

**Faculty of Medicine  
Thammasat University**

1. **Name of curriculum:** Doctor of Medicine Program
2. **Name of degree:** Doctor of Medicine  
M.D.
3. **Conduct by:** Faculty of Medicine, Thammasat University

**4. Philosophies, Objectives and General Information**

*4.1 Philosophies and Objectives:*

Doctor of medicine program, faculty of medicine, Thammasat University, aims to produce the graduates who are qualified with knowledge and capabilities to work among all communities in Thailand. At the same time, we will create skills and attitudes that foster them be able to solve health problems of individual, family and community level and realize that human behavior, culture, economic and environment of social have been changed which are also the major cause of disease and decline of health, not only disease or physical changing. Apart of this, the doctor should have critical thinking and be capable to analysis and review problems by holistic approach, enthuse to explore new knowledge consistently by themselves. They should be capable to improve themselves and follow up the progress of know-how, have the appropriate morals and ethics of their profession. This program was organized to create the primary doctors who be qualified knowledge, capabilities and skills to work in all areas of country and be capable to life-long learning. However, they will have enough competencies for further study to be specialist. Moreover, the program was provided more various optional subjects to allow student to learn pleurably and appropriate self-development. This revised program was proposed to achieve 9 ideal criteria of Doctor of Medicine at Thammasat University are as follow;

1. To have standard professional knowledge and skills in medicine
2. To have the appropriate virtue and ethics, positive attitude to profession and social and realize laws that relate with work as professional doctor
3. To have the critical thinking and clinical reasoning in decision making
4. To be able to solve problems by holistic approach
5. Enthuse to learn by self-directed and life-long approach
6. To have the appropriate attitudes and capabilities to work among all communities
7. To have the appropriate skills of communication
8. To have a good interpersonal, skills of team working and leadership
9. Be able to develop individual, social and live with quality of life

#### 4.2 General Information of Program

This program delivers the innovation and new technology of medical education which have the important characteristic like this;

##### 1. Educational Time-Frame

First stage: take time for 2 semester (first year), study general fundamental subject, basic sciences and mathematics

Second stage: take time for 4-semester (second & third year), study basic medical sciences

Third stage: take time for 6-semester (forth, fifth & sixth year) study the major subject of medicine

2. **The first year program**: compose of general fundamental subject, basic sciences and mathematics, minimal require at 40-credit

3. **The second year to the sixth year program**: This is the integrated curriculum of basic medical sciences and clinical sciences, in addition, continuing integration between biology, human behavior and social. The program emphasize at all health care such as treatment, protection, promote and rehabilitation for individual, family and community

4. Program concentrate the study in community-based and student be allowed to learn concerning public health problems at all level of government organization ex. sanatorium, community hospital, general hospital and centre-hospital

5. Provision in experience learning of program by problem-based learning in the second year and third year. Those problems are simulated from real cases and national public health situations at all levels, from local to government problem solving

6. Program promote student to have a chance to explore knowledge by themselves and self-directed learning by provision learning resource centre which is complete with texts, magazines and teaching medias that are effective sources for self-learning

7. Program provide various the selective subjects and increase time thorough the curriculum to allow student for broadly and deeply study that base on each skilful and interesting

8. **Learning and teaching process**: will set in group, 8-10 persons, to stimulate student for more question and debate to enhance skill of problem-solving

9. **Learning and teaching process**: will insert continually concepts of morals, ethics and medical etiquette, cover curriculum

10. **Assessment and examination**: emphasize on both of content and knowledge and learning process of student

##### 5. Start of Program

From academic year of 2004 and compel with student of academic year 2003 in 6-year program

##### 6. Candidate Qualification

The qualified candidates have to have the characteristics and qualifications that will have met the standard of Thammasart University regulation in Undergraduate Program 1997, no.7 and principle of Admission Boards of medical student, Thammasart University, who be delegated by Thammasart University, and have good background, behaviors and personalities including determine to work for communities.

## 7. Student Selection

Student selection have to rely on procedure of admission system which be launched by Commission on Higher Education, aim to select individual to study in academic institutions or selection rely on procedures which are set up by the consensus of University Council and Admission Boards of medical student who be delegated by Thammasat University, are absolute judgment.

## 8. Educational System

8.1 Two characteristics of management in Doctor of Medicine Program;

1. General basic subject in sciences and mathematic: education be managed by credit system that rely on Thammasat University regulation in Undergraduate Program 1997, no.6

2. Subjects, which be taught in Faculty of Medicine, will be integrated of various contents and learning and teaching are managed as blocks by medical and public health problems which are the major factors of educational system and emphasize on community.

8.2 Faculty of Medicine use bi-semester system that separate each academic year in 2-ordinary semester and the required academic semester are first and second ones. Each semester may be available for any weeks but it must complete teaching hour of each subjects that rely on principle of credit per hour calculation.

“Credit” refers quantity of education that Faculty of Medicine provides ordinarily for student. “One credit” defines period that student have to take in or out classroom or practice at clinic, patient unit and field work or community by use all category of learning and teaching within 1 week and have been estimated total hour for 30-40 hours.

## 9. Educational period

9.1 5-year (10-academic semester) for student who have graduated Bachelor Degree or equivalence by Admission Boards of medical student, Thammasat University that be delegated by Thammasat University from the consensus of Faculty of Medicine Committees, available to exempt study at first year.

9.2 6-year (12-academic semester) for student who have passed Mathayom 6 or equivalence for who have graduated from international high school or international school curriculum that be guaranteed by Ministry of Education.

## 10. Tuition and Program Costs

10.1 Students must register and complete all courses in first stage of program and acquire accumulative grade point average minimum at 2.00 and then be allowed to register courses in second stage of program.

10.2 Students who don't need to learn subjects in first stage of program and student who passed this stage by rely on the procedure, have to pass all courses in second stage of program and achieve average accumulate credit minimum 2.00 and then be allowed to register courses in third stage of program.

10.3 Students must register courses by themselves; rely on date, time and venue that have been set up including pay tuition fee by due date of educational fee rate of Bachelor Degree regulation of Thammasat University.

10.4 In any ordinary semester, if students don't register courses because of any reasons, they must be allowed to break their study by Dean and have to pay fee to maintain their status within 30-day from the opening day of semester. If they don't rely on this regulation, they will be withdrawn from student list.

## 11. Assessment and Graduation

11.1 Educational assessment must be conducted suddenly, when courses, which be registered by students in each academic semester, are complete.

11.2 Educational assessment be divided in 8-level;

Level	A	B+	B	C+	C	D+	D	F
Grade point per credit	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0

11.3 Students who are studying courses in the second and the third stages of program and acquire accumulative grade point average lower than 2.00, be allowed to repeat course register, which one they acquire C, D+ or D level in these stages.

11.4 Medical comprehensive examination

### 1. Comprehensive examination 1: Basic Medical Sciences

Students who have completed courses of the third year and obtained completely educational report by rely on course framework of Faculty of Medicine, Thammasat University and acquire accumulative grade point average not lower than 2.00, would be allowed to exam.

### 2. Comprehensive examination 2: Clinical Sciences

Student who have completed courses of the fifth year and obtained completely academic report by rely on course framework of Faculty of Medicine, Thammasat University and acquire accumulative grade point average not lower than 2.00, would be allowed to exam.

