THE RIGHT CHEMISTRY FOR SUCCESS

UNIVERSITI KUALA LUMPUR MALAYSIAN INSTITUTE OF CHEMICAL AND BIOENGINEERING TECHNOLOGY (UniKL MICET)

www.unikl.edu.my
Universiti Kuala Lumpur Kampus Cawangan Malaysian Institute of Chemical and Bioengineering Technology (UniKL MICET)

Universiti Kuala Lumpur Kampus Cawangan Malaysian Institute of Chemical & Bioengineering Technology (UniKL MICET), Melaka is a higher educational institution that specializes in chemical-based engineering technology education. It is fully owned by Majlis Amanah Rakyat (MARA), located in Taboh Naning, Vendor City, Alor Gajah, Melaka, approximately 35km away from Melaka town which was declared as “Historical City” by UNESCO on 7th July 2008.

UniKL MICET was established in 2002 and was grouped under Universiti Kuala Lumpur, under Universiti Teknikal MARA Sdn Bhd. UniKL MICET is the pioneer in providing hands-on chemical based technology education in Malaysia. The Chemical and Bioengineering Technology programmes offered by UniKL MICET made it one of the earliest technical universities in this country. An accomplishment of this university is its up-to-date and modern equipment used in the chemical technology field.

Being Malaysia’s first technical University, UniKL MICET is set up with complete, state of the art latest plant design laboratories, Plant Design Management System (PDMS) and SMART 3D software and up-to-date equipment in the field of Chemical Engineering Technology. It has 43 labs; among them are Chemical Analysis Lab, Basic Chemical Lab, Chemical Technology Lab, Preparation Lab, Polymer Test and Assessment Lab, Latex Processing Lab, Food Analysis and Processing Lab, Computer Labs, Pilot Plant and Water Treatment Lab with hands on learning.

PROGRAMS OFFERED

- **Foundation in Science**
  JPT/BPP (N/010/3/0530) 01/25, MQA/PA 12391

- **Diploma in Chemical Engineering Technology (Food)**
  JPT/BPP (R/524/4/0038) 10/24, MQA A 10657

- **Diploma in Chemical Engineering Technology**
  JPT/BPP (N/524/4/0072) 04/26, MQA/PA 14383

- **Diploma in Chemical Engineering Technology (Food)**
  JPT/BPP (R/524/4/0038) 10/24, MQA FA 14409

- **Bachelor of Chemical Engineering with Honours**
  JPT/BPP (R/524/6/0010) 07/23, MQA/PA 1722

- **Bachelor of Chemical Engineering Technology (Process) with Honours**
  JPT/BPP (R/524/6/0061) 02/23, MQA/PA 11928

- **Bachelor of Chemical Engineering Technology (Bioprocess) with Honours**
  JPT/BPP (R/524/6/0015) 07/29, MQA/PA 11939

- **Bachelor of Chemical Engineering Technology (Environment) with Honours**
  JPT/BPP (R/524/6/0062) 02/29, MQA/PA 11932

- **Bachelor of Chemical Engineering Technology (Food) with Honours**
  JPT/BPP (R/524/6/0014) 07/29, MQA/PA 11931

- **Bachelor of Chemical Engineering Technology (Polymer) with Honour**
  JPT/BPP (R/524/6/0060) 02/29, MQA/PA 11930

- **Bachelor of Food Safety and Quality Technology**
  JPT/BPP (N/541/6/0059) 04/26, MQA/PA 14407

ENTRY REQUIREMENTS

- Pass in Sijil Pelajaran Malaysia (SPM) / O-Level with at least credits in 5 subjects; OR
- Other equivalent qualifications
DIPLOMA

- Pass in SPM or its equivalent with at least credits (minimum Grade C and higher) in Mathematics and Natural Sciences or Technical Based Subjects; OR
- Pass in O-Level with minimum Grade C in three (3) subjects including Mathematics and science or technical based subjects; OR
- Accredited Certificate in Engineering, Engineering Technology, Technical or Malaysian Skills Certificate Level 3 with PT3, or its equivalent; OR
- Recognized related Technical/Vocational/Skills qualifications AND an adequate and relevant bridging programme; OR
- Pass Technical/Vocational/Skills qualifications and recognized and approve by UniKL Senate; OR
- Pass in Sijil Vokasional Malaysia (SVM) qualification been recognized by government of Malaysia and according to approval by UniKL Senate. SVM is recognized as equivalent to 3 credits SPM for candidates who obtain;
  - Academic CGPA is equal to or greater than 2.00;
  - Vocational CGPA is equal to or greater than 2.67 and competent in all vocational modules;
  - Credit in Bahasa Melayu with SVM Code 1104;
  - Pass in Sejarah for graduate cohort 2013-2016.

