

Bachelor of Science in Emergency Medical Services (Paramedicine)

College of Medicine and Health Sciences | Emergency Medical Services (Paramedicine)
Department

Total Credit Hours: 131

1. Programme Overview

The Bachelor of Science in Emergency Medical Services (EMS) – Paramedicine program is a comprehensive five-year program (131 credit hours), including a final year of internship. Throughout the program, students attend lectures in university classrooms, develop practical skills in a world-class simulation center, and undertake supervised clinical placements with the National Ambulance of Bahrain, as well as in emergency departments and critical care areas across several partner hospitals. The program is designed to develop clinically competent, ethically grounded, and culturally sensitive EMS professionals (paramedics) who are prepared to deliver advanced pre-hospital care and lead EMS teams in complex and challenging emergency environments across the Gulf Cooperation Council (GCC) region.

2. Study Plan

Course Code	Course Title	Credit Hours
YEAR 1		
Semester 1 — Department Requirements		
ENGL101	English I	3
ENGL104	Medical Terminology for Health Sciences	1
ANAT101	Anatomy and Physiology I	4
CHEM101	Biochemistry	2
EMSP101	Introduction to EMS	3
MEDU101	Study Skills	2
Total Credit Hours		15
Semester 2		
ENGL103	English II	4
ANAT102	Anatomy and Physiology II	4
BESC101	Behavioural Sciences	2
EMSP102	Foundation of Paramedic Care	5
COMP101	Computer skills	2



Course Code	Course Title	Credit Hours
Total Credit Hours		17
YEAR 2		
Semester 3		
ISLM101	Islamic Ethics and Human Rights	2
EMSP201	Communication and Documentation in EMS	2
PATH201	Pathophysiology	2
EMSP202	Basic Medical Emergencies	5
EMSP203	Clinical Assessment	3
EMSP204	Fitness and Physical Education	4
Total Credit Hours		18
Semesters 4		
FAMM201	Epidemiology and Biostatistics	3
EMSP205	Healthcare Technology	2
EMSP206	Clinical Paramedic Practice I	3
EMSP207	Pharmacotherapy in Paramedic Practice	4
EMSP208	Medical Emergencies I	3
Total Credit Hours		15
Course Code	Course Title	Credit Hours
YEAR 3		
Semester 5		
EMSP301	Respiratory Care	4
EMSP302	Clinical Paramedic Practice II	3
EMSP303	Medical Emergencies II	3
EMSP304	Research and Evidence-Based Practice	3
EMSP305	EMS Operations	2



Course Code	Course Title	Credit Hours
Elective courses to choose from		
EMSP311	Aviation and Retrieval Medicine	2
EMSP312	Special Rescue Operations	2
EMSP313	Occupational Health and Safety for Paramedics	2
Total Credit Hours		17
Semester 6		
EMSP306	Cardiology	5
EMSP307	Clinical Paramedic Practice III	3
EMSP308	Trauma Management I	4
EMSP309	Disaster Management	3
EMSP310	Community Engagement	2
Total Credit Hours		17
YEAR 4		
Semester 7		
EMSP401	Trauma Management II	4
EMSP402	Clinical Paramedic Practice IV	3
EMSP403	Special Patient Populations	4
EMSP404	Paediatric Care	4
EMSP405	Informatics and Artificial Intelligence	1
Total Credit Hours		16
Semester 8		
EMSP406	Critical Care	4
EMSP407	Community Paramedicine	3
EMSP408	EMS Education	2
EMSP409	EMS Management	2
EMSP410	Clinical Paramedic Practice V	3



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Course Code	Course Title	Credit Hours
EMSP411	Research Project	2
Total Credit Hours		16
Total Programme Credit Hours		131

3. Course Descriptions

ENGL101 — English I (3 CH)

This course develops overall English language skills among students in healthcare professions. It focuses on specialized vocabulary, grammar, reading comprehension, listening in realistic situations, and speaking through discussions and presentations, enabling students to communicate effectively and confidently in professional healthcare contexts.

ENGL104 — Medical Terminology for Health Sciences (1 CH)

This course introduces students to essential medical terminology used in healthcare settings. It covers the structure of medical terms, including roots, prefixes, and suffixes, while emphasizing accurate application in clinical documentation, professional communication, and healthcare practice to support effective communication.

