INTERNATIONAL PROGRAMS
FACULTY OF ENGINEERING KMITL

http://eneng.kmitl.ac.th/
1, Soi Chalong Krung 1, Chalong Krung Road, Ladkrabang Sub-district, Ladkrabang district, Bangkok 10520
### General Information

| Tuition fee/semester | Computer Innovation Engineering: 150,000 THB (4,240 USD)/semester  
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<th>Others: 90,000 THB (2,570 USD)/semester</th>
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</table>
| Living Expenses/ month| - Books: Approximately 5,000 THB/semester  
|                      | - Food and other expenses: <10,000 THB/month (apart from room rent, a meal is on average is 50-100 THB)  
|                      | - Dormitory: \( \approx \) 6,000 THB/month (including electricity and water rates)  
|                      | Remark: Exchange Rate: USD 1 = THB 35.4 (as of February 2017) |
| Facilities          | - Medical Services  
|                      | - Bank  
|                      | - Dormitory  
|                      | - Library  
|                      | - Sport Facilities and swimming pool  
|                      | - Internet Services  
|                      | - Service for International Students and Scholars |
| Entrance Requirement| The applicant must satisfy at least one of the following:  
|                      | 1) Graduated or studying in the final year of high school or equivalent.  
|                      | 2) Graduated or studying in an accredited college or higher-education institutions.  
|                      | 3) Obtained or expect to obtain a qualification equivalent to Matthayom 6 as approved by the Ministry of Education before the start Academic Year 2017.  
|                      | The applicant must submit at least one of the following standardized tests:  
|                      | 1) National higher education or board exam results (GAT/PAT, IGCSE, GCE A-level, Gaokao, or equivalent exams)  
|                      | 2) SAT 3) ACT 4) IB  
|                      | The application should submit at least one of the following English proficiency test results:  
|                      | 1) GAT Part 2 (English)  
|                      | 2) TOEFL 3) IELTS 4) IB |
| Entrance Examination| Interview Examination |
| Website              | http://eneng.kmitl.ac.th  
| Facebook             | https://www.facebook.com/kmitl001/  
| Admission website    | http://eneng.kmitl.ac.th/inter-admission/ |
For additional information, please contact Faculty of Engineering, KMITL
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• Biomedical Engineering
Phone: +66(0)83-449-7543
Contact person: Assoc.Prof.Dr. Chuchart Pintavirooj
• Chemical Engineering
Phone: +66(0)81-404-1894
Contact person: Dr. Narisara Thongboonchoo
• Civil Engineering
Phone: +66(0)81-654-3000
Contact person: Assoc.Prof.Dr. Nunthawat Charusrojthanadeeh
• Industrial and Management Systems Engineering
Phone: +66(0)95-765-4796
Contact person: Dr. Jarotwan Koiwanit
• Computer Innovation Engineering
Phone: +66(0)90-292-0977
Contact person: CIE Admission Team
Email: cie@kmitl.ac.th
Facebook: https://www.facebook.com/CIEatKMITL
Official website: https://cie.kmitl.ac.th/

Scholarships
1) There are two categories of scholarships: Full tuition fee waiver and half tuition fee waiver.
2) Students who are eligible for scholarship application, are
   - new students with GPA higher than 3.50 for full scholarship and 3.25 for half scholarship.
3) Each scholarship is for one academic year only. Students must reapply for scholarships at the beginning of each academic year.
4) The number of scholarships is based on the total number of students in each program (approximately 10%).

HIGHLIGHTS OF PROGRAMS

Industrial and Management System Engineering
The program prepares students for industry 4.0 Environment, (Smart operations, Smart Factories, Smart Products) and covers recent topics in both technical areas (such as Operations Research, Data Science and Analytics, Simulation, System Modelling, Process Analysis and Redesign, Data Warehouse, Cloud Computing, etc.), as well as business–related areas (Supply chain management, Health Care and Service Management, Enterprise Resource Planning, Customer/User Experience, Entrepreneurship, and Innovative design, etc.)

Chemical Engineering
Students who graduate from the program can work in the fields of exploration and production of petroleum, energy and fuel industries, petroleum refinery, chemical and petrochemical industry, food and drink industry, paper and pulp industry, the productions of rubber, synthesized rubbers, soaps, detergents, toothpastes, cosmetics, polymers, plastics, and glass, automotive factory, electronics industry.
Civil Engineering

The program provides unique or thematic knowledge with the focus on innovative advancements in technology, applications, tools, and software. By combining theoretical foundations with hands-on experience and project-based learning, the students will learn the skills required for nowadays. The program also offers opportunities for students to participate in, the Civil Engineering Cooperative Program, the Oversea Training, and a number of international academic competitions.