3. Comprehensive examination measurement be divided in 2-level; S-fair and U-not fair.

4. Faculty of Medicine, Thammasat University is allowed to provided each of Comprehensive examination at minimum 1 time per year and not over than 3-time per year.

11.5 Graduation

1. Student who will graduate and acquire the Doctor of Medicine Program degree, must study and obtain completely educational report by rely on course framework of Faculty of Medicine, Thammasat University and have passed the medicine syllabus examination that will have met the standard of Doctor of Medicine Program, Thammasat University, no.11.4

2. Student who have acquired 128-credit of Doctor of Medicine Program, Thammasat University and wouldn't like to graduate and obtain the Doctor of Medicine Program Degree or student who have studied in Biomedical Engineering Program (M.D.-M.Sc.) and have to further study in Master Degree of Medical Engineering before complete the final stage of Doctor of Medicine Program, will acquire the Bachelor Degree in Doctor of Sciences, field of Medical Sciences.

## Course Descriptions

### General Fundamental and Mathematics and Sciences Fundamental Language

MD101 Medical Communication Skill in English 1 3-credit  
Practice communicate effectively with patients, their families and colleagues; history talking in English; correlation the medical words and general words; essential skill for listening to the professional lectures and academic discussion.

MD 102 Medical Communication Skill in English 2 3-credit  
Practice essential medical etymology; correspondence, writing medical certificate, medical documents. Reading academic papers; critical appraisal of research papers, textbooks and medical articles.

### Medical Fundamental

MD 100 Principle of Biomedical Ethics and Human Behaviors 2-credit  
*Prerequisite:* require courses incharge's permission  
Study medical history and human evolution; human behaviors and create relationship with others; principle of biomedical ethics; concepts of holistic health care; ethical analysis and decision making.

MD 200 Professional Skill and Bioethics 1 1-credit  
*Prerequisite:* require courses incharge's permission  
Study medical history; communicate and interview patients and their families; empathy with patient mind; skills of holistic health care; practice to use ethical principle, ethical analysis and judgment on jobs; standard of medicine profession; maintenance ethics of professional medicine.

MD 202 Medical Education and Basic Professionalism 3-credit  
*Prerequisite:* require courses incharge's permission  
Study principle and method of educational management in medicine, objective and characteristic of curriculum, ideal graduate, learning process and learning assessment; prepare learning skill and professional that emphasize on learning-centre; learning by problem-centre and community-base; principle of self-learning, recognize sources that maintain information with various types, collect structural information and use to critical study, analysis and discuss; able to prove by principle of scientific reasoning and capable to deliver the conclusion to others.

MD 211 The Element of Life and Function 5-credit  
*Prerequisite:* require courses incharge's permission  
Study procedure of all living organism from molecular to cellular level; metabolic and enzyme function, chemical command and communication, signing within cell, mechanism of genetic information transcription and gene expression, human genome, maintain cellular environment ex. membrane potential, electrolyte, acid-base,

osmolarity, mechanism of progress in alternation from cells to tissues and organs in various physical systems including systematic control of physical function such as nervous system, endocrine and immune, reaction with external environment ex. pathogen parasite and microorganism, drug, chemical substance and other pathogen condition.

MD 212 The Thoracic Organs System

6-credit

*Prerequisite:* require courses incharge's permission

Study molecular structure level, micro-anatomy, embryology, macroscopic and imaging of organ in cardiac system and respiratory system; physiological and biochemical alternation, relevance of pharmacology and epidemiology, basic pathophysiology of diseases or common recognition symptoms in cardiac system and blood vessels and respiratory system.

MD 213 The Abdominal Organs

7-credit

*Prerequisite:* require courses incharge's permission

Study molecular structure level, micro-anatomy, embryology, macroscopic and imaging of organ in abdomen, alimentary system, liver, bile, spleen, kidney and urine excretory organ, reproduction, biochemical and physiological alternation; mechanism of physical homeostasis control, process of digestion and absorption, metabolism; sodium, mineral, substances and liquids homeostasis maintenance, waste excretory; relevance of pharmacology and epidemiology, basic pathophysiology of diseases or common recognition symptoms in this system.

MD 214 The Musculoskeletal System

5-credit

*Prerequisite:* require courses incharge's permission

Study molecular structure, micro-anatomy, embryology, macroscopic and organic image of physical human movement system, muscles, connective tissues, articulations; physiological and biochemical alternation; relevance of pharmacology, epidemiology, basic pathophysiology of diseases or common recognition symptoms in this system.

MD 215 The Nervous System Brain and Behavior

8-credit

*Prerequisite:* require courses incharge's permission

Study molecular structure, micro-anatomy, embryology, macroscopic and organic image of brain and nervous system that relate with behaviors, physiological and biochemical alternation; relevance of pharmacology, epidemiology, basic physiology of diseases or common recognition symptoms in this system; chemical substances that effect to human behavior, individual illness; factors that indicate character and behavioral alternation.

MD 251 Holistic Health care 1

4-credit

*Prerequisite:* require courses incharge's permission

Study meaning of holistic health care that including all dimensions of psychological health, spirit, health system, health and social indicator; study family and community structure, holistic experience, family and community that dominate many factors such as social population, cultures, beliefs, economics, politics, government,

environmental health and ecological system, occupational health, nutrition, primary public health, health services system, information sources, impact of factors that effect to individual, family and community health, in term of qualitative study, descriptive epidemiology and basic biostatistics.

MD 300 Professional Skill and Bioethics 2 1-credit

(Integrate learning and teaching thorough Doctor of Medicine Program)

*Prerequisite:* require courses incharge's permission

Study basic of medical skills, communication, interviewing and history taking with patients and their families, empathy genuinely to patient mind; holistic health care skills, ethical principles, ethical analysis and decision making, standard medical profession, maintain professional ethics.

MD 316 The Blood and Immune System 4-credit

*Prerequisite:* require courses incharge's permission

Study micro-electron structure and functions of organ that produce blood cell ex. inside of bone, spleen, liver and lymph node; mechanism of blood condensation, mechanism of lymphocyte and types of blood cell production, mechanism of physical response with infection; response of physical immunes; immune production, relevance of pharmacology, basic pathophysiology and factors that effect with immunes.

MD 317 The Infection and Inflammation 6-credit

*Prerequisite:* require courses incharge's permission

Study micro-electron structure, pathogen functions, physiopathology, clinical symptom of infected diseases and each of pathology, mutation of pathogen, physical response when adopt diseases and pathology; drug pharmacology that effect with diseases, basic pathophysiology that cause diseases, diseases and parasites epidemiology.

MD 318 The Endocrine & Reproductive System 5-credit

*Prerequisite:* require courses incharge's permission

Study molecular structure and micro-electron; functions of substance or hormone which produce from endocrine; mechanism that control physical metabolism, reproduction, fertilization, physiology, biochemistry; relevance of pharmacology, basic pathophysiology and epidemiology of diseases that cause from abnormality in this system.

