# FACULTY OF MEDICINE KMITL

King Mongkut's Institute of Technology Ladkrabang

**PROFILE** 

# Welcome to The Faculty of Medicine, KMITL

**Message from the President** 

#### Here's to A Better Tomorrow

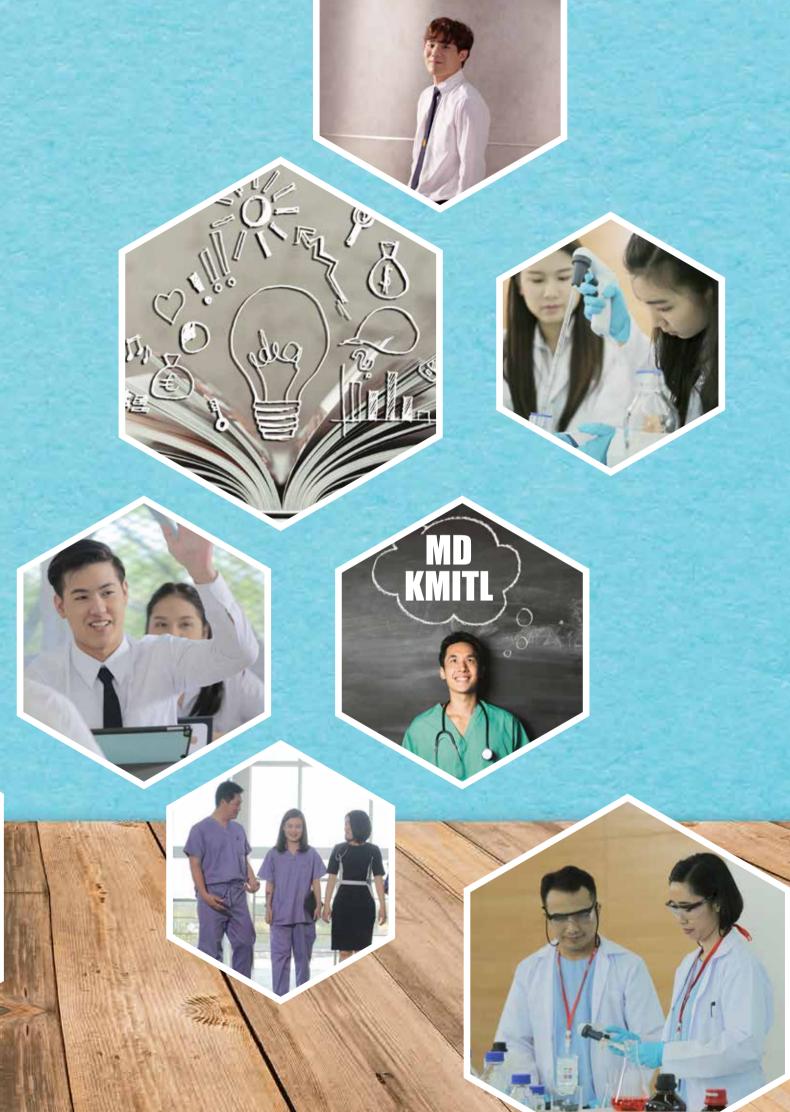
As the President of King Mongkut's Institute of Technology Ladkrabang, I am extremely proud to welcome a new era in medical and research advancement with the Faculty of Medicine at KMITL. This faculty is a beacon of hope for patients worldwide as we seek to develop the next generation of global doctors and to work with the country and world's finest medical experts and researchers. We harness our university's strengths in bioengineering, engineering, architecture and agriculture to discover multidisciplinary solutions for today's healthcare concerns. Our vision of a better tomorrow is realized through the dedication and tenacity of our faculty's management, faculty, staff and students. Together, we are at the forefront of innovations that will lead to sustainable outcomes that have significant positive impact for all.