BACHELOR OF CHEMICAL ENGINEERING TECHNOLOGY

- Pass in STPM/Matriculation/Foundation or its equivalent, with minimum CGPA 2.0 and at least Grade C in Mathematics and one relevant Science subject; OR
- Pass in International Baccalaureate (IB) with at least 24 points; OR
- Pass in A-Level with minimum Grade D in Mathematics one (1) relevant Science subject; OR
- Pass in Sijil Tinggi Agama Malaysia (STAM) with minimum grade of Jayyid and pass SPM or its equivalent with minimum Grade C in Mathematics and one relevant Physical Science subjects (i.e; Physic, Chemistry & etc); OR
- Recognized Diploma in Engineering/Engineering Technology or its equivalent with CGPA 2.0; OR
- Recognized related Technical/Vocational/Skills Diploma with CGPA 2.0
- Pass Diploma Kemahiran Malaysia (DKM)/ Diploma Lanjutan Kemahiran Malaysia (DLKM)/ Diploma Vokasional Malaysia (DVM) with a minimum CGPA of 2.50 and the program must get Full Accreditation (FA) by MQA or others Accreditation bodies that had been recognized by government of Malaysia and according to approval by UniKL Senate; OR
- Pass the DKM/DLKM/DVM with a minimum CGPA of 2.00 AND have at least two (2) years of work experience in the related field. The program must get Full Accreditation (FA) by MQA or others Accreditation bodies that had been recognized by government of Malaysia and according to approval by UniKL Senate

BACHELOR OF FOOD SAFETY AND QUALITY TECHNOLOGY

- Pass in STPM or its equivalent with at least Grade C (NGMP 2.00) in TWO (2) subjects; OR
- Pass Matriculation/Foundation in any IPTA/IPTS/permitted institution to conduct foundation programs with CGPA 2.00; OR
- Pass Diploma in related disciplines with CGPA 2.00; OR
- Pass Advanced Diploma in related disciplines with CGPA 2.0; OR
- Pass STAM (Grade Jayyid) or its equivalent; OR
- Others recognized qualifications or its equivalent.
- Pass Diploma Kemahiran Malaysia (DKM)/ Diploma Lanjutan Kemahiran Malaysia (DLKM)/ Diploma Vokasional Malaysia (DVM) with a minimum CGPA of 2.50 and the program must get Full Accreditation (FA) by MQA or others Accreditation bodies that had been recognized by government of Malaysia and according to approval by UniKL Senate; OR
- Pass the DKM/DLKM/DVM with a minimum CGPA of 2.00 AND have at least two (2) years of work experience in the related field. The program must get Full Accreditation (FA) by MQA or others Accreditation bodies that had been recognized by government of Malaysia and according to approval by UniKL Senate

BACHELOR OF CHEMICAL ENGINEERING

- Pass in STPM/Matriculation/Foundation or its equivalent, with a minimum CGPA 2.0 and a grade C in Mathematics and one (1) of the Physical Science subjects (i.e; Physic, Chemistry and etc); OR
- Pass in International Baccalaureate Diploma (IBD) with minimum of 24 points and attained a minimum score of 4 in Mathematics and one (1) of the Physical Science subjects (i.e; Physic, Chemistry and etc); OR
- Pass in A-Level with minimum Grade D in Mathematics and one (1) of the Physical Science subjects (i.e; Physic, Chemistry and etc); OR
- Pass in Sijil Tinggi Agama Malaysia (STAM) with minimum grade of Jayyid and pass SPM or equivalent with minimum Grade C in Mathematics and one relevant Physical Science subjects (i.e; Physic, Chemistry & etc); OR
- Pass in Diploma (Level 4, KKM) related to Engineering/Engineering Technology fields from higher education provider recognized by Government of Malaysia with a minimum CGPA 2.00