ANAT101 — Anatomy and Physiology I (4 CH)

This course introduces fundamental concepts of human anatomy and physiology, focusing on the musculoskeletal, integumentary, and nervous systems. It combines theoretical knowledge with hands-on laboratory activities using anatomical models to develop understanding of body structures, functions, and their interrelationships.

CHEM101 — Biochemistry (2 CH)

This course introduces fundamental principles of biochemistry relevant to healthcare practice, focusing on biomolecules, enzymes, and metabolic pathways. It provides essential scientific knowledge for understanding biochemical processes, physiological functions, and changes associated with common emergency conditions and clinical situations.

EMSP101 — Introduction to EMS (3 CH)

This course introduces students to the emergency medical services system, its development, and the roles of paramedics. It explores legal and ethical principles, professional responsibilities, and practice requirements in the Arabian Gulf region, with comparisons to EMS systems in the United States and Europe.

MEDU101 — Study Skills (2 CH)

This course develops self-directed learning, time management, effective study techniques, critical thinking, problem-solving, and test-preparation skills within the academic health sciences environment, fostering academic success, independent learning, and lifelong learning through practical strategies and reflective approaches.

ENGL103 — English II (4 CH)

This course develops the English proficiency of students by advancing reading, speaking, listening, and writing skills, strengthening grammar, and expanding medical terminology. Building on ENGL101 and ENGL104, students apply these skills in authentic healthcare contexts to enhance professional communication, comprehension, and confidence.

ANAT102 — Anatomy and Physiology II (4 CH)

This course continues the study of human anatomy and physiology, focusing on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems. It combines theoretical knowledge with hands-on laboratory activities, linking body structures and functions to common emergency conditions and their clinical relevance.

BESC101 — Behavioural Sciences (2 CH)

This course examines psychological and sociological foundations and their influence on patient behaviour and responses during emergencies. Students develop skills in managing psychological trauma, providing initial psychological support, and recognizing cultural differences relevant to patient care within the Gulf environment.

EMSP102 — Foundation of Paramedic Care (5 CH)

This course establishes applied foundations of paramedic practice by developing skills in scene safety, primary and secondary patient assessment, and basic emergency care procedures. Students apply fundamental treatment approaches through hands-on training in the skills laboratory, preparing for safe clinical practice.

COMP101 — Computer Skills (2 CH)

This course develops student competency in computer technologies and applications within healthcare settings. Students practice patient data documentation, conduct digital scientific research, and use electronic systems relevant to emergency medical services, supporting accurate information management, efficient communication, and professional practice.

ISLM101 — Islamic Ethics and Human Rights (2 CH)

This course examines Islamic ethical principles and their application in medical practice, focusing on human dignity, patient rights, and fairness in healthcare delivery. Students apply ethical principles to situations encountered by paramedics, considering professional responsibilities and cultural contexts within Gulf regions.

EMSP201 — Communication and Documentation in EMS (2 CH)

This course develops effective professional communication with patients, families, and multidisciplinary healthcare teams. It covers information-handover techniques using SBAR and CHART models, alongside accurate documentation of patient transfer reports, ensuring communication is clear, consistent, and aligned with approved professional standards.

PATH201 — Pathophysiology (2 CH)

This course examines pathophysiological changes associated with common diseases, focusing on disease mechanisms and their effects on body systems. Emphasis is placed on priority emergency conditions, including shock, respiratory failure, and cardiac insufficiency, to enhance understanding of clinical manifestations and management.

EMSP202 — Basic Medical Emergencies (5 CH)

This course trains students to assess and manage basic medical emergencies, including altered consciousness, seizures, diabetic emergencies, and allergic reactions. It combines theoretical instruction with intensive hands-on training in clinical skills laboratories and simulation rooms to develop safe, effective emergency care skills.

EMSP203 — Clinical Assessment (3 CH)

This course trains students to conduct systematic, comprehensive patient assessments in pre-hospital settings. It covers obtaining medical histories, performing focused clinical examinations, interpreting vital signs, and making initial clinical decisions using approved assessment models to support safe, effective, evidence-based patient care.

EMSP204 — Fitness and Physical Education (4 CH)

This course promotes paramedic physical fitness and develops the ability to perform field-related physical tasks, including patient lifting and heavy equipment handling. It incorporates preventive training methods designed to reduce occupational injury risks and support safe, effective, and sustainable paramedic practice.