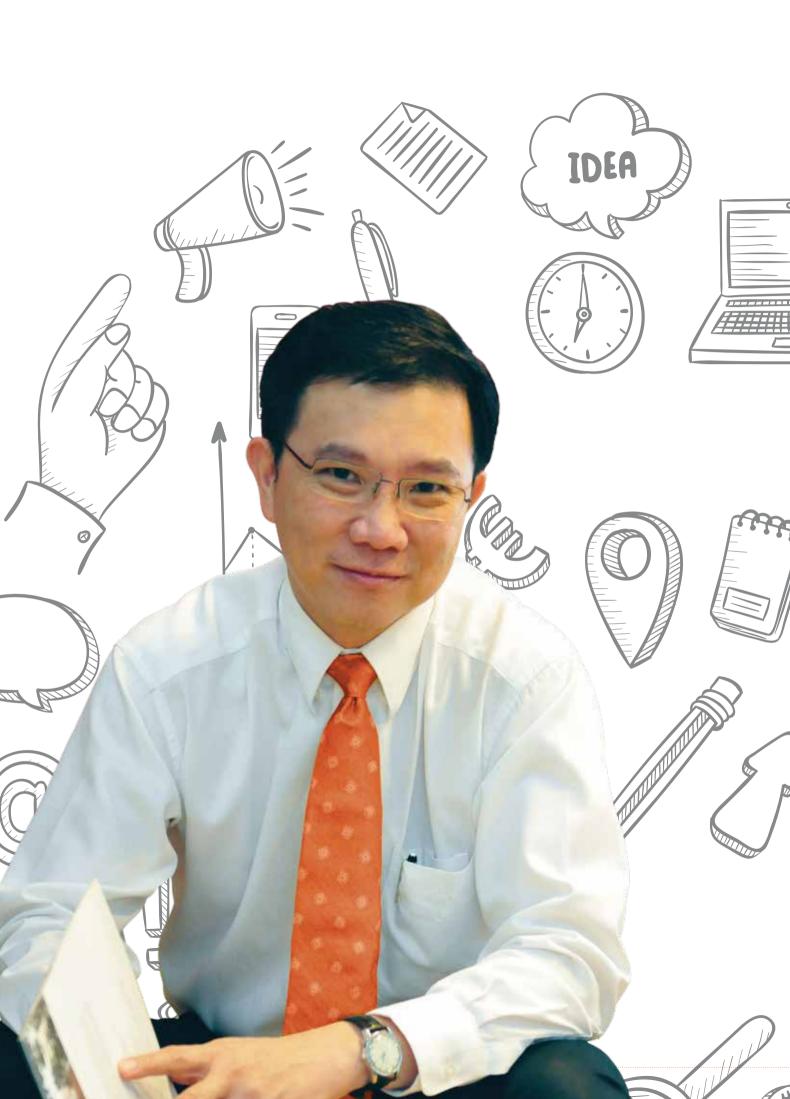
The future of medical and research advances is upon us now at the Faculty of Medicine at KMITL.

Prof. Dr. Suchatvee Suwansawat President King Mongkut's Institute of Technology Ladkrabang

# **C**ontents

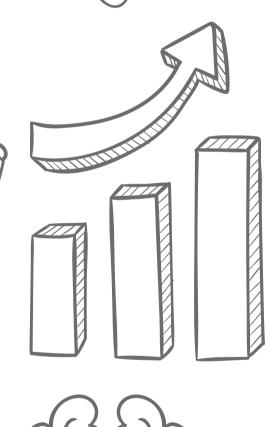
Welcome to the Faculty of Medicine	3
Message from the Dean	7
Our Mission	8
Educational Outcomes	9
Admission Policy	10
Recruitment and Selection Policy	11
Study Plan for BBS/MD Program at The Faculty of Medicine, KMITL	13
Governance Transparency	15
Academics, Satisfaction Questionnaire	16
Other Collaborations	17
Medical Research, Program Evaluation	18
Social Accountability	19
Quality Standards	20







# Welcome to the next era of innovative medical education and research advancement



Currently, Thailand's science and technology potential has yet to be optimized. Progression is key to the country's success.