These entry requirements serve as guidelines only. For detailed information on the entry requirements please log on to: www.unikl.edu.my
BACHELOR OF CHEMICAL ENGINEERING WITH HONOURS

Program Contents

Year 1 - Semester 1
- Mathematics for Engineers 1
- Analytical and Organic Chemistry
- Engineering Practice and Professionalism
- Fluid Mechanics
- Fundamental English
- Tamadun Islam dan Tamadun Asia [Lima] / Bahasa Melayu Komunikasi 2 (International)

Year 2 - Semester 2
- Physical Chemistry
- Chemical Engineering Laboratory 1
- Material Balance
- Mathematics for Engineers 2
- Fundamentals of Electrical and Electronic Engineering
- Hubungan Etnik (Local) / Pengajian Malaysia 3 (International)
- Co-curriculum 2

Year 3 - Semester 5
- Industrial Safety and Health
- Numerical Methods in Chemical Engineering
- Separation Processes 1
- Introduction to Environmental Engineering
- Reaction Engineering 2
- Technopreneurship
- Mandarin 2

Year 3 - Semester 6
- Process Control and Instrumentation
- Reaction Design and Economics
- Chemical Engineering Laboratory 3
- Separation Processes 2
- Particle Technology
- Process Analysis and Simulation
- Professional English 2

Short Semester Inter Semester (Between Semester 6 and 7)
- Industrial Training

Year 4 - Semester 8
- Engineering Final Year Project 2
- Elective 2
- Elective 3
- Innovation Management

Elective Subjects
- Marketing for Chemical Engineering Technologist
- Chemical Engineering Technologist: Organizational Behavior
- Enzyme Technology
- Pharmaceutical Technology
- Rubber Engineering
- Biopolymer
- Hazard Analysis Critical Control Point (HACCP)
- Environmental Impact Assessment
- Air Pollution Control Technology
- Wastewater Treatment Technology

Career Path
- Chemical Engineer
- Petroleum Engineer
- Food Engineer
- Process Control Engineer
- Quality Manager
- Biomedical Engineer

BACHELOR OF CHEMICAL ENGINEERING TECHNOLOGY (POLYMER) WITH HONOURS

Program Contents

Year 1 - Semester 1
- Mathematics 1
- Engineering Technologist in Society
- Tamadun Islam dan Tamadun Asia (ITITAS)/ Bahasa Melayu Komunikasi 2
- Foreign Language 1 (Arabic/Mandarin)
- Engineering Drawing & Computing
- Fundamental English

Year 1 - Semester 2
- Physical Chemistry
- Mathematics 2
- Engineering Design
- Hubungan Etnik / Pengajian Malaysia 3
- Chemical Process Principles
- Fluid Mechanics
- Foreign Language 2 (Arabic/Mandarin)

Year 3 - Semester 5
- Polymer Synthesis
- Technopreneurship
- Latex Technology
- Process Instrumentation & Control
- Polymer Rheology
- Rubber Technology
- Rubber Engineering
- Biopolymer
- Hazard Analysis Critical Control Point (HACCP)
- Environmental Impact Assessment
- Air Pollution Control Technology
- Wastewater Treatment Technology

Elective Subjects
- Marketing for Chemical Engineering Technologist
- Chemical Engineering Technologist: Organizational Behavior
- Enzyme Technology
- Pharmaceutical Technology

Career Path
- Polymer Chemist
- Development Chemist
- Formulations Chemist - Coatings – R&D
- Product Development Engineer [Chemist]
- Rubber and Latex Industries
- Plastic and Bioplastic Industries

BACHELOR OF CHEMICAL ENGINEERING TECHNOLOGY (ENVIRONMENT) WITH HONOURS

Program Contents

Year 1 - Semester 1
- Mathematics 1
- Engineering Drawing and Computing
- Tamadun Islam dan Tamadun Asia (ITITAS)/ Bahasa Melayu Komunikasi 2
- Engineering Technologist in Society
- Fundamental English
- Foreign Language 1 (Arabic/Mandarin)

Year 1 - Semester 2
- Mathematics 2
- Physical Chemistry
- Chemical Process Principles
- Engineering Design
- Fluid Mechanics
- Hubungan Etnik / Pengajian Malaysia 3
- Foreign Language 2 (Arabic/Mandarin)

