UNIVERSITI MALAYA

FAKULTI KEJURUTERAAN
Faculty of Engineering

SARJANA MUDA KEJURUTERAAN KIMIA

BACHELOR OF CHEMICAL ENGINEERING

SARJANA MUDA KEJURUTERAAN KIMIA
BACHELOR OF CHEMICAL ENGINEERING

Pengenalan | Introduction

Bekerjasama dengan masyarakat daripada pelbagai latar belakang, jurutera kimia memainkan peranan penting dalam memastikan kelangsungan dan kesejahteraan dunia. Seperti jurutera dalam bidang lain, kami mereka bentuk dan membina peralatan serta memastikan peralatan tersebut beroperasi dengan selamat dan ekonomik. Aktiviti ini kebanyakannya melibatkan urusan antara perniagaan dan sering dilaksanakan di luar pengetahuan umum. Jurutera kimia mengkhusus dalam aktiviti yang melibatkan perubahan kimia dan biokimia pada skala besar. Sebagai contoh, minyak mentah ditulenkan untuk menghasilkan petrol, minyak tanah dan diesel yang menyokong keperluan pengangkutan. Jurutera kimia juga menghasilkan plastik serta alternatif plastik yang boleh terbiodegradasi.

Produk lain seperti baja, air minuman, minyak masak, makanan berbungkus, ubat-ubatan dan vaksin perlu dihasilkan dalam kuantiti yang besar. Dalam hal ini, jurutera kimia memainkan peranan yang amat penting. Cip yang digunakan dalam telefon bimbit direka bentuk oleh jurutera elektronik, manakala jurutera kimia terlibat dalam penghasilannya secara besar-besaran. Kini, jurutera kimia juga semakin banyak menggunakan organisma hidup seperti bakteria dan tumbuhan untuk menghasilkan produk yang boleh diperbaharui. Memandangkan pemprosesan kimia berskala besar berpotensi memberikan kesan buruk terhadap masyarakat dan alam sekitar, jurutera kimia turut melindungi manusia dan bumi melalui reka bentuk yang inovatif serta pengoperasian yang bertanggungjawab.

Working together with people from all walks of life, chemical engineers help to keep the world going and better. Like all engineers, we design and build equipments, then make them work safely and economically. These are mostly business-to-business activities, often outside public eyes. We specialize on activities that involve chemical and biochemical changes on a large scale. For example, we purify crude oil into petrol, kerosene and diesel that transport everyone around. We too make plastics and their biodegradable versions.

Others such as fertilizers, drinking water, cooking oils, packaged foods, medicines and vaccines all have to be produced in large amounts, and here chemical engineers come in. The chips that run our handphones are designed by electronic engineers, but chemical engineers make them in large quantities. Increasingly, chemical engineers deal with living things such as bacteria and plants to produce renewable products. As large-scale chemical processing involves potential adverse social and environmental impact, chemical engineers also protect people and Earth by clever designs and responsible operations.

Objektif Pendidikan Program | Programme Educational Objectives (PEO)

PEO 1	Graduan menjadikan diri mereka sebagai profesional yang terlatih dalam bidang Kejuruteraan Kimia atau bidang yang berkaitan. *Graduates establish themselves as practicing professionals in Chemical Engineering or related fields.*
PEO 2	Graduan terlibat pencarian pengetahuan sepanjang hayat dan pembelajaran antara disiplin yang sesuai untuk kerjaya industri dan akademik. *Graduates engage in lifelong pursuit of knowledge and interdisciplinary learning appropriate for industrial and academic careers.*
PEO 3	Graduan menyumbang kepada pembangunan lestari dan kesejahteraan masyarakat. *Graduates contribute to sustainable development and the well-being of society.*

Hasil Pembelajaran Program | Programme Learning Outcome (PLO)

Pada akhir program, graduan dapat:
At the end of the programme, graduates are able to:

