



FACULTY OF ENGINEERING KHON KAEN UNIVERSITY

Program	General Education Course (Credit)	Area of Concentration Course (Credit)	Free Elective Course (Credit)	Total (Credit)
Civil Engineering (CE)	30	111	6 – 9	147
Electrical Engineering (EE)		107		143
Agricultural Engineering (AE)		118		148
Industrial Engineering (IE)		105		141
Mechanical Engineering (ME)		110		146
Environmental Engineering (Envi)		109		145
Chemical Engineering (ChE)		110		146
Computer Engineering (CoE)		104		140
Electronic Systems Engineering (ESE)		105		141
Telecommunications Engineering (International Program)		108		144
Logistics Engineering (International Program)		105		144
Chemical Engineering (International Program)		110		146
Digital Media Engineering (International Program)		107		143



General Education Course (30 Credits) for Bachelor Degree Programs

- **Foreign Languages Course (12 credits):**

English I English II English III English IV

- **Humanities and Social Sciences Course (12 credits):**

Leadership and Management

Learning Skill Development

Multiculturalism (CE/AE/IE/ME/Env/ChE/CoE) or Local Wisdom (EE/ESE)

Work Preparation and Continuing Self-Development

Basic Computer and Information Technology (non credit, all programs except CoE)

- **Mathematics and Science Course (6 credits):**

Creative Thinking and Problem Solving

Entrepreneurial Spirit Incubation

General Education Course (30 Credits) for International Programs

- **Communications Skill Courses (12 credits):**

English for Communication in Multicultural Societies

Academic English

Critical Reading and Writing

Thai for Foreigners I or Japanese for Communication I or Chinese for Communication

- **Self and Social Responsibility, Moral and Ethics Courses (6 credits):**

Aesthetics for Life

Wellness Dimension

- **Morality, Ethics and Self and Social Responsibility Courses (6 credits):**

Multiculturalism

Globalization Studies

- **Critical Thinking and Research Skill Courses (6 credits):**

Research Applications for Problem Solving

Information Literacy

- **Computer and Information Technology Skill Courses (3 credits):**

Basic Computer and Information Technology (non credit)

Free Elective Course (6 – 9 Credits)

Choose subjects that open in Khon Kaen University at least 6 credits but not exceed 9 credits

Telecommunications Engineering

International Program



Area of Concentration Course (108 Credits)

- **Basic Course** (37 credits):

Statics
Engineering Drawing
General Chemistry
Calculus for Engineering I
Calculus for Engineering III
Fundamentals of Physics I
General Physics Laboratory I
Engineering Materials

Engineering Workshop Practice
Computer Programming
General Chemistry Laboratory
Calculus for Engineering II
Differential Equations for Engineering
Fundamentals of Physics II
General Physics Laboratory II

- **Core Course** (59 or 62 credits)

- **Basic Profession course for Telecommunications Engineering** (29 credits):

Electric Circuits
Application of Probability and Random Process
Electromagnetic Fields
Electrical Engineering Laboratory I
Computational Methods
Elementary Signal Transform Theory and Linear Algebra

Electrical Instruments and Measurements
Digital Logic Design
Analogue Electronics I
Electrical Engineering Laboratory II
Control Systems

- **Profession course for Telecommunications Engineering** (27 or 30 credits):

Principle of Communication
Communication Networks and Transmission Lines
Digital Communication
Antenna Engineering
Telecommunications Engineering Laboratory I
Telecommunications Engineering Laboratory II

Digital Signal Processing
Broadband Communication
Data Communication and Networking
Mobile Communication

Telecommunications Engineering Pre-project (for student who choose Practical Training)
Telecommunications Engineering Project (for student who choose Practical Training)

- **Practical Training and Cooperative Education** (1 or 6 credits): choose one of these subjects; Practical Training (1 credit, non credit) or Cooperative Education in Telecommunications Engineering (6 credits)
- **Prescribed Elective Course:** select these subjects at least 9 credits (3 subjects) for student who choose Cooperative Education in Telecommunications Engineering and at least 12 credits (4 subjects) for student who choose Practical Training:
 - Acoustic Engineering
 - Electromagnetic Wave Propagation
 - Optical Communication
 - Computer Network Design and Configuration
 - Special Topics in Telecommunications Engineering I
 - Special Topics in Telecommunications Engineering II
 - Microwave Engineering
 - Electromagnetic Compatibility
 - Forward Error Correcting Coding



Logistics Engineering International Program



Area of Concentration Course (105 Credits)

• **Basic Course** (34 credits):

Statics
Engineering Drawing
General Chemistry
Calculus for Engineering I
Calculus for Engineering III
Fundamentals of Physics I
General Physics Laboratory I

Engineering Workshop Practice
Computer Programming
General Chemistry Laboratory
Calculus for Engineering II
Differential Equations for Engineering
Fundamentals of Physics II
General Physics Laboratory II

• **Core Course** (62 or 65 credits)

• **Basic Profession course for Logistics Engineering** (16 credits):

Engineering Materials
Manufacturing Processes
Fundamentals of Electrical Engineering
Fundamentals of Electrical Engineering Laboratory

Engineering Statistics
Thermodynamics I

• **Profession course for Logistics Engineering** (43 or 46 credits):

Industrial Engineering Laboratory
Manufacturing Engineering Laboratory
Computer Application in Industry
Industrial Plant Design and Facilities Planning
Engineering Economics
Materials Handling Engineering
Seminar for Logistics Engineering
Network Flow Modeling for Logistics Application
Mechanical and Materials Engineering Laboratory
Industrial Work Study and Productivity Improvement
Logistics Engineering Pre-Project (for student who choose Practical Training)
Logistics Engineering Project (for student who choose Practical Training)