Computer Innovative Engineering

The Computer Innovation Engineering Program (CIE) is the platform for academic advancement of the 21st century. By combining theoretical foundations with hands-on experience and project-based learning, the students will learn the computing skills required for today’s workforce. The program offers state-of-the-art knowledge in computing technologies, including Internet of Things, Cloud Computing, Cyber-Physical System, Cyber Security, Data Analytics and Virtual/Augmented Reality. Most courses are 4 credits. These courses usually contain 3 hours of lecture or discussion per week. The courses are also accompanied with 1 additional hour of recitation or 3 hours of laboratory work per week. Our engineering curriculum also deeply integrates with the study of innovation process to help students transform their explored ideas into startups that will drive our future.

Biomedical Engineering

The program maintains the distinguished identity of the previous KMITL biomedical engineering, which emphasizes on the practical based and hand-on experiences. Students those graduate can perform biomedical engineering practices immediately. The program has research collaboration with Glasgow University, Tokai University, and Joseph Fourier.

STUDY PLAN: CHEMICAL ENGINEERING

1st Year

1st Semester
- INTRODUCTION TO CALCULUS
- PHYSICS I
- CHEMISTRY
- INTRODUCTION TO ENGINEERING PROGRAMMING
- ENGINEERING MATERIALS
- INTERPRETATION AND ARGUMENTS
- ACADEMIC LISTENING AND SPEAKING

2nd Semester
- PHYSICS II
- ADVANCED CALCULUS
- ENGINEERING DRAWING
- ENGINEERING MECHANICS
- ORGANIC CHEMISTRY
- ORGANIC CHEMISTRY LABORATORY
- INNOVATIVE COMMUNICATION
- ACADEMIC READING AND WRITING

2nd Year

1st Semester
- DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
- PRINCIPLE CALCULATIONS IN CHEMICAL ENGINEERING
- THERMODYNAMICS
- INTRODUCTION TO CHEMICAL ENGINEERING AND MULTIDISCIPLINARY ENGINEERING
- FLUID DYNAMICS
- BIOCHEMISTRY
- CRITICAL THINKING

2nd Semester
- DESIGN AND ANALYSIS OF EXPERIMENTS
- CHEMICAL ENGINEERING THERMODYNAMICS
- HEAT AND MASS TRANSFER
- ANALYTICAL INSTRUMENTATION AND ANALYSIS
- ANALYTICAL CHEMISTRY LABORATORY
- DESIGN METHODS FOR INNOVATIONS
- CREATIVE THINKING
<table>
<thead>
<tr>
<th>3rd Year</th>
<th>1st Semester</th>
<th>2nd Semester</th>
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<tr>
<td></td>
<td>- Chemical Process Instrumentation</td>
<td>- Chemical Engineering Laboratory 2</td>
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<td>- Separation Processes</td>
<td>- Process Equipment Design</td>
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<td>- Chemical Engineering Laboratory 1</td>
<td>- Process Dynamics and Control</td>
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<td>- Chemical Engineering Kinetics and Reactor Design</td>
<td>- Safety in Chemical Engineering</td>
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<td>- Waste Treatment and Pollution Control</td>
<td>- Engineering Economics and Decision Tools for Business</td>
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<td>- Process Operations and Business Information</td>
<td>- Process Simulators in Chemical Engineering</td>
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<td>- Plant Visit</td>
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<td>- Pre-Project</td>
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<td>SUMMER</td>
<td>INDUSTRIAL INTERNSHIP</td>
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<td>4th Year</td>
<td>- Alternative Study</td>
<td>- Chemical Engineering Plant Design</td>
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<td>- Chemical Engineering Elective Course</td>
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<td>- Free Elective Course</td>
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<td>- Leadership and Personal Development</td>
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**STUDY PLAN: INDUSTRIAL AND MANAGEMENT SYSTEMS ENGINEERING**