FAMM201 — Epidemiology and Biostatistics (3 CH)

This course introduces fundamental concepts of epidemiology and biostatistical methods and their applications in emergency and public health research. Students develop skills to critically read scientific literature, interpret epidemiological data, and apply findings to support evidence-based decision-making in healthcare practice.

EMSP205 — Healthcare Technology (2 CH)

This course addresses modern technologies and devices used in emergency medical services, including monitoring devices, cardiac monitoring, mechanical ventilation, and automated resuscitation systems. Emphasis is placed on safe operation, appropriate application, troubleshooting, and basic maintenance to support effective emergency care.

EMSP206 — Clinical Paramedic Practice I (3 CH)

This course provides guided clinical training in healthcare settings under direct supervision of certified paramedics and healthcare professionals. Students participate in patient assessment and management in ambulances and emergency departments while documenting clinical procedures, experiences, and competencies in a training logbook.

EMSP207 — Pharmacotherapy in Paramedic Practice (4 CH)

This course covers essential medications used in pre-hospital emergencies, including dosage calculations, routes of administration, drug interactions, and side effects. Students develop practical skills in medication preparation and administration through hands-on training within emergency medical contexts and clinical scenarios.

EMSP208 — Medical Emergencies I (3 CH)

This course develops clinical competency in assessing and managing diverse medical emergencies, including disorders of the nervous, endocrine, and digestive systems. Students apply pre-hospital treatment protocols and clinical decision-making skills in accordance with established regional and international standards.

EMSP301 — Respiratory Care (4 CH)

This course develops student competency in assessing and managing respiratory emergencies, including asthma, airway obstruction, and respiratory failure. It covers advanced airway management and

theoretical principles of invasive and non-invasive ventilatory support, with emphasis on understanding clinical indications, techniques, and complications.

EMSP302 — Clinical Paramedic Practice II (3 CH)

This course expands field clinical training through increased independent participation in case management. It includes rotations in intensive care units and emergency departments, with emphasis on developing clinical judgment, applying theoretical knowledge, and strengthening supervised decision-making skills in diverse emergency care settings.

EMSP303 — Medical Emergencies II (3 CH)

This course addresses advanced medical emergencies, including acute neurological conditions and complex clinical syndromes. It develops critical thinking skills in differential diagnosis and theoretical management of multi-system conditions within the pre-hospital setting, emphasizing systematic assessment, clinical reasoning, and evidence-based decision-making.

EMSP304 — Research and Evidence-Based Practice (3 CH)

This course trains students to apply scientific research methodologies within emergency medical services. It covers searching medical databases, critically appraising scientific evidence, and interpreting research findings to support improvements in clinical practice protocols, evidence-based decision-making, and quality of patient care.

EMSP305 — EMS Operations (2 CH)

This course addresses operational aspects of emergency medical services systems, including communications, dispatch management, inter-agency coordination, and field workplace safety. It also examines regulations and legislation governing emergency medical services across Gulf states, emphasizing effective coordination, compliance, and operational practice.

EMSP311 — Aviation and Retrieval Medicine (2 CH)

This elective course introduces principles of aviation and retrieval medicine relevant to paramedic practice. It covers patient transport by air, physiological effects of altitude, flight safety, patient assessment, stabilization, and retrieval considerations, emphasizing safe patient management during interfacility and remote transfers.

EMSP312 — Special Rescue Operations (2 CH)

This elective course introduces paramedic roles in special rescue operations, including vehicle extrication, structural collapse, confined-space, high-angle, water, wilderness, and hazardous-material rescues. Emphasis is placed on scene safety, patient assessment, emergency care, extrication, packaging, communication, and integration within specialized rescue teams.

EMSP313 — Occupational Health and Safety for Paramedics (2 CH)

This elective course introduces occupational health and safety principles relevant to paramedic practice. It covers workplace hazards, risk assessment, infection prevention, personal protective equipment, manual handling, exposure prevention, incident reporting, and safety regulations, emphasizing strategies to protect paramedics, patients, and communities.

EMSP306 — Cardiology (5 CH)

This course focuses on assessing and managing cardiac emergencies, including acute myocardial infarction, arrhythmias, cardiac insufficiency, and cardiac arrest. It covers electrocardiogram interpretation and advanced cardiopulmonary resuscitation protocols, emphasizing theoretical knowledge, clinical reasoning, and evidence-based emergency care principles.