Operations Research
Production Planning and Control
Quality Control
Safety Engineering
Logistics and Supply Chain Management
Inventory and Warehouse Management
Transportation and Distribution

• **Practical Training and Cooperative Education** (1 or 6 credits): choose one of these subjects; Practical Training (1 credit, non credit) or Cooperative Education in Logistics Engineering (6 credits)

• **Prescribed Elective Course:** select these subjects at least 6 credits (2 subjects) for student who choose Cooperative Education in Logistics Engineering and at least 9 credits (3 subjects) for student who choose Practical Training:

Industrial Cost Analysis and Budgeting

Computer Simulation Technique

Engineering Management

Introduction to Quality Engineering and Management

Management of Logistics Information Technology

Introduction to Railway System Engineering

Railway System Planning and Administration

Special Topics in Logistics Engineering

Transport Logistics Management Systems

Performance Analysis and Multiple Criteria Decision

Industrial Management

Project Feasibility Study

Marketing for Engineers

Introduction to Probability Models

Train Operation and Control

Railway Project Administration

Introduction to Rail Track Design



Digital Media Engineering

International Program



Area of Concentration Course (107 Credits)

- **Basic Course (27 credits):**

Engineering Workshop Practice
Calculus for Engineering I
Calculus for Engineering III
Fundamentals of Physics I
General Physics Laboratory I
Fundamentals of Computer Programming

Engineering Drawing
Calculus for Engineering II
Differential Equations for Engineering
Fundamentals of Physics II
General Physics Laboratory II

- **Core Course (59 or 62 credits)**

Introduction to Digital Media
Digital Electronics
Object Oriented Programming
Introduction to Discrete Mathematics
Computer Graphics
Interactive Web Programming
Professional Skills Development
Game Programming
Project Management Body of Knowledge
Computer Networking and Internet Technology

Art and Design Foundation
Introduction to Data Structures
Object Oriented Programming Laboratory
Digital Media Processing
3D Modeling and Animation
Computer-Generated Imagery
User Interface and User Experience Design
Game Design
Multimedia Database
Interaction Design

Digital Media Engineering Pre-Project (for student who choose Practical Training)
Digital Media Engineering Project (for student who choose Practical Training)

*** choose one of these subjects; Practical Training (1 credit, non credit) or Cooperative Education in Digital Media Engineering (6 credits)

- **Prescribed Elective Course:** select these subjects at least 18 credits (6 subjects) for student who choose Cooperative Education in Digital Media Engineering and at least 21 credits (7 subjects) for student who choose Practical Training:

Parallel Programming

Character Animation and Control

Shading, Lighting and Rendering

Character and Theme Design

Advanced Game Programming

Advanced Computer Graphics

Digital Compositing and Post-production

Artificial Intelligence

Virtual Reality

Sound Design for Game and Animation

Information Architecture and Visualization

Ubiquitous Computing

e-Learning

Introduction to Software Engineering

Effective Presentation Technique

3D Animation Pipeline

3D modelling and Digital Sculpting

Visual Effects

Mobile Application Development

Python Scripting for Animation

3D Animation Pre-Production

Online Game Development

Dynamic Simulation

Gamification

Serious Game

Computer network programming

Social Media

Special Topics in Digital Media Engineering



Chemical Engineering

International Program



Area of Concentration Course (110 Credits)

- **Basic Course** (34 credits):

Statics
Engineering Drawing
General Chemistry
Calculus for Engineering I
Calculus for Engineering III
Fundamentals of Physics I
General Physics Laboratory I

Engineering Workshop Practice
Computer Programming
General Chemistry Laboratory
Calculus for Engineering II
Differential Equations for Engineering
Fundamentals of Physics II
General Physics Laboratory II

- **Core Course** (67 or 70 credits)

- **Basic Profession course for Chemical Engineering** (20 credits):

Engineering Materials
Material and Energy Balances
Basic Organic Chemistry
Physical Chemistry
Analytical Chemistry Laboratory for Chemical Engineers

Design of Engineering Experiments
Chemical Process Instrumentation
Basic Organic Chemistry Laboratory

- **Profession course for Chemical Engineering** (44 or 47 credits):

Chemical Engineering Thermodynamics
Unit Operations for Momentum Transfer
Heat and Mass Transfer
Unit Operations for Mass Transfer
Mass Transfer Laboratory
Safety Management in Chemical Industry
Chemical Kinetics and Reactor Design
Process Cost Estimation
Chemical Plant Design

Momentum Transfer
Momentum Transfer Laboratory
Unit Operations for Heat Transfer
Heat Transfer Laboratory
Process Modeling and Simulation
Process Dynamics and Control
Seminar in Chemical Engineering
Chemical Industrial Processes

Chemical Engineering Pre-Project (for student who choose Practical Training)
Chemical Engineering Project (for student who choose Practical Training)

- **Practical Training and Cooperative Education** (1 or 6 credits):

choose one of these subjects; Practical Training (1 credit, non credit) or Cooperative Education in Chemical Engineering (6 credits)

- **Prescribed Elective Course:** select these subjects at least 6 credits (2 subjects) for student who choose Cooperative Education in Chemical Engineering and at least 9 credits (3 subjects) for student who choose Practical Training:

Separation Technology

Computer Applications in Chemical Engineering

Composite and Product Design

Electrochemical Technology for Chemical

Alternative fuels and renewable energy technologies

Special Topics in Chemical Engineering

Environmental Chemical Engineering

Air Pollution Control in Chemical Plant

Industrial Work Study and Productivity Improvement

Introduction to Process Design for Petroleum Industries

Polymer Technology

Biomass Conversion Technology

Introduction to Encapsulation

Engineering Engineering Management

Industrial Management

Basic Biochemical Engineering

Manufacturing Processes

Operations Research

Quality Control