Thailand WILL BE a leader in medicine based on a collective approach. As established medical universities continue to excel, KMITL sets itself apart and offers another dimension the new Faculty of Medicine. Uniquely providing a robust curriculum including an all English core, transformative learning, system approach and heavy emphasis on cutting edge research initiatives, we aim beyond the conventional to develop sustainable medical breakthroughs. We are well equipped to do so through our keen knowledge sharing collaborations with our globally recognized Faculty of Science, Faculty of Engineering and Faculty of Architecture.

The Faculty of Medicine is focused on producing top-tier medical doctors of the future and high-impact medical research initiatives. We are ready both physically with a state-of-the-art learning environment and mentally through the vision of our leadership team. We are dedicated to STRENGTHEN Thailand's Medical Innovation & Research Capacity for the success of our nation as a whole. Our efforts will indeed be carried out towards overall positive global impact.

Welcome to the next era of innovative medical education and research advancement.

Prof. Dr. Anan Srikiatkhachorn Dean Faculty of Medicine KMITL





## **Our Mission**

The Faculty of Medicine at King Mongkut's Institute of Technology Ladkrabang is an international medical program with special emphasis on research and medical technology development. Our vision is "The Faculty of Medicine, KMITL is a global medical program focusing on technology and innovation in health care".

#### Our missions are:

- 1. To provide medical education of the international standard.
- 2. To create technology and innovation for better health care of the nation.

### Educational Outcomes

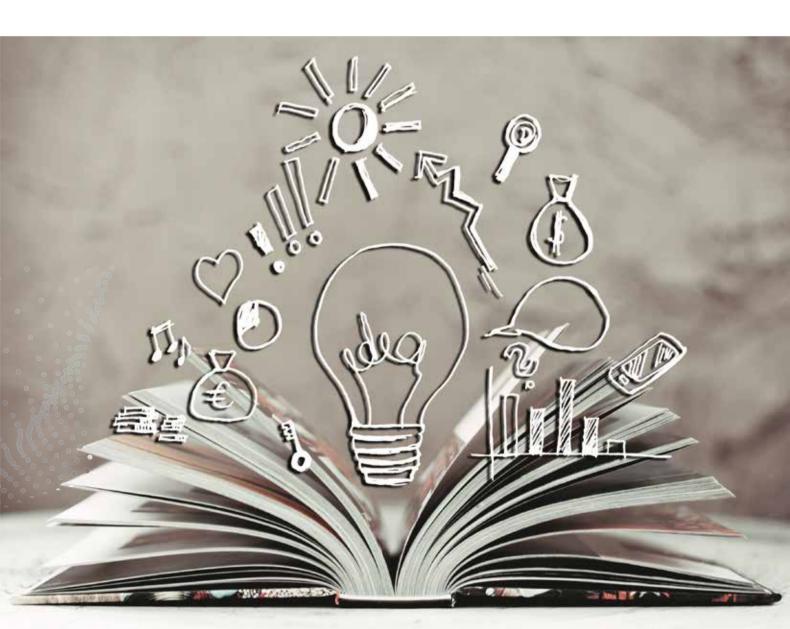
The Faculty of Medicine, KMITL outcomes include (1) professional competencies, (2) the 21st century skills, (3) research competencies and (4) internationalization. All outcomes will be measured using several educational assessment tools.

Our curriculum covers all major disciplines. We designed learning experiences that would develop knowledge and skills for future career in medicine. The professional competencies outcome includes professional habits, attitudes, moral and ethics, communication and interpersonal skills, scientific knowledge of medicine, patient care, health promotion and health care system and continuous professional development.

We use recommendations from Medical Council of Thailand and other international organizations in defining our professional competencies outcome. This process will guarantee that the graduates will have appropriate competency for their future career in medicine.

The Faculty of Medicine, KMITL curriculum is designed to help our students develop appropriate skills, both cognitive and procedural, for their further training. We provide opportunity for the students to have selective practicums according to their interest.

We employed the 'transformative learning' approach in designing our curriculum. One fundamental transformation emphasized in our curriculum is the shift from fact memorization to searching, analysis, and synthesis of information for decision making. Therefore, the curriculum would foster the development of independent learning skill which is necessary for life-long learning. Learning and innovation skills is also a part of our "the 21st century skills" outcome.





