# Bachelor of Science Program in Cardio-Thoracic Technology
# (International Program)

**Program Name** Bachelor of Science in Cardio-Thoracic Technology

**Degree Awarded** Bachelor of Science (Cardio-Thoracic Technology)

**Program Learning outcomes (PLOs)**

**PLO1** Describe a basic knowledge of medical sciences and cardio-thoracic technology profession

**PLO2** Enable to apply the knowledge of cardiothoracic technology profession

**PLO3** Acquire the skills to use the equipment for cardio-thoracic technology profession

**PLO4** Enable to perform basic information gathering and analyze empirical evidence for learning about the cardio-thoracic technology profession

**PLO5** Express the professional ethics

**PLO6** Act with respect to other's perspective

**PLO7** Discuss academic and professional opinions in cardio-thoracic technology

**Year Learning Outcome (YLOs)**

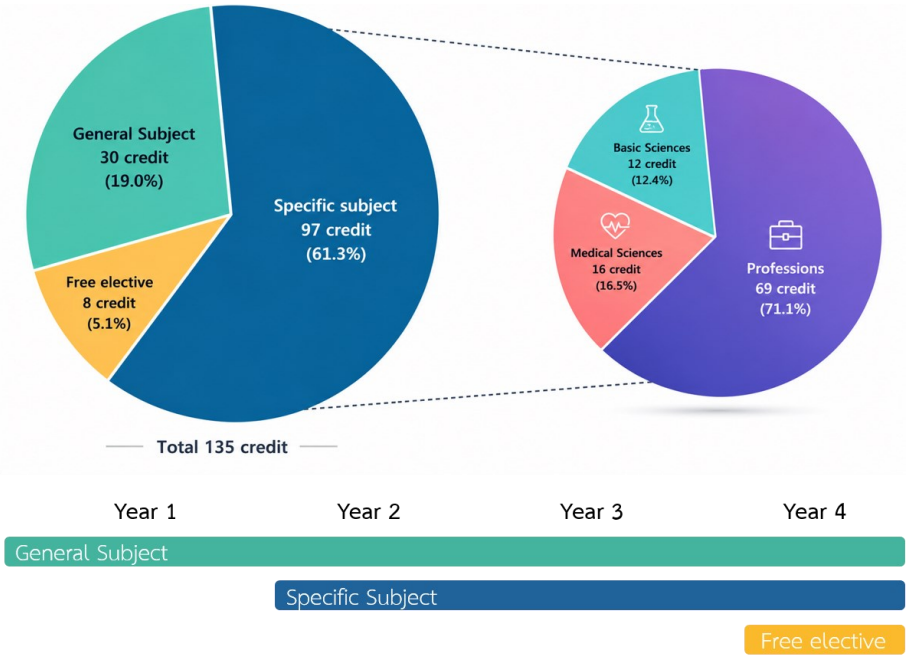
**Year 1)** Students will be able to demonstrate an understanding of basic sciences, technology, and their applications in daily life.

**Year 2)** Students will be able to explain knowledge in medical sciences and apply it in relevant professional contexts.

**Year 3)** Students will be able to integrate medical science knowledge with professional cardiovascular and thoracic technology to appropriately provide patient care.

**Year 4)** Students will be able to analyze professional practices in cardiovascular and thoracic technology based on ethical and professional standards.

## Curriculum Overview




## Program Structure

### Year 1

| **Semester 1** | | **Cr** |
|---|---|---|
| CMM 110 | Medical Biology | 3 (3-0-6) |
| CMM 111 | Medical Biology Laboratory | 1 (0-2-1) |
| CMM 120 | Engagement in Health Science | 3 (3-0-6) |
| CMM 122 | Innovation and Communication in Healthcare Sectors | 3 (3-0-6) |
| CMM 123 | Self-reflection and Personal Development for Healthcare Professionals | 3 (3-0-6) |
| CMN 111 | Chemistry and Organic Chemistry for Medical Sciences | 3 (3-0-6) |
| CMN 112 | Chemistry and Organic Chemistry Laboratory for Medical Sciences | 1 (0-2-1) |
| EL 105 | English Communication Skills | 3 (3-0-6) |
| | **Total** | **20** |