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<th>1st Year</th>
<th>1st Semester</th>
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<tr>
<td></td>
<td>- Introduction to Calculus</td>
<td>- Physics 2</td>
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<td>- Physics 1</td>
<td>- Advanced Calculus</td>
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<td>- Chemistry</td>
<td>- Engineering Drawing</td>
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<td></td>
<td>- Introduction to Engineering Programming</td>
<td>- Engineering Mechanics</td>
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<td>- Engineering Materials</td>
<td>- Academic Reading and Writing</td>
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<td>- Academic Listening and Speaking</td>
<td>- Innovative Communication</td>
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<td>- Interpretation and Argument</td>
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<td>2nd Year</td>
<td>- Numerical Methods</td>
<td>- Operations Research</td>
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<td>- Differential Equations and Linear Algebra</td>
<td>- Engineering Economy</td>
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<td>- Intelligent Device and Digitals</td>
<td>- Discrete Event Simulation</td>
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<td>- Process Analysis and Redesign</td>
<td>- Automation Systems</td>
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<td>- Introduction to Database Design and Implementation</td>
<td>- Critical Thinking</td>
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<td>- Creative Thinking</td>
<td>- Probability and Statistics</td>
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<td>3rd Year</td>
<td>- Computer and Information Technology for Industrial Engineering</td>
<td>- Data Science and Data Analytics</td>
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<td>- Supply Chain Modelling</td>
<td>- Decision Modelling and Risk Analysis</td>
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<td>- Manufacturing Logistics and Warehouse Management</td>
<td>- Artificial Intelligence in Industrial Engineering</td>
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<td>- Human Factors in Engineering and Design</td>
<td>- Production Planning and Control</td>
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<td>- Quality Engineering</td>
<td>- Design Methods for Innovations</td>
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<td>- DATA SCIENCE AND DATA ANALYTICS</td>
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<td>- DECISION MODELLING AND RISK ANALYSIS</td>
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<td>- ARTIFICIAL INTELLIGENCE IN INDUSTRIAL ENGINEERING</td>
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<tr>
<td>SUMMER</td>
<td>INDUSTRIAL INTERNSHIP</td>
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STUDY PLAN: BIOMEDICAL ENGINEERING

1st YEAR
1st Semester
- INTRODUCTION TO ENGINEERING PROGRAMMING
- INTRODUCTION TO CALCULUS
- PHYSICS I
- CHEMISTRY
- ENGINEERING MATERIALS
- ACADEMIC LISTENING AND SPEAKING

2nd Semester
- DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
- BIOLOGY
- BIOMEDICAL ENGINEERING LAB I
- PHYSIOLOGY
- MEASUREMENT AND INSTRUMENTATION FOR BIOMEDICAL ENGINEERS

2nd YEAR
- ADVANCED CALCULUS
- PHYSICS II
- ENGINEERING DRAWING
- ENGINEERING MECHANICS
- PRINCIPLE OF BIOMEDICAL ENGINEERING
- ACADEMIC READING AND WRITING

3rd YEAR
MAJOR: BME-BMI-A, BME-BMI-B
- BIOMEDICAL INSTRUMENTATION
- BIOSTATISTICS
- CONTROL SYSTEM FOR BIOMEDICAL ENGINEERS
- BIOMEDICAL ELECTRONICS
- ADVANCED ELECTRIC CIRCUIT ANALYSIS OF BIOMEDICAL ENGINEERS
- BME PROBLEM BASED TRAINING LAB I
- BIOMEDICAL ENGINEERING APPLICATION

MAJOR: BME-HIT-A, BME-HIT-B
- BIOMEDICAL INSTRUMENTATION
- BIOSTATISTICS
- FUNDAMENTAL OF DATABASE SYSTEM
- COMPUTER COMMUNICATION NETWORKS
- ANDROID PROGRAMMING IN BIOMEDICAL ENGINEERING APPLICATION
- BME PROBLEM BASED TRAINING LAB I
- BIOMEDICAL ENGINEERING APPLICATION

MAJOR: BME-MS
- BIOMEDICAL INSTRUMENTATION
- BODY MOVEMENT AND CONTROL - LOCOMOTOR SYSTEM
- BODY FLUID HOMEOSTASIS I - BLOOD AND CIRCULATION
- BODY HEALTH AND HEALTHY LIVING
- BME PROBLEM BASED TRAINING LAB I
- BIOMEDICAL ENGINEERING APPLICATION

SUMMER
- INDUSTRIAL INTERNSHIP
STUDY PLAN: CIVIL ENGINEERING

1ST YEAR
- INTRODUCTION TO ENGINEERING PROGRAMMING
- INTRODUCTION TO CALCULUS
- PHYSICS I
- CHEMISTRY
- ENGINEERING MATERIALS
- ACADEMIC LISTENING AND SPEAKING

2ND YEAR
- NUMERICAL METHODS
- DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
- SURVEYING
- MECHANICS OF MATERIALS I
- HYDRAULICS
- HYDRAULICS LABORATORY
- INTRODUCTION TO ENVIRONMENTAL PRINCIPLES

3RD YEAR
- STRUCTURAL ANALYSIS
- SOIL MECHANICS
- SOIL MECHANICS LABORATORY
- TRANSPORTATION ENGINEERING
- REINFORCED CONCRETE DESIGN
- CE ELECTIVE

4TH YEAR
- CE ELECTIVE
- CE ELECTIVE
- CE PROJECT PREPARATION
- CONSTRUCTION ENGINEERING AND MANAGEMENT
- CE ELECTIVE
- CE PROJECT
- COOPERATIVE EDUCATION
- STUDY ABROAD