# Admission Policy

The Faculty of Medicine, KMITL has set a standard process for student selection and publicly announced the process in The Faculty of Medicine and university websites. The criteria for initial screening include:

- 1. Academic achievement: the applicant must complete or study in the final year of the following educational system:
  - Mathayom 6 or equivalent in regular Thai program
  - Grade 12 in the US program
  - Year 13 in the UK program
- Standard academic test: SAT Subject Test (SAT II) including (1) Biology (2) Chemistry (3) Physics or Mathematics. Score of each subject must not be less than 640. Or BioMedical Admissions Test (BMAT). The score of section 1 and 2 must not be less than 4.5 and of section 3 must not be less than 2.5C.
- 3. English proficiency test (either one of the following):
  - TOEFL (Paper-based Test) not less than 580 or
  - TOEFL (Computer-based Test) not less than 240 or
  - TOEFL (Internet-based Test) not less than 94 or
  - IELTS (Academic-Module) not less than 7
- 4. We also require the applicant to append a 'personal statement' describing their motivation and expectations for studying medicine in our program. The document must be typed with Arial or Times New Roman (Font

12) on A4-sized paper. The length should not exceed 1000 words.

All submitted scores must be taken within the past two years to be valid. The scores of all applicants will be ranked. Short-listed qualified applicants are subjected to multiple mininterview (MMI). The situational questions posed in an MMI generally touch on the following areas: ethical decision making, critical thinking, communication skills, motivation to become doctors and current healthcare and societal issues.

### The Faculty of Medicine, KMITL is an Equal Opportunity Institution

Similar to other medical schools in Thailand, The Faculty of Medicine, KMITL follows the guideline of Medical Council of Thailand and Consortium of Thai Medical Schools for admission of applicants with disability. Generally, their disabilities must not significantly compromise the function as physicians.

#### Transfer or Exchange Students

The Faculty of Medicine, KMITL has policy to accept students from other medical schools and students from other study programmes. Within the Institute, The Faculty of Medicine, KMITL welcomes the students from Biomedical Engineering Program to study in our preclinical year. We also accept the graduates from pre-medical tract for Biomedical Engineering Program to have further study in our Medical Degree Program. Transfer of credits is aligned with the regulation of KMITL.

# Recruitment and Selection Policy

At institute level, KMITL has regulation and process for staff selection and recruitment. The selection process and criteria is publicly announced in university websites and public media. The Institute also has general standard concerning job assignment of academic staff.

The Faculty of Medicine, KMITL has standard criteria for staff recruitment. The number of staff is aligned with the recommendation of Medical Council of Thailand (teacher-to-student ratio at preclinical and clinical years are 1:4 and 1:2, respectively). We control the ratio between PhD/MD of preclinical staff not to exceed 2:1.

#### Details of our academic staff:

 Preclinical sciences: Our staff in preclinical division comprise 21 medical doctors (The Faculty of Medicine, KMITL and Sirindhorn hospital staff), 10 biomedical scientists and 15 staff in other disciplines (liberal arts, engineering, administration and management, etc.). Clinical sciences: The Faculty of Medicine, KMITL MD staff and medical doctors at Sirindhorn hospital are responsible for clinical teaching. Sirindhorn medical doctors are appointed to be adjunct instructors (part time staff) of the Faculty. The number of Sirindhorn medical staff in the year 2017 is 56. Thirty more positions will be recruited within two years. By the year 2021, the estimated number of medical doctors at Sirindhorn hospital is 120.

The academic qualification of The Faculty of Medicine, KMITL staff is PhD for non-medical staff and MD with diplomat board for medical staff. In alignment with our missions, every staff is required to conduct research and be a consultant of medical student research project. Therefore, we pay attention on research experiences and track record on publication.

The Faculty of Medicine, KMITL specifies the responsibilities of academic staff. The major responsibilities include teaching, research and administration. The ratio of these activities can be adjusted and should be agreed by staff and The Faculty of Medicine, KMITL. All academic staff is required to sign the job assignment form and submit the job report form every six months. This report will be used for annual performance evaluation according to KMITL Human Resource system.