MD 319 Nutrition Science and Metabolism 3-credit

*Prerequisite:* require courses incharge's permission

Study nature and functions of nutrient within physical; assess nutritious condition; necessary of nutrient for genesis, growth, progress and living with quality of life until senile stage; nutritious problems concerning abnormality in metabolism of nutrient within physical, malnutrition and diseases that be caused by some food ingredients and toxicants adoption; mechanic and control of disorder metabolism, epidemiology and remedy in individual and community level; apply principle of nutrition and specific type in nutrient feeding to general patient and special case.

- MD 320 The Cycle of Life: From Conception to Degeneration 6-credit  
*Prerequisite:* require courses incharge's permission  
 Study human cycle of life from fertilize, production of tissues and growth of organs; genes and chromosomes abnormality, cancerous cell genesis, tissue abnormalities, biological, physiological and social mentality alternation and growth of normal people in each age; newborn babies, pre-school children, school children, teenagers, adolescents, adults, pregnant women and elders; increment of elders over the world and Thailand, definition of elder, aging senility, biological senility and epidemiology in general elder; theory of senility; anatomical, physical and biochemical alternation; relevance of pharmacology and social psychology in elders; servicing process of elderly health; holistic alternation in each stages of life.
- MD 321 Health and Diseases 1 5-credit  
*Prerequisite:* require courses incharge's permission  
 Study pathogenesis, pathophysiology and pathology of cell degeneration and death cell, pathology of physical systems, growth disturbance and neoplasia; specimen collection, patient preparation; factors that effect to laboratory investigation, quality control of laboratory for general doctor; treatment, drug administration in process of pharmacodynamic, pharmacokinetic and clinical pharmacology; adverse drug reaction and drug interaction, principle of rational drug prescribing; antineoplastic drugs, immunostimulating agents, anti-microbial drugs, antiseptics, disinfectants; epidemic prevention in family, community and hospital by aware to economical, social and cultural impacts with illness and treatment.
- MD 322 Health and Diseases 2 5-credit  
 Continuing study of Health and Diseases 1
- MD 352 Holistic Health Care 2 4-credit  
*Prerequisite:* require courses incharge's permission  
 Analysis health status in individual, family and community level, collection and analysis information, community diagnosis, project planning, implementation and assess project by integration of knowledge in many fields of sociality, nutrition, maternal and child health, environmental health, occupational health, communicable and non-communicable diseases prevention, primary public health, alternative medicine, health behavior and health promotion for individual, family and community base on principle and method of strength promotion to community cover all population including inopportunity and disability; study community in term of quantity and quality; descriptive epidemiology, descriptive biostatistics and estimation in information technology medicine.  
 Providing study tour at related institution and field work training
- Major**
- MD 400 Medical Legal and Ethics 1 1-credit  
 (Integrate learning and teaching thorough the program of the forth year)

Study and apply knowledge of legal and ethics in practice; objective of professional and medical characteristics; social changing which impact to medical services and practice; basic of ethics in practice; relationship between doctor and patient; character of ethical problems in medicine; ethical analysis and decision making.

Providing study tour at related institution and field work training

MD 401 Introduction to Clinical Medicine 3-credit

Study and review pathophysiology, signs and symptoms of common diseases; practice clinical skills such as history taking, physical examination, completing medical records, diagnostic principles, laboratory and radiology investigation and result interpretation, rational drug use; basic medical procedural skills, basic practice in operating room and patient unit; assessment of patient problem; clinical analysis, reasoning and decision making; communication; principle of counselling patient and their families; ethical practice.

Providing study tour at related institution and field work training

MD 411 Integrated Internal Medicine 1 5-credit

Study and practice clinical problem solving that relates with health, diseases and common important symptoms in internal medicine by integration many fields of related knowledge; aware to community problems and medical council standards; holistic problem solving and health care; professional virtues and ethics.

Providing study tour at related institution and field work training

MD 412 Integrated Internal Medicine 2 5- credit

Study and practice clinical skills with patients such as history taking, physical examination, differential diagnosis, laboratory and radiology investigation and result interpretation, collect information and clinical reasoning; basic procedural skills; health assessment, health promotion, holistic health care; cooperative working with medical personel; communicate with patients and their families; be instructed as an excellent physician that qualified with ethical and moral of professional.

Providing study tour at related institution and field work training

MD 421 Integrated Surgery 1 5-credit

Study and practice clinical problem solving that relates with health, diseases and common important symptoms in surgery, orthopedics surgery, and patients who need operation by integration many related fields; patient assessment and health care in pre-operative, peri-operative and post-operative stage, prevention side effect of operation by awareness to community problems and medical council standards, holistic problem solving and health care, professional virtues and ethics.

Providing study tour at related institution and field work training

MD 422 Integrated Surgery 2 5-credit

Practice clinical skills with surgical patient and surgical orthopedics such as history taking, physical examination, differential diagnosis, laboratory and radiology investigation and interpretation of test, collective information and clinical reasoning, basic procedural skills; health assessment, health promotion, holistic health care;

cooperative working with medical personnel; communicate with patients and their families; be instructed as an excellent physician that qualified with professional virtues and ethics.

Providing study tour at related institution at related institution and field work training

MD 431 Integrated Pediatrics 1 5-credit

Study growth and development of physical, mentality and sociality; nutritional status; immune promotion; normal and abnormal behavior; symptoms and common recognized diseases from newborn to 15-year old; integrate many fields of knowledge that relate with these age groups; apply basic knowledge from the first year to the third year of study with symptoms and signs of diseases and abnormal condition, study including etiology, epidemiology, symptoms and signs, diagnosis; family and community problems that cause of these abnormal condition and diseases and their impacts; aim to treatment, prevention, rehabilitation, promotion and health maintenance for individual, family and community level.

Providing study tour at related institution and field work training

MD 432 Integrated Pediatrics 2 5-credit

Study and practice with outpatients, inpatients, normal and high risk newborn babies; practice skills of patients and their families such as history taking; physical examination, integrate skills and knowledge for differential diagnosis of diseases, health care planning, disease prevention, health promotion; practice basic procedural skills and necessary laboratory investigation of medical council that appropriate with diseases and patients' economical status by integration of medical ethics, virtues and etiquettes as guide line of appropriate behavior and perform of qualified physician.

Providing study tour at related institution and field work training

MD 441 Integrated Obstetrics-Gynecology 1 5-credit

Study and practice clinical problem solving concerning health, diseases and common important symptoms in women by integration many fields of related knowledge, health assessment and health promotion in all stages of women, gynecological endocrine system, normal and abnormal condition of pregnancy and delivery, women care during pregnant, labor and post-partum; infant and newborn care; family planning by emphasize on holistic problem solving and health care for patients and families rely on professional virtues and ethics.

Providing study tour at related institution and field work training

MD 442 Integrated Obstetrics-Gynecology 2 5-credit

Study women patient, practice clinical skills and basic procedural skills; normal delivery; laboratory and radiology investigation and result interpretation that aim to diagnosis, treatment planning and problem solving for women patient and pregnant women by emphasis on holistic health care and treatment; cooperative working with medical personnel; communicate with patients and their families; be instructed as an excellent physician that qualified with ethical and moral of professional.

Providing study tour at related institution and field work training

MD 453 Holistic Health Care 3 4-credit

*Prerequisite:* passed Holistic Health Care 1&2 (MD 251&MD 352)

Study health service system and primary public health administration; health promotion and disease prevention for individual, family and community level; relationship between patient and physician; counselling to each customer in individual, family and community level; responsibilities and roles of physician with society.