PLO 1	Apply knowledge of mathematics, natural science, computing and engineering fundamentals, and an engineering specialization to develop solutions to complex chemical engineering problems. (WK1-WK4)
PLO 2	Identify, formulate, research literature and analyze complex chemical engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences with holistic considerations for sustainable development. (WK1-WK4)
PLO 3	Design creative solutions for complex chemical engineering problems and design systems, components or processes to meet identified needs with appropriate consideration for public health and safety, wholelife cost, net zero carbon as well as resource, cultural, societal, and environmental considerations as required. (WK5)
PLO 4	Conduct investigation of complex chemical engineering problems using research methods including research-based knowledge, including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions. (WK8)
PLO 5	Create, select and apply, and recognize limitation of appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex chemical engineering problems. (WK2 and WK6)
PLO 6	Analyze and evaluate sustainable development impacts to: society, the economy, sustainability, health and safety, legal frameworks, and the environment, in solving complex chemical engineering problems. (WK1, WK5, and WK7)
PLO 7	Demonstrate an understanding of the need for diversity and inclusion. Apply ethical principles and commit to professional ethics and norms of chemical engineering practice and adhere to relevant national and international laws. (WK9)
PLO 8	Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multidisciplinary, face-to-face, remote and distributed settings. (WK9)
PLO 9	Communicate effectively and inclusively on complex chemical engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, taking into account cultural, language, and learning differences.
PLO 10	Apply knowledge and understanding of chemical engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects in multidisciplinary environments.
PLO 11	Recognise the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Pendidikan Berasaskan Hasil (OBE) | Outcome-Based Education (OBE)

Pendidikan Berasaskan Hasil (Outcome-Based Education, OBE) telah dilaksanakan di Fakulti Kejuruteraan sejak tahun 2004, selaras dengan arahan Kementerian Pengajian Tinggi Malaysia dan Lembaga Jurutera Malaysia (Board of Engineers Malaysia, BEM). Pelaksanaan OBE juga merupakan salah satu keperluan bagi Malaysia untuk menjadi ahli penuh Washington Accord (WA), iaitu sebuah perjanjian antarabangsa yang mengiktiraf secara bersama ijazah Sarjana Muda dalam bidang kejuruteraan.

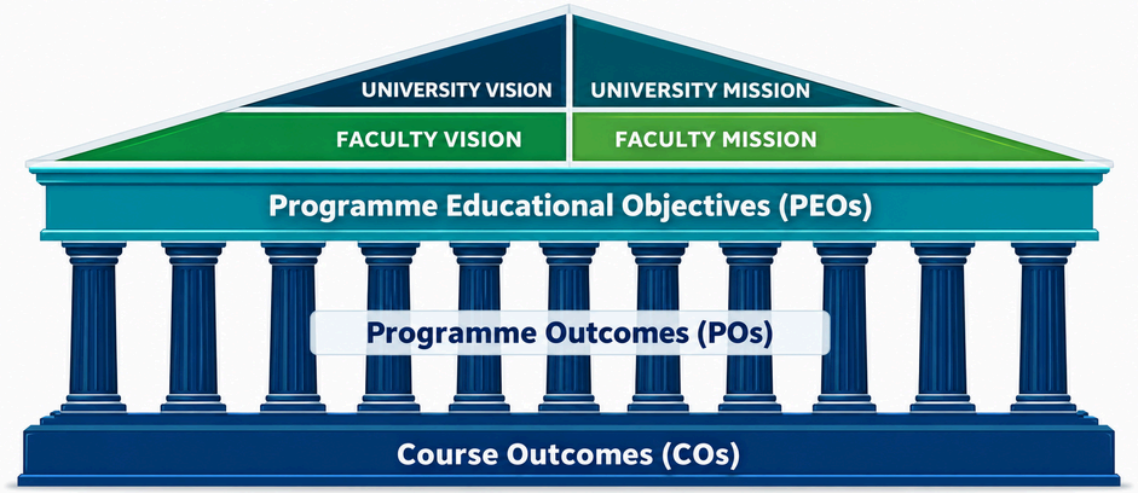
OBE merupakan model pendidikan yang diamalkan di peringkat antarabangsa dan memberi tumpuan kepada pengukuran hasil pembelajaran pelajar serta pelaksanaan tindakan penambahbaikan bagi mengatasi kekurangan dalam kaedah penyampaian kursus, kaedah penilaian, sikap pelajar dan aspek-aspek berkaitan. Kurikulum direka bentuk dengan hasil kursus (Course Outcomes, COs) yang khusus bagi mempersiapkan graduan untuk mencapai atribut graduan/hasil pembelajaran program (Programme Outcomes, POs) pada masa tamat pengajian.