#### Study Plan for BBS/MD Program at The Faculty of Medicine, KMITL

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
			Introduction	on to Med Profess	ion, Biochemistry	& Mol Bio		Cell and Tissue Physiology, Medical Ethics & Professional Law		ofessional Law		
Y1	Preparative MD Progra			Gen Ed	Year 1/1		Exam & Break	Gen Ed Year 1/2			Exam & Break	
			Clinical Anatomy and Medical Imaging (3)				Molecu	ular Medicine and	Pharmacotherape	utics (3)		
Y2	Break	Body Movement & Control (MS, PNS)	Body Fluid I (Blood & CVS)	Body Fluid II (RS, Kidney)	Body Energy (GI, Liver, Nutrition & Metabolism	Body Regulation & Defense	Exam & Break	Brain / Mind (CNS, Cognitive)	Sex, Gender, Reproduction and Health	Human Genetics, Growth and Development	Research Methodology, Statistics and Epidemiology	Exam & Break
			Arts & Sc	iences of Clinical	Diagnosis			Evidence-B	ased Medicine, He	alth Promotion an	d Prevention	
Y3	Break		Medicine I (20 wee logy (3) / Nephro-				Exam & Break	Clinical Medicine II (12 weeks): Hemato-Onco (4) / Neuro (3) / Psych (3) / Geriatric (2)  Experier		Integrated BioMedScience / Research Experiences in BioMedScience	NLE1, Comprehensive Exam 1 & Break	
		Essential Clin	Family Me	dicine Clerkship (	4 credits = 20 wor	king days)		Seminar in BioMedRes Community & Global Medicin		Global Medicine	Thesis	
Y4	Reserve for BBS and MSc or MEng Placement	Skills (2 weeks)	BioMed	Res Core, Semina (18 w	ar and Individual R eeks)	tesearch	Exam & Break	BioMedRes Selectives and Individual Research (8 weeks)		Neuro, Geriatric & Rehab (4 weeks)	Proposal Presentation & Break	
			Anesthesiology			Seminar in	BioMedRes		405/7			NLE2,
Y5	Internal Medicine	Surgery	Cardiology & Clinical Care Medicine	Ob/Gyn	Pediatrics	BioMedRes Indi and The (8 we	sis Work	AmbuMed (including E&ENT)	A&E (Trauma, Orthopedics & Emerg Med)	Oncology & Palliative Care	Selective Clerkship 1&2	Comprehensive Exam 2 & Break
Y6	Intro Clinical Practice in Health Care System (2weeks)	Practicum in Internal Med	Practicum in Surgery	Practicum in Pediatrics	Practicum in OB/Gym	Practicum in Ortho & ER	Practicum in Community Hospital	Selective Practicum and Graduati		Defense, Comprel and Graduation (12 weeks)	hensive MD Exam	

#### Core Courses Year 1

CODE	Year 1 Semester 1 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)
17616001	Scientific methods	2 (2-0-4)
17616002	Applied physics and mathematics for health sciences	2 (1-2-3)
17656001	Introduction to medical profession	2 (1-2-3)
17656002	Medical biochemistry and molecular biology	2 (1-2-3)
17646001	Human behavior and sociology	2 (2-0-4)
17626171	Communication in Thai for medical profession	3 (2-2-5)
17626172	English for medical profession	3 (2-2-5)
17636001	Creative thinking and innovation	2 (2-0-4)
XXXXXXX	Free elective	3 (X-X-X)
Total credit 2	1	

CODE	Year 1 Semester 2 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)		
17616003	Computer and digital technology for health sciences	2 (1-2-3)		
17656003	Cell and tissue physiology	2 (1-2-3)		
17646002	Fundamental health economics	2 (2-0-4)		
17646003	Health policy and public welfare	2 (2-0-4)		
17626173	Academic reading and writing for health sciences	3 (2-2-5)		
17626174	Selective study in language subject	3 (X-X-X)		
17636002	World culture	2 (2-0-4)		
17636003	Medical ethics and professional law	2 (1-2-3)		
XXXXXXXX	Free elective	3 (X-X-X)		
Total credit 21				