Year 2 - Semester 2
- Thermodynamics
- Transport Process Principles
- Hubungan Etnik / Pengajian Malaysia 3
- Analytical & Organic Chemistry
- Fundamental of Electrical & Electronics
- Introduction to Environmental Engineering 2

Year 2 - Semester 4
- Environmental Management System
- Professional English 2
- Surface and Groundwater Hydrology
- Reaction Engineering
- Environmental Microbiology & Chemistry
- Industrial Safety & Health
BACHELOR OF CHEMICAL ENGINEERING TECHNOLOGY (PROCESS) WITH HONOURS

JPT/BPP (R2/524/6/0061) 02/29, MQA/FA 11928

PROGRAM CONTENTS

YEAR 1 - SEMESTER 1
- Mathematics I
- English
- Engineering Technologist in Society
- Process Dynamics & Control
- Technopreneurship
- Numerical Methods in Chemical Engineering
- Process Instrumentation & Control
- Design Project 1 (Design & Feasibility Study of Plant)
- Plant Utilities & Maintenance

YEAR 2 - SEMESTER 2
- Physical Chemistry
- Mathematics 2
- Engineering Design
- Hazard Analysis: Ethniki Pengajian Malaysia 3
- Chemical Process Principles
- Fluid Mechanics
- Foreign Language 2 (Arabic/Mandarin)
- English

YEAR 3 - SEMESTER 5
- Design Project 2 (Plant & Process Optimization)
- Petrochemical & Petroleum Refining Technology
- Engineering Statistics
- Oil & Gas Process Technology
- Final Year Project 1
- Elective 1

YEAR 4 - SEMESTER 7
- Final Year Project 2
- Environmental Engineering Design
- Innovation Management
- Pollution Prevention & Industrial Waste Minimization
- Elective 2
- Elective 3

YEAR 4 - SEMESTER 8
- Industrial Training

ELECTIVE SUBJECTS
- Marketing for Chemical Engineering Technologist
- Chemical Engineering Technologist Organizational Behaviour
- Enzyme Technology
- Phytopharmaceutical Technology
- Rubber Engineering

CAREER PATH
- Instrumentation Specialist
- Chemical Process Engineer
- Waste and Water Treatment

BACHELOR OF CHEMICAL ENGINEERING TECHNOLOGY (FOOD) WITH HONOURS

JPT/BPP (R3/524/6/0014) 07/29, MQA/FA 11931

PROGRAM CONTENTS

YEAR 1 - SEMESTER 1
- Mathematics 1
- Engineering Technologist in Society
- Tamadun Islam & Tamadun Asia (TIAS)/Bahasa Melayu Komunikasi 2
- Foreign Language 1 (Arabic/Mandarin)
- Engineering Drawing & Computing
- Fundamental English

YEAR 2 - SEMESTER 2
- Mathematics 2
- Engineering Design
- Hazard Analysis: Ethniki Pengajian Malaysia 3
- Chemical Process Principles
- Fluid Mechanics
- Foreign Language 2 (Arabic/Mandarin)
- English

YEAR 3 - SEMESTER 6
- Food Processing and Innovation
- Food Process Technology
- Engineering Statistics
- Oil & Gas Process Technology
- Final Year Project 1
- Elective 1

YEAR 4 - SEMESTER 7
- Final Year Project 2
- Food Plant Design
- Innovation Management
- Halal Technology
- Elective 2
- Elective 3

YEAR 4 - SEMESTER 8
- Industrial Training

ELECTIVE SUBJECTS
- Marketing for Chemical Engineering Technologist
- Chemical Engineering Technologist Organizational Behaviour
- Enzyme Technology
- Phytopharmaceutical Technology
- Rubber Engineering

CAREER PATH
- Chemical Process Engineer
- Process Safety Engineer
- Control System Engineer - Petrochemicals/Refining/Oil
- Manufacturing Process Engineer, Chemical Operations

UnIKL MICET
# Bachelor of Chemical Engineering Technology (Bioprocess) with Honours