POs pula dirangka bagi menghasilkan graduan yang bersedia untuk mencapai objektif pendidikan program (Programme Educational Objectives, PEOs) dalam tempoh 3 hingga 5 tahun selepas mereka menamatkan pengajian. PEOs dan POs telah dirumuskan melalui rundingan dengan semua pihak berkepentingan utama, termasuk majikan, alumni dan pelajar, bagi memenuhi tuntutan persekitaran pekerjaan yang semakin mencabar dan bersifat global.

Outcome-Based Education (OBE) had been implemented in the Faculty of Engineering since 2004, in accordance with the directives of the Ministry of Higher Education Malaysia and the Board of Engineers Malaysia (BEM). This is also one of the requirements for Malaysia to become a full member of the Washington Accord (WA), an international agreement to mutually recognize Bachelor degrees in the field of engineering.

OBE is an internationally practised educational model that focuses on the measurement of student outcomes and the implementation of corrective measures to overcome deficiencies in course delivery methods/assessment/student attitude, etc. Curriculum is designed with specific course outcomes (COs) to prepare the graduates to achieve the graduate attributes/programme outcomes (POs) at the point of graduation.

The POs are designed to produce graduates who are well-prepared to achieve the programme educational objectives (PEOs) 3 - 5 years after they have graduated. The PEOs and POs had been formulated in consultation with all major stakeholders (employers, alumni and students), to meet the demands of a challenging and globalized workplace.



PELAN PENGAJIAN SARJANA MUDA KEJURUTERAAN KIMIA

STUDY PLAN BACHELOR OF CHEMICAL ENGINEERING

TAHUN SATU | *YEAR ONE*

Tahun *Year*	Komponen *Component*	SEMESTER 1			SEMESTER 2		
		Kod *Code*	Kursus *Courses*	Kredit *Credit*	Kod *Code*	Kursus *Courses*	Kredit *Credit*
1	Kursus Universiti *University Courses*	**GIG1019**	Aspirasi Negara Bangsa *Malaysian Nation-State Aspiration (Local Students ONLY)*	2			
		GLT1049	Bahasa Melayu Komunikasi 2 *Malay Language Communication 2 (International Students ONLY)*				
		GIG1003	Asas Pembudayaan Keusahawanan *Basic Entrepreneurship Enculturation*	2			
		GUL1001	*UMLEADER 1: Embrace@UMLEADER*	2			
	Kursus Teras Fakulti *Faculty Core Courses*	**KIX1001**	Matematik Kejuruteraan 1 *Engineering Mathematics 1*	3	**KIX1002**	Matematik Kejuruteraan 2 *Engineering Mathematics 2*	3
					KIX2007	Jurutera Terimbuh Kecerdasan Buatan *Artificial Intelligence Augmented Engineer*	2
	Kursus Teras Program *Program Core Courses*	**KIL1002**	Prinsip Proses Kimia I *Chemical Process Principles I*	**3**	**KIL1001**	Termodinamik Kejuruteraan Kimia I *Chemical Engineering Thermodynamics I*	**3**
		KIL1004	Lukisan Kejuruteraan *Engineering Drawing*	**2**	**KIL1005**	Kaedah Berangka Kejuruteraan *Numerical Methods for Engineering*	**3**
		KIL1010	Kimia Fizikal dan Analitikal *Physical and Analytical Chemistry*	**3**	**KIL1006**	Mekanik Bendalir I *Fluid Mechanics I*	**3**
					KIL1009	Makmal Kimia Fizikal dan Analitikal *Physical and Analytical Chemistry Laboratory*	**2**
					KIL3001	Asas Sains Bahan untuk Kejuruteraan Kimia *Basic Material Science for Chemical Engineering*	**3**
	Jumlah Credit ***Total Credit***			**17**			**19**