#### Pre-Clinical Development Year 2

CODE	Year 2 Semester 1 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)		
17656004	Clinical anatomy and medical imaging	3 (2-4-3)		
17656005	Body movement and control	2 (1-2-3)		
17656006	Body fluid homeostasis I	4 (2-4-6)		
17656007	Body fluid homeostasis II	4 (2-4-6)		
17656008	Body energy homeostasis	4 (2-4-6)		
17656009	Body regulation and defense	4 (2-4-6)		
Total credit 21				

CODE	Year 2 Semester 2 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)	
17656010	Sex, gender, reproduction and healthy living	4 (3-3-6)	
17656011	Brain and mind	4 (3-3-6)	
17656012	Human genetics, growth and development	4 (3-3-6)	
17656013	Molecular medicine and pharmacotherapeutics	3 (2-4-3)	
17686001	Research methodology, biostatistics and epidemiology	4 (3-3-6)	
Total credit 19			

#### Pre-Clinical Development Year 3

CODE	Year 3 Semester 1 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)		
17656014	Arts and sciences of clinical diagnosis	3 (2-4-3)		
17656015	Clinical microbiology and infectious diseases	3 (2-4-3)		
17656016	Cardiovascular medicine	3 (3-2-4)		
17656017	Respiratory medicine	3 (3-2-4)		
17656018	Gastroenterology and hepatology	3 (3-2-4)		
17656019	Renal and genitourinary medicine	3 (3-3-3)		
17656020	Allergy, immunology and rheumatology	2 (1-2-3)		
17656021	Endocrinology and metabolism	2 (2-1-3)		
Total credit 22				

		SELF STUDY)		
17656022 H	Hematology and oncology	4 (4-4-4)		
17656023 C	Clinical neurosciences	3 (3-2-4)		
17656024 N	Mental health and psychopathology	3 (3-2-4)		
17656025 A	Aging and degenerative disorders	2 (1-2-3)		
17656026 E	Evidence-based medicine	3 (2-4-3)		
17656027 H	Health promotion and disease prevention	1 (1-0-2)		
17686002 *	*Integrated biomedical sciences	1 (0-1-2)		
17686003 *	Research experiences in biomedical sciences	2 (0-6-0)		
Total credit 19				

#### Clinical Training Year 4

CODE	Year 4 Semester 1 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)	
17687001	Principles of biomedical engineering (MEng 01317542)	3 (3-0-6)	
17687002	#Advanced subject in biomedical sciences I	3 (X-X-X)	
17687003	#Advanced subject in biomedical sciences II	3 (X-X-X)	
17666001	Essential clinical skills	2 (1-3-2)	
17666002	Forensic medicine	2 (1-3-2)	
17666003	Family medicine clerkship	4 (1-6-5)	
17687004	*Seminars in biomedical research I	1 (0-1-2)	
17696001	*Individual research I	2 (0-6-0)	
Total credit 20			
* S/U grading will be offered			
# Students may choose to study any advanced courses in biomedical sciences, biotechnology or biomedical engineering at the Master Degree level			

CODE	Year 4 Semester 2 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)
17687005	*#Biomedical research selective I	3(0-6-3)
17687006	*#Biomedical research selective II	3(0-6-3)
17687005	*Seminars in biomedical research II	1 (0-1-2)
17696002	*Individual research II	2 (0-6-0)
17666004	Community and global medicine	2 (1-3-2)
17666005	Neurology, geriatric and rehabilitation medicine clerkship	4 (3-3-6)
17666006	Psychiatry clerkship	4 (3-3-6)
Fotal credit 19 S/U grading will		
	noose to study any research courses in biomedical sciences, biotechnology or	

#### Clinical Training Year 5

CODE	Year 5 Semester 1 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)		
17666007	Internal medicine clerkship	4 (2-6-4)		
17666008	Surgery clerkship	4 (2-6-4)		
17666009	Anesthesiology, cardiology and critical care medicine clerkship	4 (2-6-4)		
17666013	Obstetrics and gynecology clerkship	4 (2-6-4)		
17666014	Pediatric clerkship	4 (2-6-4)		
17687006	*Seminars in biomedical research III	1 (0-1-2)		
Total credit 21				
* S/U grading w	ill be offered			