MD 500 Medical Legal and Ethics 2 1-credit

(Integrate learning and teaching thorough the Doctor Medical Program)

Continuing study of Medical Legal and Ethics 1, apply knowledge of legal and ethics in practice, aims of professional and characteristic of physician; social changing that impact to practice and medical services; basic of ethics in practice; patient and physician relationship; care for terminally-ill patients; characteristic of medical etiquette problems; ethical analysis and decision making.

Providing study tour at related institution and field work training

MD 504 Forensic Medicine 2-credit

Study principle and method of applied medical, scientific and legal knowledge with court procedure, medico-legal autopsy, practice with forensic patient, collecting evidence for investigation, performing as witness at court; applied legal, art and ethical issues with medical profession.

Providing study tour at related institution and field work training

MD 513 Integrated Internal Medicine 3 4-credit

*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412)

Study to enhance skills and knowledge from Integrated Internal Medicine 1&2 by emphasize on systematic diseases, emergency or more complicated problems in internal medicine; holistic care of patient, treatment planning, analysis and decision making related medical ethics issues; integration and application of knowledge from various related sciences with internal medicine

Providing study tour at related institution and field work training

MD 514 Integrated Internal Medicine 4 4-credit

*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412)

Additional study and practice with outpatients and inpatients to improve skills and capabilities in patient assessment and treatment planning, patient alternation monitoring, counselling for patients and family, including disease prevention, health maintenance, complication prevention and rehabilitation for individual, family and community level; be instructed as an excellent physician that qualified with professional virtues and ethics.

Providing study tour at related institution and field work training

MD 523 Integrated Surgery 3 4-credit

*Prerequisite:* passed Integrated Surgery 1&2 (MD 421&MD 422)

Additional study to enhance skills and knowledge from Integrated Surgery 1&2 by emphasis on systematic condition and diseases, emergency problems or more complicated problems; holistic health care planning, analysis and decision making related medical ethics issues.

Providing study tour at related institution and field work training

MD 524 Integrated Surgery 4 4-credit

*Prerequisite:* passed Integrated Surgery 1&2 (MD 421&MD 422)

Additional study and practice with patients who needed operation both of inpatients and outpatients, to develop skills and capabilities in patient assessment and treatment planning; patient alternation monitoring; assist in the operation; practice basic procedural skills of operation; communication with patients and their families; counselling patients and families including disease prevention, health maintenance, complication prevention and rehabilitation for individual, family and community level; be instructed as an excellent physician that qualified with professional virtues and ethics.

Providing study tour at related institution and field work training

MD 554 Holistic Health Care 4 6-credit

*Prerequisite:* passed Holistic Health Care 3 (MD 453)

Study and practice primary health care by use principle of family and community medicine; study service system and health administration in tambon, district and province about referral system; health economy; alternative medicine; health promotion and prevention for individual, family and community level; holistic health care; care of terminally-ill patient.

Providing study tour at related institution and field work training

MD 615 Practical Internal Medicine 1 2-credit

*Prerequisite:* passed Integrated Internal Medicine 3&4 (MD 513&514)

Study to enhance knowledge, skill and experience from Integrated Internal Medicine 1, 2, 3 and 4 including review pharmacology and pharmacokinetics that rely on principle of rational drug prescribing by emphasize on applied knowledge to process of problem analysis, disease and abnormal condition diagnosis, holistic health care.

Providing study tour at related institution and field work training

MD616 Practical Internal Medicine 2 6-credit

*Prerequisite:* passed Integrated Internal Medicine 3&4 (MD 513&514)

Study and practice as internship in internal medicine both of inpatients and outpatients including critical illness by emphasize on practice clinical and technical skills; holistic problem solving, problem solving in emergency condition, appropriate referring, consultation with specialists, communication skill with patient and their families; education and counselling for patients and their families; cooperative working with medical personel; practice for decision making by awareness to professional ethics, virtues and etiquettes that aim to be qualified physician.

Providing study tour g at related institution and field work training

- MD 625 Practical Surgery 1 2-credit  
*Prerequisite:* passed Integrated Surgery 3&4 (MD 523&MD 524)  
 Stud to enhance knowledge, skills and experiences from Integrated Surgery 1, 2, 3 and 4 by emphasize on applied knowledge to analyze patient problems, diseases and abnormal condition for diagnosis, holistic health care.  
 Providing study tour at related institution and field work training
- MD 626 Practical Surgery 2 6-credit  
*Prerequisite:* passed Integrated Surgery 3&4 (MD 523&MD 524)  
 Study and practice as internship doctor with surgical patient both of inpatient and outpatient including critical illness by emphasize on surgical skills; holistic problem solving, problem solving in urgent and emergency condition, appropriate referring, consultation with specialists, communication with patient and their families; education and counselling for patients and their families; cooperative working with medical personel; practice and decision making by awareness to professional ethics, virtues and etiquettes that aim to be qualified doctor.  
 Providing study tour at related institution and field work training
- MD 627 Practice Orthopedic Surgery 4-credit  
*Prerequisite:* passed Integrated Surgery 1&2 (MD 421&MD 422)  
 Study and practice as internship doctor that aim to clinical problem solving for orthopedic both of inpatient and outpatient including emergency condition; emphasize on information collecting, problem analysis, disease and abnormal condition diagnosis; treatment planning and holistic health care; enhance skills, professional and experiences concerning procedural skills in orthopedics and assist in the operation; consultation with specilists and appropriate referring; communication with patient and their families; education and counselling for patients and their families; prevention of disability and rehabilitation by awareness to physical, mental, social, economical elements; team working with medical personel; decision making by respectation to professional virtues, ethics, etiquettes that aim to be qualified doctor.  
 Providing a study tour at related institution and field work training
- MD 635 Practical Pediatrics 1 2-credit  
*Prerequisite:* passed Integrated Pediatrics 1&2 (MD 431&MD 432)  
 Study to enhance knowledge, skills and experiences from Integrated Pediatrics 1&2 by emphasize on applied knowledge to problem analysis, disease and abnormal condition diagnosis; holistic health care of children, including review clinical pharmacology and pharmacokinetics that aim to rational drug prescribing with pediatric patients.  
 Providing study tour at related institution and field work training
- MD 636 Practical Pediatrics 2 6-credit  
*Prerequisite:* passed Integrated Pediatrics 1&2 (MD 431&MD 432)  
 Study and practice with newborn and child patients as internship doctor both of outpatient unit and inpatient unit including newborn unit by emphasize on professional skills , holistic problem solving in all conditions including emergency conditions,

communication with patients and their families, team working with medical personnel and other public health authorities, practice and decision making by awareness to professional ethics, virtues and etiquettes that aim to be qualified doctor in the future.

Providing study tour at related institution and field work training

MD 645 Practical Obstetrics-Gynecology 1 2-credit

*Prerequisite:* Integrated Obstetrics-Gynecology 1&2 (MD 441&MD442)

Study to enhance knowledge, skills and experiences from Integrated Obstetrics-Gynecology 1&2 by emphasize on applied knowledge to problem analysis process, disease and abnormal condition diagnosis, health care for women patient and pregnant women by holistic approach, family planning and infertile problem solving, health prevention and maintenance of women at each age.