**Program Contents**

**Year 1 - Semester 1**
- Mathematics I
- Engineering Technology in Society
- Tamadun Islam & Tamadun Asia (TITAS)/Bahasa Melayu Komunikasi 2
- Foreign Language 1 (Arabic/Mandarin)
- Engineering Drawing & Computing
- Fundamental English

**Year 1 - Semester 2**
- Physical Chemistry
- Mathematics 2
- Engineering Design
- Hubungan Etnik / Pengajian Malaysia 1
- Chemical Process Principles
- Fluid Mechanics
- Foreign Language 2 (Arabic/Mandarin)

**Year 2 - Semester 3**
- Fundamental of Electric & Electronics
- Analytical & Organic Chemistry
- Thermodynamics
- Transport Process Principles
- Introduction to Environmental Engineering Technology
- Insu Kadmamperan Muslim di Malaysia/Culture and Lifestyle in Malaysia 2

**Year 2 - Semester 4**
- Principles of Bioprocess Technology
- Professional English 2
- Reaction Engineering
- Industrial Safety & Health
- Co-curriculum: Principle of Microbiology & Biochemistry

**Year 3 - Semester 5**
- QA & QC in Bio Product
- Bioprocess Development & Equipment
- Process Instrumentation & Control
- Bioseparations Engineering Technology
- Biomedical Technique

**Year 3 - Semester 6**
- Bioprocess Design Project 1
- Engineering Statistics
- Final Year Project 1 (Proposal)
- Oil & Fat Process Technology
- Elective 1
- Elective 2

**Year 4 - Semester 7**
- Final Year Project 2 Implementation
- Bioprocess Design Project 2
- Elective 3
- Innovation Management

**Year 4 - Semester 8**
- Industrial Training

## Elective Subjects
- Marketing for Chemical Engineering Technologist
- Chemical Engineering Technologist
- Organizational Behavior
- Enzyme Technology
- Phytochemical Technology
- Rubber Engineering
- Biopolymer
- Hazard Analysis Critical Control Point (HACCP)
- Environmental Impact Assessment
- Air Pollution Control Technology
- Wastewater Treatment Technology

**Career Path**
- Bio Process Engineer
- Downstream Fermentation Process
- Engineer – Bioprocess R&D
- Bio-product Researcher
- Oleochemical Industries
- Cosmetics and Skincare Industries
- Biopharmaceutical Industries

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# Bachelor of Food Safety and Quality Technology

**Program Contents**

**Year 1 - Semester 1**
- Tamadun Islam & Tamadun Asia (TITAS)/Bahasa Melayu Komunikasi 2
- Insu Kadmamperan Muslim di Malaysia/Culture and Lifestyle in Malaysia
- Hubungan Etnik / Pengajian Malaysia 3
- English for Technologist
- Introduction to Food Safety and Quality Technology
- Mathematics I
- Analytical and Organic Chemistry

**Year 2 - Semester 3**
- Innovation Management
- Food Product Manufacturing
- Global Food Security
- Microbiological Food Safety
- Food Analysis and Sensory Evaluation
- Engineering Statistics
- Industrial Safety & Health

**Year 2 - Semester 4**
- Co-curriculum: Food Safety and Packaging Technology
- Food Safety and Legislation
- Food Ingredients
- HALAL Management System
- Process Instrumentation & Control

**Year 3 - Semester 5**
- Applied Food Product Manufacturing
- Industrial Final Year Project

**Year 3 - Semester 6**
- Applied Food Quality and Standard
- Refer to Electives
- Industrial Training

**Year 4 - Semester 7**
- Final Year Project 2
- Food Plant Design
- Innovation Management
- Halal Technology
- Elective 2
- Elective 3

**Year 4 - Semester 8**
- Industrial Training

## Elective Subjects
- Applied Halal Management System
- Applied Food Product Design and Development
- Applied Food Safety and Legislation
- Applied Supply Chain Management System
- Applied Industrial Safety & Health

## Career Path
- Food Service Manager
- Quality Control
- Halal Executive
- Sales Executive
- Technical / Quality Manager – Grocery Food

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DIPLOMA IN CHEMICAL ENGINEERING TECHNOLOGY

PROGRAM CONTENTS

YEAR 1 - SEMESTER 1
- Religious Practices in Malaysia
- Co-curriculum
- Interpersonal Skills
- Competency English
- Introduction to Entrepreneurship
- Foreign Language 1
- General Chemistry
- Technical Mathematics 1
- Electrical Technology

