

Course Description of Bachelor of Science in Paramedicine

1. General Education

1.1 Social Sciences and Humanities

MUGE 101 General Education for Human Development

Pre-requisite -

Well-rounded graduates, key issues affecting society and the environment with respect to one' particular context; holistically integrated knowledge to identify the key factors; speaking and writing to target audiences with respect to objectives; being accountable, respecting different opinions, a leader or a member of a team and work as a team to come up with a systematic basic research-based solution or guidelines to manage the key issues; mindful and intellectual assessment of both positive and negative impacts of the key issues in order to happily live with society and nature

SHHU 125 Professional Code of Ethics

Pre-requisite -

Concepts and ethical principles of people in various professions, journalists, politicians, businessmen, doctors, government officials, policemen, soldiers; ethical problems in the professions and the ways to resolve them

SHSS 144 Principles of Communication

Pre-requisite -

The importance of communication; information transferring, understanding, language usage, behavior of sender and receiver personality and communication; effective communication problems in communication

SHSS 250 Public Health Laws and Regulations

Pre-requisite -

Introduction to law justice procedure; law and regulation for doctor and public health practitioners, medical treatment act, practice of the art of healing act, medical service act, food act, drug act, criminal code, civil and commercial code; ministerial regulation, rule and regulation relating to public health administration

1.2 Languages

LAEN 103 English Level 1

Pre-requisite -

English structure, grammar and vocabulary in the context of daily language use, dealing with integration in listening, speaking, reading, and writing skills; reading strategies, sentence writing, listening for the gist, pronunciation and classroom communication

LAEN 104 English Level 2

Pre-requisite -

Vocabulary, expressions, grammar, and contextualized social language; essential communicative skills in small groups; simulations in various situations; writing practice at a paragraph level; and reading and listening from various sources

LAEN 105 English Level 3**Pre-requisite -**

Essential strategies for four language skills: reading and listening from various sources, speaking in everyday use and writing at a paragraph level and short essay, including sub-skills i.e., grammar, pronunciation, and vocabulary; focusing on English in everyday life and in academic reading and issues that enhance students world knowledge

LAEN 106 English Level 4**Pre-requisite -**

Integrating four English skills by practicing reading news, research articles, commentary, and academic texts, for comprehension and critical thinking, from various sources focusing on the issues that enhance students world knowledge; listening to news, lecture, and speech via multimedia and the Internet; making conversations in various situations including speaking in public, giving oral presentations and making simulations; and writing essays in various types using citations and references; also practicing sub-skills such as grammar, pronunciation and vocabulary used in appropriate context

LATH 100 Arts of Using Thai Language in Communication**Pre-requisite -**

Art of Thai language and of speaking, listening, reading, writing, and thinking skills in accurately and appropriately communicating

LAEN 272 English for Medical Professionals**Pre-requisite -**

Vocabularies, expressions, and information about medical professionals; communicative practice in simulated work situations in speaking, listening, reading, and summarizing in various medical contexts

1.3 Science and Mathematics**RAER 101 First Aid and Basic Emergency Care****Pre-requisite -**

Introduction to first aid and basic emergency care; hyperventilation syndrome, asthma, anaphylaxis, syncope, heat stroke, seizure and epilepsy, food poisoning, bleeding control, splint, wound dressing, basic chest compression and used of automatic electrical defibrillation in cardiac arrest patient, appropriate emergency call, development of general physical fitness in first aid and emergency care

RAGE 101 Contemporary Health**Pre-requisite -**

Multi-professional viewpoints toward interesting contemporary health issues such as social media use, nutrition, exercise, emotion; skin care, relationship and sex, pitfall in common drugs use, and life-saving procedure; role of each health profession; adaptation and stress management; interprofessional project in common health problems

SCBI 116 Introductory Biology

Pre-requisite -

Chemistry of life and biomolecules, cellular biology, cell energy, genetic and genetic disease, DNA technology and its medical applications, evolution, human evolution, ecology and pollution problem and biodiversity

SCPY 159 Elementary Physics for Health Science

Pre-requisite -

Mechanics of motion and equilibrium, work and energy, elastic properties of matters, fluid mechanics and blood circulatory system, temperature, heat, gas law and respiratory system, waves and wave properties, ears and hearing, lights and vision, electricity, magnetism, electricity in human body, electronics, atoms, nuclei and nuclear medicine