PELAN PENGAJIAN SARJANA MUDA KEJURUTERAAN KIMIA

STUDY PLAN BACHELOR OF CHEMICAL ENGINEERING

TAHUN DUA | *YEAR TWO*

Tahun *Year*	Komponen *Component*	SEMESTER 1			SEMESTER 2		
		Kod *Code*	Kursus *Courses*	Kredit *Credit*	Kod *Code*	Kursus *Courses*	Kredit *Credit*
2	Kursus Universiti *University Courses*	**GLT10XX**	Kursus Bahasa Universiti 1 *Language University Course 1*	2	**GLT10XX**	Kursus Bahasa Universiti 2 *Language University Course 2*	**2**
		GUL2007	*UMLEADER 2: Ignite@UMLEADER*	2	**GLT2000**	Bahasa Melayu Profesional Untuk Kerjaya & Organisasi *Professional Malay for Career and Organisation*	-
	Kursus Teras Fakulti *Faculty Core Courses*				**KIX2006**	Ekonomi Kejuruteraan dan Pengurusan Projek *Engineering Economics and Project Management*	3
	Kursus Teras Program *Program Core Courses*	**KIL2001**	Prinsip Proses Kimia II *Chemical Process Principles II*	**2**	**KIL2004**	Makmal dan Komunikasi I *Laboratory and Communications I*	**2**
		KIL2002	Kimia Organik *Organic Chemistry*	**2**	**KIL2008**	Proses Pemisahan I *Separation Processes I*	**3**
		KIL2005	Termodinamik Kejuruteraan Kimia II *Chemical Engineering Thermodynamics II*	**3**	**KIL2009**	Kejuruteraan Tindak Balas Kimia I *Reaction Engineering I*	**3**
		KIL2006	Pemindahan Haba *Heat Transfer*	**3**	**KIL2010**	Biokimia *Biochemistry*	**3**
		KIL2007	Pemindahan Jisim *Mass Transfer*	**2**	**KIL2011**	Statistik Gunaan untuk Kejuruteraan *Applied Statistics for Engineering*	**3**
		KIL2012	Pengkomputeran Kejuruteraan Kimia *Chemical Engineering Computing*	**2**			
	Jumlah Credit ***Total Credit***			**18**			**19**

PELAN PENGAJIAN SARJANA MUDA KEJURUTERAAN KIMIA

STUDY PLAN BACHELOR OF CHEMICAL ENGINEERING

TAHUN TIGA | *YEAR THREE*

Tahun *Year*	Komponen *Component*	SEMESTER 1			SEMESTER 2		
		Kod *Code*	Kursus *Courses*	Kredit *Credit*	Kod *Code*	Kursus *Courses*	Kredit *Credit*
3	Kursus Universiti *University Courses*				**GIG1017**	Falsafah dan Cabaran Semasa *Philosophy and Current Affairs (Local Students ONLY)*	2
					GIG1018	Citra Malaysia* *Malaysian Citra* (International Students ONLY)*	
	Kursus Teras Fakulti *Faculty Core Courses*	**KIX2005**	Undang-Undang, Etika dan Kemampanan untuk Jurutera *Law, Ethics and Sustainability for Engineer*	3			
	Kursus Teras Program *Program Core Courses*	**KIL3002**	Mekanik Bendalir II *Fluid Mechanics II*	2	**KIL3004**	Kawalan Proses *Process Control*	3
		KIL3003	Pemodelan Proses Kimia *Modelling of Chemical Processes*	2	**KIL3005**	Teknologi Zarah *Particle Technology*	3
		KIL3006	Sintesis dan Simulasi Proses *Process Synthesis and Simulation*	3	**KIL3008**	Keselamatan Proses dan Pencegahan Susutan *Process Safety and Loss Prevention*	3
		KIL3007	Proses Pemisahan II *Separation Processes II*	3	**KIL3011**	Kejuruteraan Tindak Balas Kimia II *Reaction Engineering II*	2
		KIL3009	Makmal dan Komunikasi II *Laboratory and Communication II*	2	**KIL3014**	Reka Bentuk Berintegrasi *Integrated Design*	3
		KIL3013	Latihan Reka Bentuk Berintegrasi *Integrated Design Exercise*	2	**KIL3015**	Reka Bentuk Kelengkapan Proses *Design of Process Equipment*	3
	Jumlah Credit ***Total Credit***			**17**			**19**