YEAR 1 - SEMESTER 2
- Pengajian Malaysia
- Communication English 1
- Technical Mathematics 2
- Organic & Analytical Chemistry
- Thermodynamics
- Fluid Mechanics
- Material & Energy Balance

YEAR 2 - SEMESTER 3
- Communication English 2
- Foreign Language 2
- Heat Transfer
- Process Instrumentation & Control
- Mass Transfer
- Industrial Safety & Health
- Elective 1
- Elective 2

YEAR 2 - SEMESTER 4
- Engineering Statistics
- Reaction Engineering
- Engineering Drawing
- Elective 3
- Elective 4
- Final Year Project (FYP)

YEAR 3 - SEMESTER 5
- Industrial Training

YEAR 3 - SEMESTER 6
- Specialization: Advanced Material
  - Elective 1: Rubber Processing
  - Elective 2: Plastics Processing
  - Elective 3: Latex Science & Technology
  - Elective 4: Composite Technology

YEAR 3 - SEMESTER 5
- Specialization: Biotechnology & Bioengineering
  - Elective 1: Introduction to Bioprocess Technology
  - Elective 2: Principle of Microbiology
  - Elective 3: Analytical Methods in Bioprocessing
  - Elective 4: Techniques in Bio Product Recovery

YEAR 3 - SEMESTER 5
- Specialization: Environment Engineering Technology and Sustainability
  - Elective 1: Wastewater Treatment Technology
  - Elective 2: Air Pollution Control
  - Elective 3: Introduction to Environmental Engineering Technology
  - Elective 4: Solid and Hazardous Waste Management

CAREER PATH
- Chemical Production Assistant Engineer
- Chemical Production Assistant
- Plant Assistant Engineer
- Plant 3D Software Operator
- Laboratory Technician
- Chemical Production Assistant
- Chemical Sales & Service Technician
- Primary Production Executive
- Compounding Supervisor
- QA Executive
- Chemical Production Assistant
- Chemical Sales & Service Technician
- Primary Production Executive
- Compounding Supervisor
- Quality and Reliability Technician
- Materials Analysis Technician
- Wastewater Treatment Process Technician

DIPLOMA IN CHEMICAL ENGINEERING TECHNOLOGY (FOOD)

PROGRAM CONTENTS

YEAR 1 - SEMESTER 1
- Engineering Drawing and Computing
- Competency English
- Amalun Islam Di Malaysia (Local Muslim) Religious Practices in Malaysia (Local Non-Muslim & Int.)
- Technical Mathematics 1
- General Chemistry
- Mandarin 1
- Co-Curriculum

YEAR 1 - SEMESTER 2
- Organic & Analytical Chemistry
- Principles of Chemical Process
- Communication English 1
- Electrical Technology
- Fluid Mechanics
- Interpersonal Skills / Bahasa Kebangsaan A
- Technical Mathematics 2

YEAR 2 - SEMESTER 3
- Occupational Safety and Health
- Mandarin 2
- Process Instrumentation
- Pengajian Malaysia 2 (Local / Bahasa Melayu Komunikasi 1 [Int])
- Thermodynamics
- Transport Process
- Basic Engineering Workshop
- Introduction to Entrepreneurship
- Communication English 2

YEAR 2 - SEMESTER 4
- Reactor Technology
- Statistics
- Food Chemistry
- Food Microbiology
- Sensory Evaluation of Food
- Food Analysis
- Separation Technology

YEAR 3 - SEMESTER 5
- Food Quality and Sanitation
- Food Processing Technology
- Food Packaging
- Final Year Project

YEAR 3 - SEMESTER 6
- Industrial Training

FOUNDER IN SCIENCE

PROGRAM CONTENTS

YEAR 1 - SEMESTER 1
- Chemistry 1
- Physics 1
- Biology 1
- Mathematics 1
- Introduction to Information
- Technology
- English 1
- Co-curriculum 1

YEAR 1 - SEMESTER 2
- Chemistry 2
- Physics 2 / Biology 2
- Mathematics 2
- Introduction to Information Technology
- English 2
- Critical and Creative Thinking
- Islamic Studies / Moral Studies
- Co-curriculum 2