EMSP307 — Clinical Paramedic Practice III (3 CH)

This course strengthens field competency through advanced clinical training and integrated rotations in field response, cardiac intensive care units, and operating rooms. It develops advanced airway management knowledge and skills while progressively enhancing clinical judgment, confidence, and supervised professional independence.

EMSP308 — Trauma Management I (4 CH)

This course develops student competency in the systematic assessment and management of traumatic injuries using ITLS and PHTLS approaches. It covers head, spinal, musculoskeletal, thoracic, and abdominal trauma, emphasizing theoretical knowledge and practical skills in immobilization, patient stabilization, and safe transport.

EMSP309 — Disaster Management (3 CH)

This course prepares students to function effectively within disaster response and mass casualty incident systems. It covers incident management, START and NEWS field triage principles, resource coordination, and collaboration with civil and military authorities, emphasizing organized response within the Gulf context.

EMSP310 — Community Engagement (2 CH)

This course strengthens the paramedic role in community health through health awareness and education programs. It covers community first aid and chain-of-survival principles, emphasizing health promotion, public engagement, and collaboration with healthcare and educational institutions across Gulf states.

EMSP401 — Trauma Management II (4 CH)

This course addresses advanced management of complex trauma, including brain, pelvic, major vascular injuries, and severe burns. It develops clinical decision-making for critical multi-trauma cases and covers advanced stabilization principles, interventions, and evidence-based approaches within the pre-hospital emergency care setting.

EMSP402 — Clinical Paramedic Practice IV (3 CH)

This course represents an advanced clinical stage before graduation, providing students with increased participation in managing critical cases under supervision in field response and intensive care settings. Clinical competencies are continuously assessed using a standardized feedback model to support professional development.

EMSP403 — Special Patient Populations (4 CH)

This course trains students to assess and manage emergencies among special populations, including persons with disabilities, older adults, pregnant women, and psychiatric patients. It emphasizes individualized emergency care while considering physiological, social, cultural, and communication factors affecting patient assessment and management.

EMSP404 — Paediatric Care (4 CH)

This course covers anatomical and physiological characteristics of children and their effects on assessment and emergency intervention. It includes management of respiratory distress, seizures, sepsis, paediatric shock, and cardiopulmonary resuscitation for infants and children in accordance with PALS and EPLS.

EMSP405 — Informatics and Artificial Intelligence (1 CH)

This course explores health informatics and artificial intelligence applications within emergency medical services. It covers electronic medical records, smart dispatch systems, big-data analytics, and telemedicine, emphasizing their roles in improving clinical decision-making, operational efficiency, patient safety, and quality of care.

EMSP406 — Critical Care (4 CH)

This course prepares students to manage critically ill patients during interhospital transport and field operations. It covers mechanical ventilation, medication infusion pumps, advanced monitoring devices, and critical lifesaving interventions, emphasizing safe patient management in accordance with approved critical care transport protocols.

EMSP407 — Community Paramedicine (3 CH)

This course introduces the evolving community paramedicine model, extending paramedic roles to home visits, chronic disease management, health promotion, and emergency prevention. It explores practice in remote and underserved communities, examining implementation models and experiences across Gulf states and worldwide.

EMSP408 — EMS Education (2 CH)

This course develops student education and training skills, emphasizing adult learning principles, curriculum design, instructional strategies, and assessment methods. It prepares students to contribute effectively to the design, delivery, and evaluation of training programs and support the development of future workforce capabilities.

EMSP409 — EMS Management (2 CH)

This course introduces paramedic students to principles of EMS management, including operational planning, workforce coordination, resource allocation, budgeting, quality improvement, risk management, and performance monitoring. Students develop skills to support effective daily operations and manage resources within emergency medical services organizations.

EMSP410 — Clinical Paramedic Practice V (3 CH)

This course represents the highest clinical stage before graduation, enabling students to manage critical cases with limited supervision in field response and intensive care settings. Clinical competencies are continuously assessed through a standardized feedback model to support readiness for professional practice.

EMSP411 — Research Project (2 CH)

This course applies research methodology through an applied research project in emergency medical services under academic supervision. Students formulate research questions, collect and analyse data, prepare the final report, and present findings to a specialized evaluation committee for assessment and academic review.