Providing study tour at related institution and field work training

MD646 Practice Obstetrics-Gynecology 2 6-credit

*Prerequisite:* Integrated Obstetrics-Gynecology 1&2 (MD 441&MD442)

Study and practice as internship doctor with women patient and pregnant women both of inpatient and outpatient including critical illness by emphasize on professional skills and procedural skill of obstetrics-gynecology, delivery practice, assist in the operation; holistic problem solving in emergency conditions; appropriate referring; consultation with specialists; communicate with patients and their families; education and consultation for patients and their families; team working with medical personnel; practice and decision making by awareness to professional ethics, virtues and etiquettes that aim to be qualified doctor.

Providing study tour at related institution and field work training

MD 655 Holistic Health Care 4-credit

*Prerequisite:* passed Holistic Health Care 4 (MD 554)

Study and practice primary health care services by using principle of family medicine and community medicine, planning and policy making of public health in provincial and national level; individual communication that relates with family and community.

Providing study tour at related institution and field work training

MD 662 Emergency Medicine 4-credit

*Prerequisite:* passed MD 431, 432, 441, 442, 513, 514 523 & 524

Study and practice as internship doctor for clinical problem solving and professional skills, enhance experiences in initial management for patients in critical and non-critical condition, emergency condition, accidental patients; consultation with specialists, appropriate referring for further treatment; communicate with patients and their families; education and consultation for patients and their families; principle of group accidental administration; team working with medical personnel; practice and decision making by awareness to professional ethics, virtues and etiquettes that aim to be qualified doctor.

Providing study tour at related institution and field work training

## Selective Subjects

- MD 361 Topographic Anatomy 3-credit  
 Study basic structures and relationship of structures in human cross-section anatomy from head and neck, thorax, abdomen to pelvis; correlation of serial sections with corresponding radiological images of human body.  
 Providing study tour at related institution and field work training
- MD 362 The Art and Science of Living 3-credit  
 Understand and apply principles of biology, psychology and sociality for living with happiness and sufficient life.  
 Providing study tour at related institution and field work training
- MD 363 Massage and Relaxation 3-credit  
 Study and practice theories of basic method of body massage, foot massage that aim to realize uses of massage in physiology, therapy and relaxation massage; able to apply with daily life and future professional.
- MD 364 Molecular Biology and Medical Genetics Research Project 3-credit  
 Study method of molecular biology and genetics in medical sciences; practice on the job of learning experiences; question and hypothesis setting for research; practice technique and method of molecular biology and genetics, scientific analysis thinking skills, result interpretation, writing and presentation.
- MD 365 Medical Biochemistry Research Project 3-credit  
 Enhance skills in biochemical research of medical sciences at basic level or in clinical research; scientific literature review; regulation of biochemical research; information analysis and laboratory designing, result interpretation and conclusion and result recording including presentation scientific information.
- MD 366 Molecular Medical Genetics 3-credit  
 Study structure, elements, physical and biochemical properties of medical genetic; process of gene expression and control, mutation and DNA recovery, molecular biological technology and medical genetic cell, genetic modification by genetic engineering; application molecular medical genetics for research and disease diagnosis; practice to test properties of nucleic acids with various techniques.
- MD 367 Medical Physiology Research Experience 1 3-credit  
 Study basic and process of physiological research which compose of information searching, literature review, research question formation, hypothesis formation, research designing, sampling, measuring and information analysis and conclusion.
- MD 368 Medical Physiology Research Experience 2 3-credit

Perform research or cooperative working in mini-research project by respect to process of research, including result presentation.

MD 369 Cellular and Molecular medical physiology 3-credit  
Study functions of organs or systems of cellular and molecular level including response of each levels that aim to maintain homeostasis condition; molecular and cellular research techniques, iontophoresis measurement including apply to explain mechanism of pathophysiology alternation in pathogenic condition.

MD 370 Exercise Physiology 3-credit  
Study physiological alternation with various types of exercise in levels of molecule, cell, tissue and organ; result of long term and short term exercise with each physical systems including physical capability promotion.

MD 371 Neuroendocrinology 3-credit  
Study functions in each groups of brain neuron and functions with hormone synthesis and release of hypothalamus, pituitary gland and target organ including controlling feedback mechanism system and related behaviors such as drinking, eating, correspondence with physical immune.  
Assignment and debate of each student's interest issues in class

MD 372 Cellular and Biomolecular Medicine Research Experience 1 3-credit  
Study and perform basic research of cellular process in molecular level.

MD 373 Cellular and Biomolecular Medicine Research Experience 2 3-credit  
*Prerequisite:* require courses incharge's permission  
Perform research or cooperative working in mini-research project by respectation to process of research; including research presentation.

MD 374 Pharmacology Research Experience 1 3-credit  
Study and research of each student's interested issues in basic of pharmacology, clinical pharmacology and pharmacoepidemiology; study pharmacokinetics, mechanism of drug action, drug efficacy, drug expenditure and adverse drug reactions monitoring

MD 375 Pharmacology Research Experience 2 3-credit  
*Prerequisite:* require courses incharge's permission  
Perform of each student's interested issues of mini-project research in basic pharmacology, clinical pharmacology and pharmacoepidemiology including pharmacokinetics, mechanism of drug action, drug efficacy, drug expenditure and adverse drug reactions monitoring; result presentation.

MD 376 Infectious Microorganism and Parasite Problems in Thailand 3-credit  
Study infectious microorganism and parasitic diseases that are the major problems in Thailand, related with mechanism of pathogenic agents, epidemiology,

pathogenesis, pathology, pathophysiology, symptoms, diagnosis, prevention and treatment.

MD 377 The Nature of Life 1 3-credit  
Study physical and mental relationship, mental health care for having concentration, wisdom; realizing to live with Buddhism life style; be instructed virtues and ethics.

MD 378 The Nature of Life 2 3-credit  
Study and perform mind to create peace, full mind awareness and stability; perform good physical, verbal and mental behaviors; selective dharma principle to protect and solve problem of living in sociality that will achieve peacefulness.  
Providing study tour at related institution and field work training

MD 379 Human Sexology 3-credit  
Integrate knowledge of anatomy, physiology, pharmacology, micro-biology and immunology; virology, parasitology including psychology and sociality that aim to holistic understanding and be instructed appropriate attitudes and value of sexology.

MD 501 Self Selected Study Module 4-credit  
Student select to research or perform of each job both in Thailand and abroad that aim to enhance knowledge, skills or attitudes as of virtue and ethical doctor by consensus of the Management Committee in Doctor of Medicine Program.