2. Core Courses

2.1 Basic Profession Course 40 credits

SCCH 112 General Chemistry

Pre-requisite -

Atomic structure, chemical bonding; gases, liquids, solid, solutions, colloids; chemical thermo-dynamics; chemical kinetics; chemical equilibrium, ionic equilibrium, electrochemistry, the present of periodic table

SCCH 119 Chemistry Laboratory

Pre-requisite -

Experiments of general chemistry and basic organic chemistry include determinations of scientific errors, significant numbers, precision and accuracy, preparation of solution and titration, rate of reaction, chemical equilibrium, quantitative analysis using spectroscopy, solubility classification, use of models to study stereochemistry of organic substance, reaction of hydrocarbons, reaction of alcohols and phenols, reactions of aldehydes and ketones, reactions of carboxylic acids and derivatives, reaction of amines

SCAN 101 Basic Anatomy

Pre-requisite -

Structures and functions of cell and tissues of the integumentary system, skeletal system, muscular system, circulatory system, respiratory system, digestive system, excretory system, endocrine system, reproductive system and special sense organs of human beings

SCCH 121 Basic Organic Chemistry

Pre-requisite -

Molecular structure and classification of organic compounds, reactions of organic compounds, nomenclature and stereochemistry, syntheses and reactions of alkanes, cycloalkanes, alkenes, aromatic, hydrocarbons, halides, alcohols, phenols, ethers, aldehydes, ketones, carboxylic acids, carboxylic acid derivatives, amines

LEAN 262 Listening and Speaking for Communication

Pre-requisite -

Practicing listening and speaking in everyday life situation; discussion; speech acts; interpretations; analyzing data from conversation, lectures, and reading academic issues, news, and reports from various sources

RAER 102 Emergency Medical System

Pre-requisite RAER 101 First Aid and Basic Emergency Care

The emergency medical system, definition, origin and significance; the development of the emergency medical system in Thailand and international; the role of the dispatch center, the level of emergency medical service, the role of the emergency operations at different levels; the Emergency Medical Act 2551, laws related to emergency medicine; established procedures for emergency medical services; standard ambulance; prearrival instruction; scene size up; scene safety and dealing with unsafe situation at the scene; the emergency care at the scene; communications in the emergency medical system; aeromedical transportation; indicators and quality improvement; the emergency medical system in disaster situations

RAER 201 Research Methodology for Paramedic

Pre-requisite -

Introduction to clinical research methodology; types of data; research questioning; searching of literatures and researches; literature reviews; research designs in cohort study, cross-sectional study, case-control study, experimental study, diagnostic accuracy; introduction to STATA program version 16.0; basic clinical statistics

RAER 202 History Interview and Physical Examination for Paramedic 1

Pre-requisite RAER 101 First Aid and Basic Emergency Care

Emergency room triage, medical history interviewing for paramedic, physical exam and practice in the rapid physical assessment; medical records, performing and interpreting vital signs, history interview, physical examination and practicing examination in the respiratory and cardiovascular system; communication with patients, symptomatology in the respiratory and cardiovascular system, medical ethics and practice in medical history; interviewing and physical exam of emergency cases in the respiratory and cardiovascular system

RAER 203 Basic Medical Procedure

Pre-requisite RAER 202 History Interview & Physical Examination for Paramedic 1

Basic medical procedures, airway techniques, the oxygen delivery systems, suction, pain control and sedation; diagnostic procedures, genital/urinary procedures, head and neck procedures, ophthalmological procedures; drug administration techniques, principles of disease control and diffusion, preparation of patients for emergency surgery; collecting organ fragments, collecting clinical specimens; utilization and maintenance of medical tools, practice in basic procedure techniques with models and simulations

RAER 204 History Interview and Physical Examination for Paramedic 2

Pre-requisite RAER 202 History Interview & Physical Examination for Paramedic 1

Emergency room triage, history interview, physical examination and practicing examination in the neurological, musculoskeletal, dermatological system and pediatric patients, communication with patients; symptomatology in the neurological, musculoskeletal, dermatological system and pediatric, medical ethics and practicing in medical history interviewing and physical exam of emergency cases in the neurological, musculoskeletal, dermatological systems and pediatric patients

RAER 207 Basic Pathophysiology for Paramedic

Pre-requisite SCAN 101 Basic Anatomy

Basic knowledge of physiology connecting the functions of cells, organs, and systems of the body; basic knowledge of physiology describing the abnormalities occurred in the work of cells, organs, and systems of the body in the cardiovascular, respiratory, nervous, gastrointestinal, musculoskeletal, endocrine, immunology and genitourinary systems