| **Semester 2** | | **Cr** |
|---|---|---|
| CMM 107 | Principle of Physics in Daily Life | 3 (3-0-6) |
| SC 186 | Physics Laboratory | 1 (0-1-2) |
| CMM 121 | Applied Medical Sciences and Sustainability | 3 (3-0-6) |
| CMM 124 | Entrepreneurial Competencies Development in Healthcare Professionals | 3 (3-0-6) |
| CMM 217 | Fundamentals of Biomedical Sciences 1 | 4 (3-2-7) |
| CMM 218 | Fundamentals of Biomedical Sciences 2 | 3 (2-2-5) |
| LAS 101 | Critical Thinking, Reading, and Writing | 3 (3-0-6) |
| | **Total** | **20** |

**Year 2**

| **Semester 1** | | **Cr** |
|---|---|---|
| CMM 126 | Information Technology Law for Healthcare Professionals | 3 (3-0-6) |
| CMM 219 | Integrated Biomedical Sciences 1 | 3 (2-2-5) |
| CMM 220 | Integrated Biomedical Sciences 2 | 3 (2-2-5) |
| CMM 221 | Integrated Biomedical Sciences 3 | 3 (2-2-5) |
| CMC 231 | Anatomy and Physiology of Cardiovascular and Respiratory System | 3 (2-2-5) |
| CMC 233 | Introduction to Clinical Cardiovascular and Thoracic Technology | 3 (2-2-5) |
| | **Total** | **18** |

| **Semester 2** | | **Cr** |
|---|---|---|
| CMM 125 | Biostatistics and Epidemiology for Medical Science | 3 (3-0-6) |
| CMC 232 | Integrated Cardiovascular and Respiratory System Diseases | 3 (2-2-5) |
| CMC 241 | Principle of Non-invasive Cardiology Investigation and Echocardiography | 3 (2-2-5) |
| CMC 253 | Medical Technology for Cardiovascular and Thoracic Surgery 1 | 3 (2-2-5) |
| CMC 281 | Practice in Cardiovascular and Thoracic Technology 1 | 3 (0-6-3) |
| EL 296 | Academic English for Science Disciplines 1 | 3 (3-0-6) |
| | **Total** | **18** |

**Year 3**

| **Semester 1** | | **Cr** |
|---|---|---|
| CMN 411 | Research Ethics and Methodology | 2 (2-0-4) |
| CMC 334 | Seminar 1 | 1 (0-2-1) |
| CMC 336 | Research Project for Cardiovascular and Thoracic Technology 1 | 1 (0-2-1) |
| CMC 342 | Clinical Application of Echocardiography | 3 (2-2-5) |
| CMC 354 | Medical Technology for Cardiovascular and Thoracic Surgery 2 | 3 (2-2-5) |
| CMC 365 | Principle of Interventional Cardiology | 3 (2-2-5) |
| CMC 377 | Principle of Electrocardiography and Cardiac Arrhythmia | 3 (2-2-5) |
| CMC 382 | Practical in Cardiovascular and Thoracic Technology 2 | 3 (0-6-3) |
| | **Total** | **19** |

| **Semester 2** | | **Cr** |
|---|---|---|
| CMC 335 | Seminar 2 | 1 (0-2-1) |
| CMC 337 | Research project for Cardiovascular and Thoracic Technology 2 | 1 (0-2-1) |
| CMC 338 | Cardiac Emergency and Critical care | 2 (1-2-3) |
| CMC 366 | Principle of Vascular Interventional Procedures | 3 (2-2-5) |
| CMC 378 | Cardiac Arrhythmia Management | 3 (2-2-5) |
| CMC 383 | Practical in Cardiovascular and Thoracic Technology 3 | 3 (0-6-3) |
| CMC 384 | Clinical Experience in Cardiovascular Units | 4 (≥180 ชม.) |
| | **Total** | **17** |