MD 502 Medical Professional Experience 1 4-credit  
Study, research and perform in any hospital in Thailand and abroad that foster to critical thinking and problem solving process in medical and public health.  
Providing study tour at related institution and field work training

MD 503 Medical Professional Experience 2 4-credit  
Study and perform in medical service institution or other health centre both in Thailand and abroad that provide primary medical services and promote process of critical thinking, and problem solving of medical and public health in primary health care services.  
Providing study tour at related institution and field work training

MD 561 Critical Care Medicine 4-credit  
*Prerequisite:* passed Integrated Internal Medicine 3&4 (MD 513&MD 514)  
Study and practice in general patient unit and intensive care unit by providing proper and rapid diagnosis and initial management for patient with critical illness; practice to monitoring vital sign, changing symptoms of respiratory system and blood circulation, practice procedural skills and principle use of instruments for intensive patient including educate patients and their families concerning diseases and treatment for critical care patients.  
Providing study tour at related institution and field work training

- MD 562 Infectious disease and HIV Medicine 4-credit  
*Prerequisite:* passed Integrated Internal Medicine 3&4 (MD 513&MD 514)  
 Study and practice with inpatients and outpatients relate with problem solving of common infectious disease and AIDS; able to diagnose, necessary investigate and results laboratory interpretation, holistic care and prevention infectious disease, differential diagnosis and consultation with specialists including appropriate referring for further diagnosis and treatment.  
 Providing study tour at related institution and field work training
- MD 563 Clinical experience in Neurology 2-credit  
*Prerequisite:* passed Integrated Internal Medicine 3&4 (MD 513&MD 514)  
 Study and practice in outpatient, inpatient and intensive care unit for provision of proper diagnosis and problem solving in common recognition neurological diseases including related laboratory and radiology investigation; able to determinate solution and planning of treatment, consultation with specialists or appropriate referring including provide knowledge and suggestion that relate with disease, prevention and rehabilitation for patients and families by respectation on holistic principle, utilization; behave rely on professional virtues and etiquettes.  
 Providing study tour at related institution and field work training
- MD 564 Clinical Hematology 2-credit  
*Prerequisite:* passed Integrated Internal Medicine 3&4 (MD 513&MD 514)  
 Study and practice at outpatient unit and general ward to determine problems, differential diagnosis; and problem solving in patient whom faced with clinical hematological problems; practice bone marrow aspiration and slide inspection in some cases of peripheral blood smear and bone marrow for capabilities in clinical hematological diagnosis of common recognition disease or provide determinate solution of treatment in some cases or appropriate referring including education for patients and families. about disease and prevention  
 Providing study tour at related institution and field work training
- MD 565 Dermatology 2-credit  
*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412)  
 Study and practice problem solving of dermatological diseases that common recognition; capable to diagnosis and necessary laboratory investigation; treatment planning and prevention of dermatological diseases including able to differentiate patients for appropriate referring to further management.  
 Providing study tour at related institution and field work training
- MD 566 Clinical Psychiatry 2-credit  
 Study and practice with outpatients and inpatients concerning psychology of systematic problem solving in psychiatric patients by emphasize on collective and analysis history information, physical examination, mental health examination, necessary laboratory investigation and special examination for diagnosis, planning, treatment,

prevention, mental rehabilitation and educate to patients and families that relate with prevention and appropriate treatment for psychological problems.

Providing study tour at related institution and field work training

MD 567 Ambulatory Surgery 4-credit

*Prerequisite:* passed Integrated Surgery 3&4 (MD 523&MD 524)

Study and practice with surgical outpatients; enhance knowledge, experiences and skills of physical examination, diagnosis, essential laboratory or radiology investigation and result interpretation, holistic care, practice procedural skills in surgery and minor surgery, consultation with specialists and appropriate referring, how to communicate with patients and their families including counselling.

Providing study tour at related institution and field work training

MD 568 Clinical Experience in Surgery 4-credit

*Prerequisite:* passed Integrated Surgery 3&4 (MD 523&MD 524)

Additional study and practice with surgical patients both in outpatient unit, inpatient unit and intensive care unit to enhance clinical knowledge, professional, experiences and skills to solve patient problems; practice procedural skills in surgery and assist in the operation, patient monitoring, consultation with specialists and appropriate referring, provide explanation and suggestion to patients and their families by emphasize on holistic health care; decision making that respect on principle of professional ethics and virtues.

Providing study tour at related institution and field work training

MD 569 Urology 2-credit

*Prerequisite:* passed Integrated Surgery 3&4 (MD 523&MD 524)

Study and practice with outpatients and inpatient in field of urology; enhance knowledge and skills in history taking, physical examination, diagnosis, essential laboratory or radiology investigation and result interpretation, holistic care, practice procedural skills and assist in the operation, patient monitoring, consultation with specialists and appropriate referring, provide explanation and suggestion to patients and their families; be instructed behaviors, decision making, attitudes, virtues and ethics as an excellent doctor.

Providing study tour at related institution and field work training

MD 570 Neurosurgery 2-credit

*Prerequisite:* passed Integrated Surgery 3&4 (MD 523&MD 524)

Study and practice with outpatient and inpatient in field of neurosurgery; enhance knowledge and skills in history taking, physical examination, diagnosis, laboratory or radiology investigation and result interpretation; holistic care; practices procedural skills and assist in the operation, patient monitoring, consultation with specialists and appropriate referring, provide explanation and suggestion to patients and their families; be instructed behaviors, decisions making, attitude, virtues and ethics as an excellent doctor.

Providing study tour at related institution and field work training

- MD 571 Clinical Experience in Orthopedic surgery 4-credit  
*Prerequisite:* passed Integrated Surgery 3&4 (MD 523&MD 524)  
 Study and practice clinical problem solving of orthopedic patient by basic of physical structure and physiology; collect and analyze information of history talking to physical examination and special examination that aim for proper diagnosis and treatment planning proper management for patients, their families and community, emphasize on practice necessary procedural skills to solve problem that common recognition in orthopedic surgery.  
 Providing study tour at related institution and field work training
- MD 572 Rehabilitation Medicine 2-credit  
*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412)  
 Study and practice with outpatients and inpatients that relate with rehabilitation medicine in using physics energy and instrument for muscle and nerve rehabilitation; necessity of rehabilitation medicine in related treatment with other disciplines, patient preparation and referring for prosthesis including administration of rehabilitation medicine.  
 Providing study tour at related institution and field work training
- MD 573 Ambulatory Pediatrics 4-credit  
*Prerequisite:* passed Integrated Pediatrics 1&2 (MD 431&MD 432)  
 Study and practice with infant and child patients in field of ambulatory pediatrics at outpatient unit and emergency room to enhance knowledge, experiences and skills for diagnosis and necessary laboratory or radiology investigation and result interpretation; holistic care; consultation with specialists and appropriate referring; communication with patients and their families; prevention of diseases, rehabilitation, promotion of health and health maintenance; be instructed behaviors, decision making, attitude, virtues and ethics that aim to be qualified doctor.  
 Providing study tour at related institution and field work training
- MD 574 Diagnostic Imaging in Respiratory and Cardiovascular System 2-credit  
*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412) and Integrated Surgery 1&2 (MD 421&MD 422)  
 Additional study and practice relate with diagnosis by radiological instrument in disease or essential condition in respiratory and cardiovascular system that respect to medical council standard; know indication, usefulness, technique of radiology examination; how to differentiate diagnosis; intervention radiotherapy by awareness to utilization, economy, harmful of radiation, professional virtues and ethics.  
 Providing study tour at related institution and field work training
- MD 575 Basic Pediatric Radiology 2-credit  
*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412) and Integrated Surgery 1&2 (MD 421&MD 422) and Integrated Pediatrics 1&2 (MD 431&MD 432)  
 Study and practice relate with diagnosis by radiology instrument in disease or common recognition in child patients; know indication, usefulness, technique of

examination; how to differentiate diagnosis by awareness to utilization, economy, harmful of radiation, professional virtues and ethics.