RAER 208 Clinical Pathophysiology for Paramedic

Pre-requisite RAER 207 Basic Pathophysiology for Paramedic

Knowledge and principles which describing the pathophysiology changes of cells, organs and systems of bodies; mechanisms of diseases; signs and symptoms of diseases; acute myocardial infarction; pneumonia; cerebrovascular diseases; an application to clinical practices

RAER 209 Clinical Pharmacology for Paramedic

Pre-requisite SCCH 121 Organic Chemistry

Fundamental principles of pharmacokinetics and pharmacodynamics; Emergency drugs used for treatment in prehospital care, cardiac arrest, arrhythmia; emergency drugs used for treatment in respiratory system, cardiovascular system, neurological system, endocrine system, antibiotic, analgesic and sedative drug; drug complication; drug allergy and overdose

RAER 210 Introduction to Clinical Year for Paramedic

Pre-requisite -

The Thai public health system and the emergency medical service; principle of effective communication, risk assessment, situation awareness in pre-hospital care; professional code of ethics in pre-hospital care; medical instruments, basic investigation in emergency department

RAER 211 Basic Biochemistry for Paramedic

Pre-requisite -

Basic structures and functions of five biomolecules, carbohydrate, lipid, protein nucleic acid and hemoglobin; basic metabolic processes of five biomolecules, its regulation, detoxication and excretion; the flow of genetic information and gene regulation; basic role of biomolecules related to the normal physiological systems; miscellaneous topic of biochemical importance and its application to paramedic

2.2 Specialized Courses

RAER 205 Research project for paramedic 1

Co-requisite RAER 201 Research Methodology for Paramedic

Evidence searching and literature review; ethics in human research; sample size estimation; data collection planning; composition of the research proposal; writing research proposal and presenting findings

RAER 301 Emergency Medical Service 1

Pre-requisite RAER 102 Emergency Medical System

Principles of operation in the emergency medical system, physical and mental performance for paramedic, emergency vehicles, preparation and maintenance; principles of emergency vehicle driving and safe parking, devices on emergency vehicles, preparing and maintaining equipment on emergency vehicles, vehicles and equipment for air transportation; communications and information in the emergency medical system, radio communications equipment for emergency operations and maintenance; visiting the command center of the National Institute of emergency medicine and the Bangkok Emergency Medical Service Center (Erawan Center)

RAER 302 Emergency Medical Care 1

Pre-requisite RAER 203 Basic Medical Procedure

RAER 204 History Interview & Physical Examination for Paramedic 2

Principles of emergency medical care, initial patient assessment and evaluation at the scene; anatomy, pathophysiology; on scene medical care in respiratory emergency, cardiovascular emergency, neurological, gastrointestinal disorder, immunology, infectious diseases, endocrine disorder, and shock; practice in emergency medical care in the emergency department

RAER 303 Emergency Care in Trauma 1

Pre-requisite RAER 203 Basic Medical Procedure

RAER 204 History Interview & Physical Examination for Paramedic 2

Principles of prehospital care in trauma patients; mechanism of injury; scene safety and scene size up; initial assessment and management in trauma patients with shock, chest injury, abdominal and pelvic injury, musculoskeletal injury, traumatic brain injury, spinal injury; injury prevention; medical record in trauma; practicing with models and simulation; practicing in the emergency medical care in the emergency department and the ambulance unit

RAER 304 History Interview and Physical Examination for Paramedic 3

Pre-requisite RAER 204 History Interview & Physical Examination for Paramedic 2

History interviewing, physical examinations, symptomatology and practicing examination in the gastrointestinal system; obstetric and gynecologic, ocular emergency and other emergency conditions; medical recording and practice in the medical history; interviewing and physical examination of emergency cases in the gastrointestinal system, obstetric and gynecologic, ocular emergency and other emergency conditions

RAER 305 Life Support Management 1

Pre-requisite RAER 203 Basic Medical Procedure

Initial assessment in unconscious patients; the use and maintenance of automatic electrical device, high quality chest compression, ventilation in adults and pediatric cardiac arrest; steps of basic life support in infants, children, adults, management of foreign body obstruction in the respiratory tract; life supporting equipment maintenance and practice in basic life supports with models and simulations