**Year 4**

| **Semester 1** | | **Cr** |
|---|---|---|
| CMC 485 | Clinical Experience in Non-Invasive Cardiac Investigation Unit | 4 (≥180 Hr) |
| CMC 486 | Clinical Experience in Cardiovascular Thoracic Surgery Unit | 4 (≥180 Hr) |
| CMC 487 | Clinical Experience in Cardiac Catheterization Laboratory | 4 (≥180 Hr) |
| CMC 488 | Clinical Experience in Electrophysiology Study and Pacemaker Unit | 4 (≥180 Hr) |
| | **รวม** | **16** |

| **Semester 2** | | **Cr** |
|---|---|---|
| Free Elective | | 4 (≥180 Hr) |
| Free Elective | | 4 (≥180 Hr) |
| | **รวม** | **8** |

**Course Description**

CMM 124 Entrepreneurial Competencies Development in Healthcare Professionals

Entrepreneurship in general, How to become an entrepreneur, Ethics of entrepreneurship, Identifying and exploiting opportunities, Decision making, Strategic thinking, Taking and managing risk, Different types of companies and organizations in the healthcare sector, Establishment of the company (business idea and plan) and the running of a company, Marketing, Production and Work quality, Customer orientation, Financial Management, Networking, Knowledgeable of Legal Regulations.

CMM 126 Information Technology Law for Healthcare Professionals

Study the basic principles of the rule of law and the fundamentals of private and public law for healthcare professionals. Legal issues in areas such as digital data, the PDPA (Personal Data Protection Act), Intellectual Property, the Social Security Fund, the Workmen's Compensation Fund, and the National Health Act focus on legal discussions that are important in today's medical practice that is applied in real life.

CMM 123 Self-reflection and Personal Development for Healthcare Professionals

Managing and adaptation to university life. Understanding self-awareness and respect other people. Development of soft skill, social skill, mindset of life and emotional intelligence leading to future planning in all dimensions as well as developing lifelong learning to coexist peacefully with others. Learning to live harmoniously and respectfully with others and the society.

LAS 101 Critical Thinking, Reading, and Writing

Development of critical thinking through questioning, analytical, synthetic and evaluation skills. Students learn how to read without necessarily accepting all the information presented in the text, but rather consider the content in depth, considering the objectives, perspectives, assumptions, bias and supporting evidence, as well as logic or strategies leading to the author's conclusion. The purpose is to apply these methods to students' own persuasive writing based on information researched from various sources, using effective presentation techniques.

EL 105 English Communication Skills

Development of English communication skills, including listening, speaking, reading, and writing. Practice of language, vocabulary and expressions used in academic and social contexts.

CMM 125 Biostatistics and Epidemiology for Medical Science

Principles and concepts of biostatistics and epidemiology for biomedical science; Study design in biomedical research; Occurrence relation of disease/illness and its determinants; Measure of disease frequency and measure of effect; Review the concepts of descriptive statistics and inferential statistics especially estimation and hypothesis testing; Critical appraisal of the medical literature.

CMM 121 Applied Medical Sciences and Sustainability

The study of human and living life with sustainable well-being in context of natural and built environment. Economy of well-being, social determinants of health. Contemporary society and culture in life and health aspects. Human health and confronting with global change in various perspectives.

CMM 122 Innovation and Communication in Healthcare Sectors

Psychology of Art and Creativity, Creative Thinking, Techniques and Tools for Success, Creative Problem Solving, Design Thinking and Creativity for Innovation, Types of Innovation, Innovation Toolbox, Reviewing patents/ Intellectual property, Identifying an inventive opportunity, Competitive strategy projecting trends, as well as communication of these ideas that lead to suitable results in social and healthcare sector.

EL 296 Academic English for Science Disciplines 1

Development of English listening, speaking, reading, and writing skills for scientific academic purposes. Practice of summarizing, giving definitions, describing processes, giving instructions, explaining cause and effect relationships, and describing compare and contrast relationships.

CMM 120 Engagement in Health Science

Democracy, characteristics of civic citizen including respecting the rules, respecting others' rights, respecting differences, respecting equality, self-dependence, social responsibility, and thinking ability, civic engagement, environmental issues, problems in country and world, Sustainable Development Goals (SDGs), first aid course, community visiting, project creation and implementation related to health science.