SEMESTER KHAS | *SPECIAL SEMESTER*

Tahun *Year*	Komponen *Component*	SEMESTER KHAS		
		Kod *Code*	Kursus *Courses*	Kredit *Credit*
3	Kursus Teras Program *Program Core Courses*	**KIL3010**	Latihan Industri *Industrial Training*	5
	Jumlah Credit ***Total Credit***			**5**

PELAN PENGAJIAN SARJANA MUDA KEJURUTERAAN KIMIA

STUDY PLAN BACHELOR OF CHEMICAL ENGINEERING

TAHUN EMPAT | *YEAR FOUR*

Tahun *Year*	Komponen *Component*	SEMESTER 1			SEMESTER 2		
		Kod *Code*	Kursus *Courses*	Kredit *Credit*	Kod *Code*	Kursus *Courses*	Kredit *Credit*
4	Kursus Universiti *University Courses*				**GIG1016**	Kursus Integriti dan Anti-Rasuah *Integrity and Anti-Corruption Course*	2
						Kursus Ko-kurikulum *Co-curriculum Courses*	2
	Kursus Teras Program *Program Core Courses*	**KIL4002**	Projek Reka Bentuk (P1) *Design Project*	3	**KIL4002**	Projek Reka Bentuk (P2) *Design Project*	3
		KIL4003	Projek Penyelidikan (P1) *Research Project*	3	**KIL4003**	Projek Penyelidikan (P2) *Research Project*	3
		KIL4018	Pembangunan Mampan dalam Kejuruteraan *Sustainable Development in Engineering*	3			
	Kursus Elektif Program *Program Elective Courses*	**KIL4XXX**	Kursus Elektif Program 1 *Program Elective Course 1*	2	**KIL4XXX**	Kursus Elektif Program 4 *Program Elective Course 4*	2
		KIL4XXX	Kursus Elektif Program 2 *Program Elective Course 2*	2	**KIL4XXX**	Kursus Elektif Program 5 *Program Elective Course 5*	2
		KIL4XXX	Kursus Elektif Program 3 *Program Elective Course 3*	2			
	Jumlah Credit ***Total Credit***			**15**			**14**
	Jumlah Keseluruhan ***Total Credits Overall***						**143**

KURSUS ELEKTIF PROGRAM | *PROGRAMME ELECTIVE COURSES*			
Bil. ***No.***	**Kod Kursus** ***Course Code***	**Tajuk Kursus** ***Course Title***	**Kredit** ***Credit***
1	**KIL4004**	Asas Pencemaran Udara *Air Pollution Fundamental*	**2**
2	**KIL4005**	Integrasi Proses *Process Integration*	**2**
3	**KIL4006**	Kawalan Proses Lanjutan *Advanced Process Control*	**2**
4	**KIL4007**	Pengurusan Sisa Pepejal *Solid Waste Management*	**2**
5	**KIL4008**	Rawatan Air Sisa *Waste Water Treatment*	**2**
6	**KIL4009**	Penjerapan dalam Pepejal Berliang *Adsorption in Porous Solid*	**2**
7	**KIL4010**	Kejuruteraan Petroleum *Petroleum Engineering*	**2**
8	**KIL4011**	Keselamatan Proses Lanjutan dan Pencegahan Kerugian *Advanced Process Safety and Loss Prevention*	**2**
9	**KIL4013**	Teknologi dan Proses Membran *Membrane Technology and Processes*	**2**
10	**KIL4016**	Kejuruteraan Tindak Balas untuk Bioreaktor *Reaction Engineering for Bioreactors*	**2**
11	**KIL4019**	Kejuruteraan Pembendaliran Lanjutan *Advanced Fluidization Engineering*	**2**
12	**KIL4020**	Bahan Berfungsi Lanjutan *Advanced Functional Materials*	**2**
13	**KIL4021**	Proses Penguraian Kimia *Chemical Decomposition Processes*	**2**
14	**KIL4022**	Nanoteknologi untuk Penukaran dan Penyimpanan Tenaga *Nanotechnology for Energy Conversion and Storage*	**2**
15	**KIL4024**	Kawalan Optimum *Optimal Control*	**2**
16	**KIL4026**	Pencirian Bahan *Materials Characterization*	**2**
17	**KIL4023**	Teknologi Globalisasi dan Pembangunan Mampan *Technology Globalization and Sustainable Development*	**2**
18	**KIL4025**	Teknologi Semasa dalam Industri Oleokimia *Current Technologies in Oleochemicals Industry*	**2**
19	**KIL4027**	Kejuruteraan Gas Asli *Natural Gas Engineering*	**2**