CODE	Year 5 Semester 2 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)		
17696003	*Individual research III	2 (0-6-0)		
17666010	Ambulatory medicine clerkship	4 (2-6-4)		
17666011	Accident and emergency medicine clerkship	4 (2-6-4)		
17666012	Oncology and palliative medicine clerkship	4 (2-6-4)		
17666015	Selective clerkship I	2 (0-4-2)		
17666016	Selective clerkship II	2 (0-4-2)		
17696004	*Thesis I	2 (0-6-0)		
* S/U grading will be offered				

#### Clinical Training Year 6

CODE	Year 6 Semester 1 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)
17676001	*Introduction to clinical practice in the health care system	2 (0-3-3)
17676002	*Practicum in internal medicine	4 (0-12-0)
17676003	*Practicum in surgery	4 (0-12-0)
17676004	*Practicum in pediatrics	4 (0-12-0)
17676005	*Practicum in obstetrics and gynecology	4 (0-12-0)
17676006	*Practicum in orthopedics and emergency medicine	4 (0-12-0)
Total credit 22		

CODE	Year 6 Semester 2 SUBJECT	CREDIT (LECTURE-LAB- SELF STUDY)		
17676007	*Practicum in community hospital	4 (0-12-0)		
17676008	*Selective practicum I	4 (0-12-0)		
17676009	*Selective practicum II	4 (0-12-0)		
17696005	*Thesis II	5 (0-15-0)		
17696006	*Thesis III	5 (0-15-0)		
Total credit 22				
Total credit 22  * S/U grading will be offered				



### Governance Transparency

We established the curriculum committee that has the responsibility and authority for planning and implementing the curriculum to secure its intended educational outcomes. The committee includes representatives from all major stakeholders (the dean, deputy dean for medical education, academic staff, supporting staff and students).

The Faculty of Medicine is a part of KMITL. The Faculty is governed by Faculty Administrative Board and Faculty Committee under supervision of Institute Board and Council. The Administrative Boards comprises three main divisions as follow:

1. Office of Administrative Affairs. The office comprises Strategic Management and General Administration divisions. The Strategic Management division is responsible for strategic planning, budgeting, human resource and quality management. The General Administration division concerns document management, purchase and supplies and building and maintenance.

- 2. Office of Academic Affairs. The office is responsible for academic and research activities. The Academic Division governs the educational activities including curriculum design, implementation of the curriculum, faculty development and student affairs. Committees and subcommittees for each activity are appointed. These include Curriculum committee and subcommittees for preclinical phase, clinical phases, student research, and quality assessment. The office is also responsible for research activities of the Faculty.
- 3. KMITL Medical Clinic. The office is responsible for medical services for staff and students of KMITL as well as the local community. The Clinic also serves as the centre for studying the primary health care and family medicine for our medical students.

We include representatives from principle stakeholders in our committees and subcommittees where appropriate. In case that we cannot include such representatives, input from those stakeholders will be gathered and used for the administration of the Faculty.

Input from other stakeholders are gathered periodically. Representatives from other stakeholders are invited to the meeting of which the agenda directly concerns with such groups.

### **Academics**

#### **Philosophy**

Producing world-class "global" medical doctors with outstanding research capability, high virtue and excellent life skills can be done through the concepts of transformative learning and systems approach.

#### **Importance**

Doctors with research capabilities are essential for the improvement of the nation's health care services in the 21st century.

#### **Objectives**

The Doctor of Medicine Program emphasizes on producing medical graduates with the following qualifications:

- Having professional competencies required for being physicians of the national and international standard
- Having 21st century skills, including life and career skills, learning and innovation skills, and information, media and technology skill
- Being critical thinkers, innovators and capable biomedical researchers
- Being global doctors and world citizens

#### Strategy of teaching and learning

- Outcome and task-based learning
- Early clinical exposure and longitudinal clinical responsibility
- Self-directed and research-based learning
- International learning and working culture



To improve the learning environment by regularly updating and modifying or extending the physical facilities to match developments in educational practices, a survey will be annually conducted to monitor the satisfaction of instructors and students regarding the sufficiency of academic resources. Students and other stakeholders can express their comments and suggestion via The Faculty of Medicine, KMITL website.