CMN 111 Chemistry and Organic Chemistry for Medical Sciences

Protons, neutrons and electrons; Covalent bonding; Non-covalent bonding; Free electron pairs and chemical reactions; Elements; Solids, liquids, gases and solutions; Thermodynamics and kinetics; Acids and bases; Solubility and complexation; The chemistry of life; Functional groups and their properties; Biological molecules; Clinical chemistry; Electrons and photons; Spectroscopy. Molecular structure and properties of organic compounds, classification and nomenclature of various functional groups of organic molecules, stereochemistry, stereoisomers.

CMN 112 Chemistry and Organic Chemistry Laboratory for Medical Sciences

Prerequisite: have taken or taking CMN 111 in the same semester

Experiments related to the contents in CMN 111

CMM 107 Principle of Physics in Daily Life

The physical principles applying for medical and health science technology students. Focusing on the classical mechanics and topics including matter, motion, force, work, energy, power, fluids, principle of thermodynamic, principle of physic in daily life in human physiological related topics and the example in the applications of physics to medical research, diagnosis, and treatment.

CMM 110 Medical Biology

Cells and organelles, cell cycle and cell division, the biomolecules and metabolism, basic genetics, patterns of inheritance, the diversity of microorganisms and parasites, tissue levels and human bones, nervous system, human nutrition and digestive system, endocrine system, circulation and gas exchange, reproduction and development, body's defenses against disease.

CMM 111 Medical Biology Laboratory

Prerequisite : Have taken CMM 110 or taking CMM 110 in the same semester

Experiments related to contents to CMM 110

Laboratory on the use of light microscope, prokaryotic and eukaryotic cells, plant and animal cells, mitosis and meiosis, carbohydrate tests, DNA extraction and analysis, the diversity of microorganisms, surface anatomy and human bone, reflex functions and somatic sensation, blood circulation and gas exchange through the heart to the lungs, antigen-antibody interaction.

SC 186 Physics Laboratory

Laboratory practices involving measurement and errors, motion, and lenses, sound waves, electric fields, electrical instruments, gas laws, and modern physics.

CMM 217 Fundamentals of Biomedical Sciences 1

Structures and functional processes of the human body—from the molecular level to the cells, homeostasis of biomolecules, and basic medical biochemistry. Inheritance and mechanism of gene action, human genome, and mutation. Homeostasis and physiology of cells. Internal and external cell interactions such as microbes, drugs, and chemical reagents. Cell growth and differentiation. Cell senescence and apoptosis. Differentiation of cell into tissue and organ. Fundamental pathology and pathophysiology of cell and tissue.

CMM 218 Fundamentals of Biomedical Sciences 2

Pathogenic microorganisms, including bacteria, viruses, fungi, and parasites. The life cycle of parasites. Pathogenesis and mechanism of disease. Clinical symptoms, diagnosis, communicable disease, epidemiology, prevention, disease control. Method of collecting specimens for diagnosis. Basic knowledge of immunity, the defensive system through cell and secretion. The pathological state caused by the immune system disorders. Application of immunological knowledge in the diagnosis of underlying pathology and pathophysiology of infection.

CMM 219 Integrated Biomedical Sciences 1

Integration of basic anatomy and physiology knowledge of the nervous system and musculoskeletal system. The pathology and pathophysiology underlying those organ systems. Fundamental pharmacology, basics mechanism of drug action on various systems in the body. Clinical application and adverse drug effects.

CMM 220 Integrated Biomedical Sciences 2

Integration of the basic anatomy and physiology knowledge of respiratory system, circulatory system, hematology, and digestive system. The pathology and pathophysiology underlying those organ systems. Fundamental pharmacology, basics mechanism of drug action on various systems in the body. Clinical application and adverse drug effects.

CMM 221 Integrated Biomedical Sciences 3

Integration of basic anatomy and physiology knowledge of urinary system, reproductive system, and hormones. The pathology and pathophysiology underlying these organ systems. Fundamental pharmacology, basics mechanism of drug action on various systems in the body. Clinical application and adverse drug effects.