PEJABAT TIMBALAN DEKAN (IJAZAH DASAR)

OFFICE OF DEPUTY DEAN (UNDERGRADUATE STUDIES)

Pejabat Ijazah Dasar bertujuan untuk membantu pelajar, serta menguruskan hal-hal ehwal berkenaan pengurusan program Sarjana Muda Fakulti Kejuruteraan.

The Office of the Deputy Dean (Undergraduate Studies) aims to assist students, as well as managing the Faculty of Education's Undergraduate programs.

AHLI PEJABAT IJAZAH DASAR | *MEMBERS OF THE OFFICE*

Timbalan Dekan (Ijazah Dasar) *Deputy Dean (Undergraduate Studies)*	**Associate Prof. Dr. Raja Ariffin Raja Ghazilla** r_ariffin@um.edu.my	
Pembantu Tadbir *Administrative Assistant*	ELITE@UM Finance/UMAtlas	**Mohd Rafizudin Rafiz** m.rafizudin@um.edu.my |
Penolong Pendaftar (Ijazah Dasar) *Assistant Registrar (Undergraduate Studies)*	**Nur Syazana Mohammad Nizar** syazananizar@um.edu.my | +603-7967 7636	
Penolong Pegawai Tadbir *Assistant Administrative Ofiicer*	Civil Engineering Curricular Review Accreditation	**Nurhani Muhamad Zainalid** nurhani@um.edu.my
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Pembantu Tadbir Kanan *Senior Administrative Assistant*	Electrical Engineering Post-Exam Process	**Rohayu Binti Mohd Nor** rohayu@um.edu.my
Pembantu Tadbir Kanan *Senior Administrative Assistant*	Chemical Engineering Timetable Awards	**Munirah Kamaral Zaman** munirah26@um.edu.my
Pembantu Tadbir Kanan *Senior Administrative Assistant*	Mechanical Engineering Admission Industrial Training	**Norazirah Mohd Supi** norazirah@um.edu.my

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MAIN OFFICE CONTACT DETAILS

Emel : **fk_tdid@um.edu.my**
Email

No Tel :

Laman Web : **https://engine.um.edu.my/**
Website

MAKLUMAT AM PROGRAM SARJANA MUDA
UNDERGRADUATE PROGRAMME GENERAL INFO

TEMPOH PENGAJIAN
DURATION OF STUDY

Tempoh pengajian **minimum** dan **maksimum** pelajar mengikut program adalah seperti berikut.

*The **minimum** and **maximum** duration of study for the respective programme as follow.*

Program *Programme*	**Tempoh Minimum** *Minimum Duration of Study*	**Tempoh Maksimum** *Maximum Duration of Study*
1. Sarjana Muda Kejuruteraan Awam *Bachelor of Civil Engineering* 2. Sarjana Muda Kejuruteraan Bioperubatan *Bachelor of Biomedical Engineering* 3. Sarjana Muda Kejuruteraan Elektrik *Bachelor of Electrical Engineering* 4. Sarjana Muda Kejuruteraan Kimia *Bachelor of Chemical Engineering* 5. Sarjana Muda Kejuruteraan Mekanik *Bachelor of Mechanical Engineering*	8 Semester Biasa & 1 Semester Khas *8 Normal Semesters & 1 Special Semester*	12 Semester Biasa *12 Normal Semesters*

KURSUS UNIVERSITI
UNIVERSITY COURSES

Pelajar **WAJIB** menyempurnakan **kursus-kursus universiti** (setiap kursus membawa 2 jam kredit) berdasarkan penyempurnaan dan pelan pengajian program masing-masing.