RAER 306 ECG Interpretation for Paramedic

Pre-requisite RAER 203 Basic Medical Procedure

Mechanism of the electrocardiogram (ECG), equipment used in the ECG examination; basic interpretation of ECG, ventricular fibrillation, ventricular tachycardia, pulseless electrical activity, asystole, tachyarrhythmia, bradyarrhythmia; abnormal ECG in acute myocardial infarction, cardiomegaly, valvular disease, electrolyte imbalance, toxicology and the initial management of abnormal ECG patients

RAER 307 Lifting and Moving

Pre-requisite RAER 203 Basic Medical Procedure

Principles of lifting and moving in emergency patients; body mechanic, safety and prevention of injuries from lifting; lifting techniques, helmet removal in trauma, emergent, urgent and non-urgent lifting and moving techniques, lifting and moving equipment; patient position and stabilization, lifting and moving in car wreck, ruins and confined space, lifting and moving with a high level; marine transportation, air transportation and practice in lifting and moving in hospital transfer, on scene transfer and emergency room transfer

RAER 308 Emergency Care in Trauma 2

Pre-requisite RAER 303 Emergency Care in Trauma 1

Principles of prehospital care in trauma, mechanism of injury, scene safety, and scene size up; initial assessment in pregnancy patients, pediatric, elderly, cognitively impaired patients; maxillofacial injury, eye injury, environmental injury, animal bite, radiation injury, blast injury, multiple traumas, post exposure prophylaxis, trauma quality management; practicing with models and simulations and practicing in emergency medical care in emergency departments and trauma units

RAER 309 Epidemiology for Paramedic

Pre-requisite RAER 201 Research Methodology for Paramedic

RAER 205 Research Project for Paramedic 1

Epidemiological definitions, measurement and epidemiological tool; components of the etiology, health service research, health economic research; investigations of diseases, surveillance, control and prevention, assessment and testing equipment; an application of epidemiological information in the emergency medical service development

RAER 310 Life Support Management 2

Pre-requisite RAER 305 Life Support Management 1

Principles in advanced life support in adults, basic life support skills, advanced airway management, surgical cricothyroidotomy for emergency opened airway; pharmacology in

advanced life support, interpretations of abnormal ECG; management of acute coronary syndromes, management of stroke, recognition and early management of peri-arrest conditions; advanced equipment maintenance and practicing in advanced life support with models and simulations

RAER 311 Advanced Medical Procedure

Pre-requisite RAER 203 Basic Medical Procedure

Airway techniques, adult ventilation-assisted mechanic, pediatric ventilation-assisted mechanic, mechanical ventilation-assisted; genital urinary procedures, hemodynamic techniques, hemodynamic monitoring; obstetrics procedures, skeletal procedures, other advanced procedures; utilizing and maintaining of emergency medical tools, other advanced emergency practices with models and simulations

RAER 312 Forensic Medicine for Paramedic

Pre-requisite SHSS 250 Public Health Laws and Regulations

Definition of forensic medicine for paramedic, laws, principles for an analysis of the cause of death; identification, unnatural death, autopsy, exhumation, writing reports, wound examination; sexual abuse, child abuse, collecting witnesses and evidences at the incidence site; an analysis of the cause of death, the change after death, dead body transferring and tools used in forensic medicine

RAER 401 Emergency Medical Service 2

Pre-requisite RAER 301 Emergency Medical Service 1

Principles of communication, co-operation, and receiving an emergency call; EMS record, phone triage, scene triage, prearrival instruction, online and offline medical command, scene size-up; ethics in the EMS operation, principles of emergency medical service operation with other agencies and practicing with simulations

RAER 402 Emergency Medical Care 2

Pre-requisite RAER 302 Emergency Medical Care 1

Principles of emergency medical care, initial patient assessment and evaluation at the scene; anatomy, pathophysiology, on scene medical care in toxicology, psychiatric and suicidal attempt patients; toxic bite and stings, obstetric, gynecological, neonatal care, pediatrics, geriatrics, palliative care; musculoskeletal disorders, genitourinary, renal, diseases of the eyes, ears, throat, and nose; hematological disorder and practice in the emergency medical care in the emergency department

RAER 403 Research project for paramedic 2

Pre-requisite RAER 205 Research Project for Paramedic 1

Research data collection, data analysis with Stata Version 16, research conclusions and discussions, research presentations, writing the research