CMN 411 Research Ethics and Methodology

Introduction to responsible research; relevant information for initiating research; critical reading and analysis; guidelines for good practices, ethics and regulations in bio-clinical sciences; responsible protocol writing; planning and setting up experiment/research; responsible peer review; good data management practice and quality standards; considerations for report and publication; ethical issues in publication; and presentation of research results.

CMC 231 Anatomy and Physiology of Cardiovascular and Respiratory System

Anatomy and physiology within the thoracic cavity include the human heart, vessels, blood, and circulation system. The course comprehends normal cardiovascular function and its relations to other organs in the thoracic cavity, cardiac muscle structures to their mechanical and electrical properties including the origin of the heart rhythm, cardiac conduction system, cardiac cycle, and an electrocardiogram—the importance of cardiovascular regulatory system responses to body alteration and hemodynamics. Anatomy and physiology of the lungs—the organs within the thoracic cavity, inspiration-expiration, control of respiration, lung and cellular gas exchange, lungs' compliance and elasticity, lung volume, control of respiration, the role of the respiratory system in acid-base regulation, and common lung diseases.

CMC 232 Integrated Cardiovascular and Respiratory System Diseases

Integration of anatomy, physiology, pathology, pathophysiology, epidemiology, diagnosis, treatment, and pharmacology in cardiovascular and respiratory diseases.

CMC 233 Introduction to Clinical Cardiovascular Thoracic Technology

Role of cardiovascular and thoracic technologist in non-invasive cardiology investigation, cardiovascular interventions, cardiac electrophysiological study, cardiovascular perfusion, cardiac emergency unit, and cardiovascular researcher. Using sterile technique, infection prevention, and control. Principle of patient safety and quality assurance in healthcare. Principle of radiation protection, biological effects, and factors affecting radiation dose in cardiac imaging.

CMC 334 Seminar 1

Fundamental analysis and summary research in cardiovascular thoracic technology that has an academic value under the supervision of advisors; presenting and discussing research works from questions asked and giving opinions according to scientific evidence.

CMC 335 Seminar 2

Innovation and current technology include diagnosis and treatment of cardiovascular and thoracic diseases. Advanced analysis and summary research in cardiovascular thoracic technology that has an academic value under the supervision of advisors; presenting and discussing research works from questions asked and giving opinions according to scientific evidence.

CMC 336 Research project for Cardiovascular Thoracic Technology 1

Conduct a research project plan, including reviewing the literature, hypotheses, and planning methodology under the supervision of the supervisor. Create research proposals and research ethics approval.

CMC 337 Research project for Cardiovascular Thoracic Technology 2

Conduct research projects continuously with the supervisor, discuss the findings, and conclude, then write up a report in the dissertation. Delivering project achievements at the academic conference.

CMC 338 Cardiac Emergency and Critical care

Theory and practice of cardiopulmonary resuscitation (CPR), indications to perform, CPR method, and current recommendations. Clinical practice and training standards, and a simplified method for untrained rescuers. Patient assessment and first-aid. Effectiveness, limitation, and complication. Pathophysiology combination with other treatments and duration to perform CPR, prevalence, medical information, and reports. Recommended equipment for adult and pediatric resuscitation in the hospital. Mechanical ventilators, oxygen therapy devices and clinical problems of patients who receive respiratory support and oxygen therapy. Component of machines and related equipment. Usage of mechanical ventilators and oxygen therapy devices. Understanding basic ventilator setting principles and solving a common problem in mechanical ventilation and oxygen therapy.

CMC 241 Principle of Non-invasive Cardiology Investigation and Echocardiography

Principle of electrocardiography, Holter monitoring, exercise stress test, tilt table test, ankle-brachial index, chest X-ray, computed tomography angiography, magnetic resonance imaging, myocardial perfusion imaging, and echocardiography. Principle of the ultrasound wave, transducer, signal processing to create images, image optimization, imaging artifacts, and modes of echocardiography. The investigation of

heart structure, cardiovascular hemodynamics, and heart functions by echocardiography and stress echocardiography. Theory and practice in all types of non-invasive machines, the indication to perform, precaution and risk reduction for complication, suggestions, and care of patients during pre, peri, and post-procedures.