Providing study tour at related institution and field work training

MD 576 Clinical Experience in Ophthalmology 2-credit

*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412) and Integrated Surgery 1&2 (MD 421&MD 422)

Additional study and practice with outpatient and inpatient in field of ophthalmology to enhance knowledge, professional skills, experience to solve problem for patients; practice basic procedural skills and assist in the operation of non-complicated cases; consultation with specialists and appropriate referring; communication with patients and their families by emphasize on holistic health care; prevention of diseases; be instructed behaviors, decision making, attitude, virtues and ethics that aim to be qualified doctor.

Providing study tour at related institution and field work training

MD 577 Clinical experience in Otolaryngology 2-credit

*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412) and Integrated Surgery 1&2 (MD 421&MD 422)

Additional study and practice with outpatient and inpatients in field of otolaryngology to enhance knowledge, professional skills, experiences to solve problem for patients; practice basic procedural skills and assist in the operation of non-complicated case; consultation with specialists and appropriate referring; communication with patients and their families by emphasize on holistic health care; prevention of diseases; be instructed behaviors, decision making, attitude, virtues and ethics that aim to be qualified doctor..

Providing study tour at related institution and field work training

MD 578 Clinical Experience in Anesthesiology 2-credit

*Prerequisite:* passed Integrated Surgery 1&2 (MD 421&MD 422)

Additional study and practice with pre-operative, peri-operative and post-operative stage, pain relief to enhance knowledge, professional skills, experiences to solve problems for patient; practice necessary procedural skills; communication with patients and their families by emphasize on holistic health care; prevention of diseases; be instructed behaviors, decision making, attitude, virtues and ethics that aim to be qualified doctor..

Providing study tour at related institution and field work training

MD 579 Clinical Experience in Radiation Oncology 2-credit

*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412) and Integrated Surgery 1&2 (MD 421&MD 422)

Study and practice in common important cancer by emphasize on radiation oncology, epidemiology, clinical characteristics; additional various examination, diagnosis, holistic care planning in cancer case; emergency condition and initial problem solving; communication, explanation and suggestion to patients and their families; be

instructed behaviors, decision making, attitude, virtues and ethics that aim to be qualified doctor..

Providing study tour at related institution and field work training

MD 580 Ultrasound in General Practice 2-credit

*Prerequisite:* passed Integrated Internal Medicine 1&2 (MD 411&MD 412) and Integrated Surgery 1&2 (MD 421&MD 422)

Study and practice using ultrasound in disease or common recognition status; emphasize on abdominal examination, indication, usefulness, techniques of examination, differentiate diagnosis including indication of other additional examinations by awareness to utilization, economy and professional ethics, virtues and etiquette.

Providing study tour at related institution and field work training

MD 581 Medical and Health Administration 4-credit

Study meanings, theories and concepts of organization in various dimensions of structure, aim, planning, process of environmental control, and improvement of organization; study concepts, theories, basic factor that define behavior; human relationship in individual, group and organization levels; study motivation, leadership, cooperation, conflict in organization; authority, influence and communication in organization, personnel administration, financial administration, marketing administration, medical and public health inventories administration.

Providing study tour at related institution and field work training

MD 582 Seminar in Medical Social Science 2-credit

Study theories and collect theoretical thinking, regulation of study and medical social science issues that are contemporary issues in related sociality both national and global level or as medical and public health problem that emphasize on medical anthropological and sociological functions such as social and cultural dimensions of HIV, social and cultural dimensions of chronic diseases, health and women, death and dying, patient rights, diagnosis and holistic care, physician and patients relationship, culture with pain and drug consume behaviors.

Providing study tour at related institution and field work training

MD 583 Epidemiology and Biostatistics 4-credit

Study principle of epidemiology and biostatistics and be capable to apply with medical professional in research, conduction and analysis of various researches that useful with scientific knowledge enhancement in the future.

Providing study tour at related institution and field work training

MD 584 Family Medicine 1 4-credit

*Prerequisite:* passed Holistic Health Care 3 (MD 453)

Additional study and practice by application of knowledge, principle and instrument in family medicine with health care for individual, family and community; health services; roles of physician and primary health care.

Providing study tour at related institution and field work training

- MD 585 Management of the Menopause 2-credit  
*Prerequisite:* Integrated Obstetrics-Gynecology 1&2 (MD 441&MD442)  
 Study about cause, diagnosis, laboratory investigation; counseling women for menopause; provide suggestion for prevention osteoporosis.  
 Providing study tour at related institution and field work training
- MD 586 Clinical Experience in Obstetrics-Gynecology 4-credit  
*Prerequisite:* Integrated Obstetrics-Gynecology 1&2 (MD 441&MD442)  
 Additional study and practice with women patient and pregnant women to enhance knowledge, experiences and clinical skills to solve problem for patient; practice procedural skills of obstetrics-gynecology, delivery practice and assist in the operation; patient monitoring; consultation with specialists and appropriate referring; communicate patients and their families by emphasize on holistic health care; be instructed behaviors, decision making, attitude, virtues and ethics that aim to be qualified doctor..  
 Providing study tour at related institution and field work training
- MD 587 Principle Thai Traditional Medicine 4-credit  
 Study history and development of Thai traditional medicine; concept, theory and ethics of Thai traditional medicine; diagnosis, herbal treatment in term of food and drug, Thai traditional massage, sauna and massage with a bag of heated medicinal herb, various characteristics of health care; application of Thai traditional massage with public health services, problems and obstacles of various sectors in Thai traditional medicine conduction including determination of research to develop Thai traditional medicine.  
 Providing study tour at related institution and field work training
- MD 588 Medical Website 2-credit  
 Study and apply various sectors of innovation of computer, technology and communication to create website; collecting information, presentation and communicate medical information by modern technology.  
 Providing study tour at related institution and field work training
- MD 589 Clinical Cardiovascular Medicine 2-credit  
 Study and practice in outpatient section, general patient unit and intensive care unit of cardiology that relate with diagnosis, initial problem solving, determination of long term treatment for cardiovascular patient; study and practice initial treatment, symptom monitoring in cardiovascular system; procedural skills and basic instruments using for critical illness in cardiovascular system; appropriate investigation in cardiovascular system and result interpretation; provide suggestion and counseling for patient and their families concerning with cardiovascular disease .  
 Providing study tour at related institution and field work training
- MD 590 Fundamental Clinical Research 2-credit  
 Study and apply various innovation of medical technology, data collecting system in hospital, principle of epidemiology and biostatistics, research methodology etc. that aim to find cause of problem that come from daily works as clinical doctor and approach to plan systematic problem solving.

Providing study tour at related institution and field work training

MD 591 Medical Informatics 2-credit

Introduction to medical informatics, standard medical information; code of disease, operation code and standard medical code; group of diagnosis, information development for patient service in comprehensive health insurance project; computerize medical image; information technology for study, continuing medical study; additional information searching to enhance efficiency of treatment via internet and practice to create special project that depend on each student's interest issues.

Providing study tour at related institution and field work training

### **Subjects that available for others faculties**

MD 011 Fundamental Anatomy 1 3 (2-2-5)

Study and practice about human body structure; differentiate and function of tissues and organs system including functions of growth; production and recovery of various organs in growth and physical changing from conception to elder stage.