RAER 404 Life Support Management 3

Pre-requisite RAER 310 Life Support Management 2

Principles in pediatric basic life support, pediatric and newborn advance life support, advance life support in pregnant patients, elderly patients, intoxication patients and trauma patient; advanced equipment maintenance, skill development in the advanced life supporting, practicing with models and simulations

RAER 405 Emergency Care in Mass Casualty Incident

Pre-requisite RAER 308 Emergency Care in Trauma 2

Principles in mass casualty incidents and disasters, general management in mass casualty incidents and disasters; mass causality triage, decontamination, the incident command system, natural and manmade disasters, disasters form blast injuries, biological disasters, chemical disasters; risk assessment and risk analysis, emergency response teams in disasters, hospital preparedness in disasters; recovery phase in disasters, psychological recovery and disaster prevention, practicing in mass causality management with models and simulations

RAER 410 Introduction to Paramedic Simulation

Pre-requisite RAER 302 Emergency Medical Care 1

RAER 308 Emergency Care in Trauma 2

RAER 311 Advanced Medical Procedure

RAER 313 Emergency Medical Field Work 1

Principles of operation in emergency situations; principles of emergency medical and trauma care; practicing in simulation training, principles of debriefing, principles of simulation desire, principles of simulation evaluation

RAER 313 Emergency Medical Field Work 1

Pre-requisite RAER 301 Emergency Medical Service 1

RAER 302 Emergency Medical Care 1

RAER 303 Emergency Care in Trauma 1

Clinical experiences in the emergency room, phone triage, dispatching information, radio communication; priority dispatching, prearrival information, on scene management, on route management; lifting and moving, online medical direction, offline medical direction, practicing in operation room and labor room, normal labor, abnormal labor and neonatal resuscitation

RAER 406 Emergency Medical Field Work 2

Pre-requisite RAER 310 Life Support Management 2

RAER 311 Advanced Medical Procedure

Clinical experiences in on scene management, on route management; teaching skills to other EMS personnel, prehospital advanced cardiovascular life support; prehospital pediatric cardiovascular life support, prehospital neonatal resuscitation, prehospital trauma life support; work-life balance for paramedic, ethical issues in prehospital emergency care

RAER 407 Emergency Medical Field Work 3

Pre-requisite RAER 308 Emergency Medical Care 2
RAER 311 Advanced Medical Procedure
RAER 401 Emergency Medical Service 2
RAER 402 Emergency Medical Care 2
RAER 404 Life Support Management 3

Clinical experiences in the dispatching center (Phra Na Khon Sri Ayutthaya Hospital, Maharat Nakhon Ratchasima Hospital and Chaophraya Abhaibhubejhr Hospital); clinical practices in phone triage, dispatching information, radio communication; priority dispatch, prearrival information

RAER 408 Emergency Medical Field Work 4

Pre-requisite RAER 308 Emergency Medical Care 2
RAER 311 Advanced Medical Procedure
RAER 401 Emergency Medical Service 2
RAER 402 Emergency Medical Care 2
RAER 404 Life Support Management 3

Clinical experiences in prehospital care (Srisaket Hospital, Chumphae Hospital and Udon Thani Hospital) clinical practices in on scene management, on route management, lifting and moving, online medical direction, offline medical direction

RAER 409 Emergency Medical Field Work 5

Pre-requisite RAER 308 Emergency Medical Care 2
RAER 311 Advanced Medical Procedure
RAER 401 Emergency Medical Service 2
RAER 402 Emergency Medical Care 2
RAER 404 Life Support Management 3

Clinical experiences in emergency room (Trang Hospital, Surat Thani Hospital and Maharaj Nakhon Si Thammarat Hospital); clinical practices in resuscitation room, interfacility transfer, lifting and moving, online and offline medical direction

3. Free Elective

RAER 206 Practice in Emergency Medical Field 1

Pre-requisite -

Practicing in basic / advanced ambulance service center; ambulance preparedness; ambulance equipment preparedness; preparing team for operations; on scene care; lifting and moving; transport communication; operation data recording

RAER 315 Practice in Emergency Medical Field 2

Pre-requisite -

Practicing in the dispatch center (provincial or regional) notification; communications between the dispatching center and hospitals; phone triage, prearrival information, priority dispatching; operation data recording of the dispatching center

RAER 411 Practice in Emergency Medical Field 3

Pre-requisite -

Practicing in the resuscitation room (emergency department): emergency department triage; basic and advanced procedure; cardiac life support resuscitation in adults and pediatrics; care in transfer and referral patients; collectings and analyzing the emergency department data record