CMC 342 Clinical Application of Echocardiography

Echocardiography examination and analysis of a patient with heart diseases such as valvular heart diseases, cardiomyopathies, coronary artery diseases, disease of the great artery, pericardial abnormalities, cardiac tamponade, congestive heart failure, cardiac tumors and masses, congenital heart diseases, and prosthetic valve function including transthoracic two, three-dimensional echocardiography and transesophageal echocardiography and stress echocardiography. Patient assessment, an indication to perform, interpretation of echocardiographic findings, suggestions, and patient care.

CMC 253 Medical Technology for Cardiovascular and Thoracic Surgery 1

History of cardiac surgery and historical development of cardiopulmonary bypass (CPB). Principle of the heart-lung machine, heater-cooler, blood pumps, oxygenator, heat exchanger, circuitry, cannula, and additional circuit. Circuitry setup, including occlusion setting, priming, and de-airing technique. Conduct perfusion during CPB. Physiological change, complications, and monitoring during CPB. Principle of myocardial protection and preservation. Principle of anesthesia in cardiac surgery. Drug use in CPB. Acid-Base physiological management including pH and alpha stat management. Surgical treatment principles include congenital and acquired heart disease, cardiothoracic transplantation, post-operative evaluation, and pain management.

CMC 354 Medical Technology for Cardiovascular and Thoracic Surgery 2

The principles and techniques of cardiopulmonary bypass in special cases, including pediatric, hematologic defect patients and pregnancy. Principle and technique of circulatory arrest, selective cerebral and other organ perfusion, left heart bypass, perfusion crisis management in a particular situation. Principles and equipment related to cardiopulmonary bypass include blood conservation techniques and additional circulatory support such as autotransfusion, hemoconcentration, intra-aortic balloon pump (IABP), extracorporeal membrane oxygenation (ECMO), and ventricular-assisted devices (VAD).

CMC 365 Principle of Interventional Cardiology

Hemodynamic and vital sign monitoring with invasive and non-invasive techniques. Preparation of common equipment for coronary angiography, ventriculography and aortography, common approach site of the catheter. Basic interpretation of angiogram, ventriculogram and aortogram. The steps, indications and contraindications of the coronary angiogram, percutaneous coronary intervention, ventriculogram, and Rotablator. Understanding patient care and complications during pre-operative, peri-operative, and post-operative. The principle uses and maintains intravascular ultrasound, fractional flow reserve devices, advanced catheters, and optical coherence tomographic devices.

CMC 366 Principle of Vascular Interventional Procedures

Principle of vascular interventional procedures in terms of indications, contraindications, steps of diagnosis and treatment of a disease through the catheter, transcatheter aortic valve implantation, mitral valve commissurotomy, transcatheter closure of the atrial septal defect, ventricular septal defect, and patent ductus arteriosus. Indications, contraindications, and steps of right heart catheterization include renal artery stenting, vascular stent-graft implantation, mechanical

thrombectomy, and pre- /peri- /and post-operative care of relevant transcatheter procedures.

CMC 377 Principle of Electrocardiography and Cardiac Arrhythmia

Principle of the cardiac electrical conduction physiology in normal and abnormal rhythm. Examining the origin of abnormal conduction, pathophysiology, and arrhythmia mechanisms. Patient characteristics to further examination. Studies of equipment and examination procedures, including 2D and 3D electroanatomic cardiac mapping and interpretation of cardiac electrogram.

CMC 378 Cardiac Arrhythmia Management

Electrophysiology studies test the electrical activity to find the electrical activity and conduction pathway in bradyarrhythmia and tachyarrhythmia. The principles of differential diagnostic pacing maneuvers in electrophysiology procedure. Arrhythmia treatments include antiarrhythmic agents, radiofrequency ablation or cryoablation, cardioversion or implantable devices—indications, contraindications, risks, and limitations of treatment procedures.

CMC 281 Practice in Cardiovascular and Thoracic Technology 1

Practice in medical devices, machines for non-invasive investigation, cardiac catheterization, and perfusion unit, especially for using echocardiographic machines and heart-lung machines. Application of basic knowledge to understand principles and components of the devices and related instruments, understanding appropriate use of the devices in clinical practice.