Providing study tour at related institution and field work training

MD 012 Fundamental Anatomy 2 2 (2-0-4)

Study about human body structure; differentiate and function of tissues and organs system including functions of growth; production and recovery of various organs in growth and physical changing from conception to elder stage.

MD 013 Fundamental Cell Biology and Pathology 2 (1-2-3)

Study element and function of cells in human body including changing of cell and tissue; pathology of organic cells that caused by disease and basic pathology.

MD 021 Fundamental Physiology 1 3 (2-2-5)

Study and practice about function of cells, tissues and organs in human body; metabolic process and mechanism of adaptation to homeostasis of physical condition and adaptation of body systems with external environment changing.

MD 022 Fundamental Physiology 2 2 (2-0-4)

Additional study and practice about function and process of cells, tissues and organs in human body; metabolism process and mechanism of adaptation to homeostasis of physical condition and adaptation of systems in body with external environment changing.

MD 031 Fundamental Biochemistry 3 (2-2-5)

Study basic structure of living organisms from atom and molecular level, adhesion force in atom and molecule; roles of solvent, acid-base condition, buffer including structures, types and properties of functional groups and various category of organic substances, biomolecular substances ex. carbohydrate, lipid, protein and nucleic acid; related biochemistry and bioenergy reaction; molecular structure and component of

cell; mechanism and control of enzyme; kinds and important of vitamin and coenzyme; metabolism of biomolecular substance; homeostasis of water, acid-base, electrolyte and nitrogen; genetic transcription including related control mechanism and diseases.

MD 032 Applied Biochemistry 2 (2-0-4)  
 Study process and changing in biochemistry of various physical systems including loss of function and abnormal metabolism of biochemical that cause various pathology and impacts on body; study example of medical biochemistry measurement.

MD 041 Fundamental Microbiology and Parasitology 3 (2-2-5)  
 Study category of infectious diseases from microorganism and parasite that common in Thailand by study nature of propagation and life cycle of microorganism and parasite; basic of body defense mechanism, immune production to cope with microorganism and parasite that aim to apply in prevention, treatment and control of disease; principle of diagnosis and pathology of infectious disease; practice to apply aseptic technique in practices including accurately collecting sample investigation.

MD 051 Fundamental Pharmacology 1 3 (3-0-6)  
 Study basic and practical of pharmacology; principle and method of drug use, drug measurement, differentiate drug category, mechanism of drug action with body systems and diseases, use of drug in prevention and care of diseases and symptoms, side-effect and harmfulness of drug and habit-forming drug, common recognition of drug management including essential drug list and rational drug use.

MD 052 Fundamental Pharmacology 2 2 (1-2-3)  
 Additional study basic of pharmacology; principle and method of drug use, drug measurement, differentiate drug category, mechanism of drug action with body systems and diseases, use of drug in prevention and care of diseases and symptoms, side-effect and harmfulness of drug and habit-forming drug, common recognition problem of drug management including essential drug list and rational drug management.

MD 061 Fundamental Pathophysiology 3 (3-0-6)  
 Study concept of disease genesis, causes of pathology, structural and functional changing of organs in pathological system, defense mechanism and adaptation of body during pathological condition including diagnostic guideline.  
 Providing study tour at related institution and field work training

MD 071 Fundamental Epidemiology 2(2-0-4)  
 Study concept, principle and area of epidemiology; disease dissemination in human body both infectious and non-infectious illness that relate with environmental component, social, cultural and community properties, health indicator, epidemiological methodology, prevention and control of epidemic diseases, using epidemiology in health care practice.

**Revision in Doctor of Medicine Program, Thammasat University,  
edited version 1997 which will be launched in academic year 1994**

1. This program, revised version 1997, have been obtained the consensus of the Commission of Higher Education (University Department) on 21<sup>st</sup> April 2001
2. Thammasat University Council / Thammasat University have approved the revision of this program in the meeting of 22<sup>nd</sup> March 1994
3. This revised program will be launched since the first semester of academic year 2004 and compel with student of academic year 2003 in 6-year program

4. Reason of revision;

4.1 To restructure program that will be suitable and harmonious with present status of Thai public health system and National Educational Act 1999, the seventh of Thailand Medical Education 2001 Meeting, National Health Act and Medical Council Professional Medicine Standard 2002.

4.2 To restructure program for integration in content of basic medical and clinical subjects. In addition, continuing integration human and social behavior biology subject as well.

4.3 To provide various selective subjects and additional time thorough program for student to have a chance to study knowledge both more horizontal and deeper line that depend on each of student' skill.

4.4 To arrange teaching and learning that be inserted medical virtues, ethics and etiquette concepts by continuing of program.

5. Major issues of revision;

5.1 Revise structure and element of program;

5.1.1. Total credits be decreased for 4-credit and rest 258-credit, like this;

1. General basic subjects and scientific basic subject be decreased from 40-credit to 39-credit because of;

- Section of science and mathematic subjects and basic science and mathematic subject, be decreased for 7-credit and rest 18-credit

- Section of language subjects be increased for 6-credit, from 9-credit to 15-credit

2. Specific subjects be decreased from 219-credit to 212-credit because of;

- Basic medical specific subjects be decreased from 85-credit to 80-credit

- Major subjects be decreased from 128-credit to 117-credit

- Selective subjects be increased from 6-credit to 15-credit

3. Free selective subjects be increased from 3-credit to 7-credit

5.1.2 Teaching and Learning in the second stage (pre-clinic) and the third stage (clinic), total subjects be decreased because of integrative teaching and learning but total credits of each subject be increased.

5.1.3 Selective subjects be increased for 36-subject to provide a chance for student to study by depend on their interest and skills.

5.1.4 To insert basic professional skills and medicine ethics syllabus in teaching and learning thorough program of the second and the third year.

5.1.5 To insert medical legal and ethics syllabus in teaching and learning thorough program of the forth and the fifth year.

6. Correlation of revised structural program with original structure and standard of Bachelor Degree 1999 by the Commission Higher Education (University Department), details as follow;

<b>Subject Section</b>	<b>Standard (credit)</b>	<b>Original Structure (1997)</b>	<b>Revised Structure (2004)</b>
- General subject	not lower than 30	40	39
Language subject	(minimum 12)	(6)	(12)
- Specific subject	not lower than 174	219	212
Selective subject	-	(6)	(15)
- Free selective subject	not lower than 6	3	7
<b>Total credit</b>	not lower than 210 not over than 263	263	258

**Structural Correlation of total credit in each subject section of original program with revised program**

<b>Subject Section</b>	<b>Original Program (1997)</b>	<b>Revised Program (2004)</b>
<b>General section</b>	<b>40</b>	<b>39</b>
- Social sciences section	3	3
- Human sciences section	3	3
- Language section	9	15
English language subject	(6)	(12)
- Science and mathematic section and basic science and mathematic subject	25	18
<b>Specific section</b>	<b>219</b>	<b>212</b>
- Basic medical subject	85	80
- Major subject	128	117
- Selective subject	6	15
<b>Free selective section</b>	<b>3</b>	<b>7</b>
- Free selective subject	3	7