Questionnaire will be sent out periodically to the employers and related academic institutions to seek their comments and opinion concerning graduate's performance. The Faculty of Medicine, KMITL also provides the direct access via The Faculty website.

### Satisfaction Questionnaire

# Other Collaborations



# Medical Research

Medical research involves research in a wide range of fields, such as biology, chemistry, pharmacology and toxicology with the goal of developing new medicines or medical procedures or improving the application of those already available. It can be viewed as encompassing preclinical research (for example, in cellular systems and animal models) and clinical research (for example, clinical trials).



### Program Evaluation

Deputy Dean for Academic Affairs is responsible for program evaluation. The evaluation processes cover both internal and external review. For internal process, The Faculty of Medicine, KMITL has a multi-level program for continuous curriculum monitoring. The overall curriculum monitoring scheme is as follow:

 Course level. Opinion and satisfaction towards curriculum implementation (teaching method, learning experience, educational resource, etc.) are gathered at the end of each course. Online and offline system will be used. Obtained data will be analysed and reviewed. Course outcome will be assessed based on students' performance. Item analysis will be performed to identify the areas of weakness.

- Year / phase level. Routine meeting is scheduled for evaluating the progress and outcome of each year and each phase. Addition survey will be conducted to assess the satisfaction of staff and students.
- 3. Program level. Overall program evaluation is to be performed by annually collecting the information from lecturers, students, graduates, employers, health professionals as well as related stakeholders. Annual retreat is scheduled at the end of each academic year to review the information.

In addition, staff and students can give their comments via The Faculty of Medicine, KMITL website.

The Faculty of Medicine, KMITL is also subjected to be reviewed by external organizations. These organizations include Consortium of Thai Medical Schools, Commission of Higher Education.

# Social Accountability

The Faculty of Medicine, KMITL quality assurance and social accountability are conducted according to National Academic Act 1999, chapter 6, Item 47-49. The internal quality assurance is to be conducted yearly and external quality assurance is to be conducted every 5 years. As a part of the internal quality assurance, The Faculty of Medicine, KMITL have to annually review and report criteria 1, indicator 1.1 to the Office of Commission of Higher Education, Ministry of Education.

The Faculty of Medicine, KMITL quality system also adopt the quality framework of Education Performance Excellence (EdPEx) criteria. This framework is an educational quality system to be used by Medical Council of Thailand.



### Quality Standards

Postgraduate study (both medical specialties and PhD) requires effective critical thinking and self-direct learning skills as well as good discipline-specific background knowledge. These are included in The Faculty of Medicine, KMITL outcomes (professional competencies, the 21st century skills, research competencies and internationalization).

Research and innovation are prime focus of The Faculty of Medicine, KMITL. Our curriculum aims to foster our students to develop scientific inquiry and critical thinking skills in order to prepare capable biomedical researcher. Several research activities including individual research thesis are included in the curriculum.

The Faculty of Medicine, KMITL aims to produce global doctors. The quality of our graduates should reach the international standard. In addition to the medical knowledge, they must be able to understand and cope with cultural diversity as well as can work with other health professionals in global community. To achieve this outcome, agility and adaptability are the key component of success.

The Administrative Board is responsible for evaluation of the educational process. Information concerning resource adequacy and condition of learning environment will be collected.

Curriculum components (course description, teaching and learning methods, clinical rotations and assessment methods) are scheduled to be evaluated at the end of course.

The long-term outcome will be evaluated by surveying the employer satisfaction, further professional and academic training of the graduates, etc.

The information concerning curriculum evaluation and revision will be disclosed via the Faculty of Medicine, KMITL website.







## Life at The Faculty of Medicine, KMITL



**Empowers Minds and Inspires Greatness** 



# Make Medical & Research History at The Faculty of Medicine, KMITL