MAJOR: BME-BMI-A, BME-HIT-A
- BME ELECTIVE
- BME ELECTIVE
- BME CAPSTONE DESIGN

MAJOR: BME-MS
- BODY HOMEOSTASIS II – PULMONARY AND RENAL SYSTEMS
- BODY ENERGY SYSTEMS—LIVER, NUTRITION AND METABOLISM
- BODY REGULATORY SYSTEM—AUTONOMIC NERVOUS AND ENDOCRINE SYSTEMS
- BME CAPSTONE DESIGN

MAJOR: BME-BMI-A, BME-HIT-A, BME-MS
- BME ELECTIVE
- BME ELECTIVE
- BME SENIOR PROJECT

ADVANCED CALCULUS
- PHYSICS II
- ENGINEERING DRAWING
- ENGINEERING MECHANICS
- ACADEMIC READING AND WRITING

ADVANCED MATHEMATICS FOR CIVIL ENGINEERING
- CONCRETE AND CIVIL ENGINEERING MATERIALS
- CIVIL ENGINEERING MATERIALS TESTING LABORATORY
- HYDROLOGY
- THEORY OF STRUCTURES
- PROBABILITY AND STATISTICS
- SURVEYING CAMP

HYDRAULIC ENGINEERING
- TIMBER AND STEEL DESIGN
- FOUNDATION ENGINEERING AND DESIGN
- CE ELECTIVE
- CONSTRUCTION ENGINEERING AND MANAGEMENT
- CE ELECTIVE
- CE PROJECT
- COOPERATIVE EDUCATION
- STUDY ABROAD
# Study Plan: Computer Innovation Engineering

Minimum credits required for graduation: 128 credits + Innovative Internship requirements
Credit notation: (L - E - S) L = Lecture / Learning hours, E = Laboratory hours, S = Self-study hours

## 1st Year

### 1st Semester
- Discrete Mathematics: 4(4-0-8)
- Fundamentals of Programming: 4(3-3-8)
- Introduction to Calculus: 3(3-0-6)
- Physics I: 4(3-3-8)
- (GenEd Elective): 3(3-0-6)
- (ESL) Academic Listening and Speaking **Audits**: 4(4-0-8)

### 2nd Semester
- (GenEd) Interpretation and Arguments: 4(4-0-8)
- Intelligent Devices and Digital Systems: 4(3-3-8)
- Advanced Calculus: 3(3-0-6)
- Physics II: 4(3-3-8)
- (ESL) Academic Reading and Writing **Audits**: 4(4-0-8)

## 2nd Year

### 1st Semester
- Emerging Trends in Engineering: 1(1-0-2)
- (GenEd Elective): 3(3-0-6)
- (GenEd) Innovative Communication: 4(4-0-8)
- Principles of Computation and Applications: 4(3-3-8)
- Cyber-Physical System Design: 4(3-3-8)

### 2nd Semester
- (GenEd) Design Methods for Innovations: 4(4-0-8)
- (GenEd Elective): 3(3-0-6)
- (Science & Math) Probability and Statistics: 4(4-0-8)
- Computer Systems: 4(3-3-8)
- Information Network and Cyber Security: 4(3-3-8)

## For Regular Students

### 3rd Year

### 1st Semester
- (Science & Mathematics Elective): 4(4-0-8)
- Database Technology: 4(3-3-8)
- Elements of Software Construction: 4(3-3-8)
- Cloud Computing: 4(3-3-8)

### 2nd Semester
- (GenEd) Lean Startup and Agile Business: 4(4-0-8)
- (Science & Mathematics Elective): 4(4-0-8)
- (Free Elective): X(x-x-x)
- Internet of Things and Smart Systems: 4(3-3-8)
- Data Analytics: 4(3-3-8)

### For Co-Op/Study Abroad Students

### 3rd Year

### 1st Semester
- (Science & Mathematics Elective): 4(4-0-8)
- Database Technology: 4(3-3-8)
- Elements of Software Construction: 4(3-3-8)
- Cloud Computing: 4(3-3-8)

### 2nd Semester
- (GenEd) Lean Startup and Agile Business: 4(4-0-8)
- (Science & Mathematics Elective): 4(4-0-8)
- Internet of Things and Smart Systems: 4(3-3-8)
- Data Analytics: 4(3-3-8)
- (CIE Elective): 4(3-3-8)

### 4th Year

Cooperative Education or Study Abroad
- Cooperative Education: 6 (0-45-0)
- Study Abroad

- (CIE Elective): 4(3-3-8)
- (Free Elective): X(x-x-x)
- (Free Elective): X(x-x-x)
- (GenEd) Innovation Management: 4(4-0-8)
- Computer Innovation Engineering Capstone Design: 4(3-4-10)