CMC 382 Practice in Cardiovascular and Thoracic Technology 2

Practice essential medical devices in cardiovascular and thoracic technology such as non-invasive cardiology investigation, catheterization laboratory and operating room. Application of basic knowledge to understand principles and

components of the devices and related instruments, understanding appropriate use of the devices in clinical practice.

CMC 383 Practical in Cardiovascular and Thoracic Technology 3

Practice essential medical devices in cardiovascular and thoracic technology such as non-invasive cardiology investigation, catheterization laboratory, electrophysiologic study laboratory and operating room. Application of basic knowledge to understand the principles and components of the devices and related instruments, appropriate use of the devices, and preparation for clinical practice.

CMC 384 Clinical Experience in Cardiovascular Units

Extended clinical experience in cardiovascular and thoracic technology, emphasizing to enhance special knowledge and more complicated skills in any non-invasive cardiology investigation unit, cardiac catheterization unit, electrophysiology study or cardiac surgery center. Providing study tours and fieldwork training in related institutions.

CMC 485 Clinical Experience in Non-Invasive Cardiac Investigation Unit

Clinical practice in the non-invasive investigation unit, out-patient ward, and in-patient ward. Performing and/or observation of non-invasive cardiology investigation. Patient preparation and care. Preparation and management of equipment used in the unit. Indication to perform. Detecting complications during the exam. Interpretation of echocardiographic findings. Interaction with patient and working with other laboratory and health care team.

CMC 486 Clinical Experience in Cardiovascular Thoracic Surgery Unit

Study processes of patient preparation for surgery and instrument used to correct different cardiovascular and thoracic diseases. Learn to manage the devices, assist in an emergency, patient care, and monitor to detect complications during and after the treatment procedure in the postoperative and critical care unit; learn about the role of cardiovascular thoracic technologists in the health care team.

CMC 487 Clinical Experience in Cardiac Catheterization Laboratory

Practice in cardiac catheterization laboratory using cardiac catheterization instruments and maintenance management instruments. Assisting in an emergency, patient preparation and care, monitoring to detect complications during and after the coronary care unit treatment procedure; learn about the role of cardiovascular thoracic technologists in the health care team.

CMC 488 Clinical Experience in Electrophysiology Study and Pacemaker Unit

Practice patient and instrument preparation processes for ECG recording and pacemaker implantation. Learning to prepare and manage instruments, assisting in an emergency, patient care, and monitoring to detect complications during and after the treatment procedure in the coronary care unit and helping with data interpretation and summary for fast and appropriate management.

CMC 491 Selected Clinical Experience 1

Extended and/or continued selective clinical experience by choosing the interesting subject of cardiovascular and thoracic technology, emphasizing on enhance special knowledge and more complicated skills in any cardiac center hospital in Thailand. Providing study tour and field work training in related institutions.

CMC 492 Selected Clinical Experience 2

Selective clinical experience in interesting subject of cardiovascular and thoracic technology. Enhancing special knowledge and skills in any cardiac center hospitals in Thailand. Providing study tour and field work training in related institutions.

CMC 493 Learning Experience in Foreign Country 1

Selective additional study experiences in cardiovascular and thoracic technology abroad to compare health care services and cardio-thoracic technology between Thailand and other countries under the supervision of an instructor or expert on cardiovascular and thoracic technology.

CMC 494 Learning Experience in Foreign Country 2

Selective additional study experiences in cardiovascular and thoracic technology abroad to compare health care services and cardiovascular and thoracic technology between Thailand and other countries under the supervision of an instructor or expert on cardiovascular and thoracic technology.

CMC 192 Meditation for Improving Quality of Life

Meaning of meditation objective, methods, steps, starting point of mediation, appearance of recitation and recitation, resistant factors and application of recitation for daily life. Meditation with learning and working. Appearance of contemplation, steps, Qualities of contemplation usefulness of contemplation and Perception. Thinas to know Vipassana. The differences between Samatha and Vipassana. Diagrams of Samatha and Vipassana. World population and Vipassana.