administering anesthesia to a patient. This will cover all procedures used in general and regional anesthesia. It also includes the positioning in anesthesia, monitoring, blood and blood products transfusion and fluid management.**
Prerequisite	**-**

Course code	**CEMC 403**
Course name	**Anesthesia Equipment**
Credit hours	**(2): 1L + 1 P**
Course description	**This will prepare the student for the complete understanding and usage of the equipment used in the practice of anesthesia including the anesthesia workstation, breathing systems, monitors, advanced airway devices, ventilators, infusion equipment and defibrillator.**
Prerequisite	**-**

Course code	**CEMC 404**
Course name	**Nutrition in Intensive Care Unit**
Credit hours	**(2): 1L + 1 T**
Course description	**This course focuses on nutrition in critical care units for the restoration and maintenance of health especially those with respiratory problems, cardiac. The basic principles of adequate nutrition requirements as well as the types of malnutrition and dietary therapy will be emphasized. The course also focuses on the procedures performed to achieve this goal. This includes oral, enteral and parenteral nutritional support.**
Prerequisite	**Biochemistry for Emergency & Critical Care Technologist (CEMC 208)**

Course code	**CEMC 405**
Course name	**Therapeutics III**
Credit hours	**(2): 1L + 1 P**
Course description	**This course will provide the students to an essential guide for resuscitation emergency (enteral & parenteral feeding, ICU patient hemodynamics; acidosis & alkalosis types and therapy), emergency musculoskeletal therapy and emergency central nervous system disease (anesthetic and pre/post anesthetic medication use and precautions & stroke), and woman health emergency**
Prerequisite	**-**

Course code	**CEMC 406**
Course name	**Intensive Care Technology II**
Credit hours	**(2): 1L + 1 P**
Course description	**This course gives the students advanced concepts in advanced life support, advanced skills in care of the unconscious patient, Neuromonitoring in Critical Care patient, extracorporeal life support systems, advanced hemodynamic monitoring, renal replacement therapy in ICU**
Prerequisite	**Intensive Care Technology I (CEMC 310)**

Course code	**CEMC 407**
Course name	**Trauma and Surgical Emergencies**
Credit hours	**(3): 2L + 1 P**
Course description	**The course covers essential concepts in emergency surgical care, including the identification of life-threatening conditions, the use of emergency protocols, and the collaborative role of medical technologists in supporting surgical teams during urgent situations. Students will learn about various types of surgical emergencies, such as trauma, bleeding, and shock, along with associated diagnostic and procedural techniques. This course introduces students to the range of instruments essential in managing surgical emergencies. It focuses on the selection, setup, operation, and maintenance of critical surgical emergency equipment. Students will learn how to check and prepare these tools, troubleshoot common issues, and understand their application in procedures involving trauma, hemorrhage, airway obstruction, and cardiovascular support.**
Prerequisite	**-**

Course code	**CEMC 408**
Course name	**Toxicology and Environmental Emergency Management**
Credit hours	**(3): 2L + 1 P**
Course description	**This course focuses on the principles and practices of managing toxicological and environmental emergencies, emphasizing the role of medical technologists in emergency preparedness, response, and recovery. The course equips students with knowledge about the toxic effects of chemical, biological, and radiological agents in acute and chronic exposure scenarios including drugs, alcohol, pesticides, heavy metals, and industrial chemicals, techniques for identifying toxins and assessing risks to human health and the environment, management of natural and man-made disasters, including chemical spills, industrial accidents, radiation leaks, and bioterrorism events.**
Prerequisite	**-**

Course code	**CEMC 409**

Course name	**Mental Health and Psychiatric Problems Related to Critical Care**
Credit hours	**(2): 1L + 1 T**
Course description	**This course explores the intersection of mental health and critical care, focusing on the identification, assessment, and management of psychiatric symptoms in patients within critical care settings. Students will examine the psychological impact of severe illness and trauma, learn to recognize signs of psychiatric conditions exacerbated by critical illness, and explore interventions to manage stress, anxiety, delirium, and post-traumatic symptoms.**
Prerequisite	-

Course code	**CEMC 410**
Course name	**Ethics and Legal Issues in Intensive Care Unit**
Credit hours	**(2): 2L**
Course description	**The course provides students with an overview about the ethical responsibilities of intensive care health professionals. The course enables students to recognize legal risks and liabilities associated with ICU technology management. The course focuses on the key legal concepts (negligence, malpractice, and liability), institutional policies and protocols compliance with local and international healthcare laws, the role of healthcare provider in ensuring informed consent and understanding the Legal implications of operating without proper consent, legal risks associated with equipment malfunctions or misuse.** **The course also give an overview about ethical challenges in withdrawing or withholding life support, the role of healthcare providers in emergency and crisis resource allocation, ethical use of limited ICU technology during pandemics or natural disasters and addressing disparities in access to critical care resources**
Prerequisite	-

Course code	**CEMC 411**
Course name	**Graduation Project for Critical and Emergency Medical Care Technologist**
Credit hours	**(4): 4 GP**
Course description	**Students will choose a research point of interest to do some practical work with application of data analysis and writing a dissertation. Research projects in the field of medical laboratories will be carried out by students under the guidance and supervision of faculty members. Projects will be evaluated by graduation project committee that will be assigned by academic Council, including oral presentation and discussion of the dissertation.**
Prerequisite	**-**

Course code	**CEMC 412**
Course name	**Field Training for Critical and Emergency Medical Care Technologist II**
Credit hours	**(2): 2 F**
Course description	**Field Training II is designed to provide students hands-on, supervised immersive, high-level clinical experiences to refine their skills and knowledge in critical and emergency medical care. This course emphasizes advanced patient management techniques, decision-making under pressure, and interprofessional collaboration in complex and high-stakes scenarios. Students will work under the supervision of experienced preceptors, gaining competence in managing critically ill or injured patients.**
Prerequisite	**Field Training for Critical and Emergency Medical Care Technologist I (CEMC 311)**