*Student are **REQUIRED** to complete **university courses** (each carries 2 credit) based on the respective study plan of the programme.*

Pelajar Warganegara *Local Student*	**Pelajar Antarabangsa** *International Student*
• GIG1017 Falsafah dan Cabaran Semasa *Philosophy and Current Affairs* • GIG1019 Aspirasi Negara Bangsa *Malaysian Nation-State Aspiration* • GIG1003 Asas Pembudayaan Keusahawanan *Basic Enterpreneurship Enculturation* • GIG1016 Kursus Integriti dan Anti-Rasuah *Integrity and Anti-Corruption Course* • GLT2000 Bahasa Melayu Profesional Untuk Kerjaya & Organisasi (Tidak Berkredit) *Professional Malay for Career and Organisation (Non-Credit-Bearing)* • GLTXXXX Kursus Bahasa Inggeris Universiti 1/2 *Language University Courses 1/2* • GKXXXXX Kursus Ko-kurikulum *Co-curriculum Courses* • GUL1001 UMLEADER 1: Embrace@UMLEADER • GUL2007 UMLEADER 2: Ignite@UMLEADER	• GIG1018 Citra Malaysia *Malaysian Citra* • GIG1016 Kursus Integriti dan Anti-Rasuah *Integrity and Anti-Corruption Course* • GLT1049 Bahasa Melayu Komunikasi *Malay Language Communication* • GIG1003 Asas Pembudayaan Keusahawanan *Basic Enterpreneurship Enculturation* • GLTXXXX Kursus Bahasa Inggeris Universiti 1/2 *Language University Courses 1/2* • GKXXXXX Kursus Ko-kurikulum *Co-curriculum Courses* • GUL1001 UMLEADER 1: Embrace@UMLEADER • GUL2007 UMLEADER 2: Ignite@UMLEADER

KURSUS BAHASA INGGERIS UNIVERSITI
LANGUAGE UNIVERSITY COURSES

Pelajar **WAJIB** menyempurnakan **DUA (2)** kursus Bahasa Inggeris Komunikasi (setiap kursus membawa 2 jam kredit) mengikut laluan yang telah ditetapkan berdasarkan pencapaian Ujian Kemahiran Bahasa Inggeris pelajar.

*Student are **REQUIRED** to complete **TWO (2)** English Language Communication courses (each carries 2 credit) according to the assigned pathway based on the results of the English Proficiency Test.*

<table>
<tr><th>Semester
Enrolment/ Path</th><th colspan="2">PATH 1
Entry: A2/ B1
Exit: High B1/ Low B2</th><th colspan="2">PATH 2
Entry: High B1/ Low B2
Exit: High B2/ Low C1</th><th>PATH 3 (Foreign Language)
Entry: A1/ A2
Exit: B1</th></tr>
<tr><td>Semester 1
(if applicable)

Placement test#
- for students without recognised English qualifications upon entry</td><td colspan="2">• CEFR A2 and B1
• MUET Band 2, 2.5, 3 & 3.5
• IELTS Band 4.0 – 5.0
• TOEFL Paper-Based Test (437 – 510)
• TOEFL Computer-Based Test (123 – 180)
• TOEFL Internet-Based Test (TBC)
• TOEFL Essentials (Online) (Band 3 – 7.5)
• PTE (Academic) – (10 – 41)
• IGCSE/GCSE (English) (D, E, F, and G)</td><td colspan="2">• CEFR B2
• MUET Band 4 & 4.5
• IELTS Band 5.5 – 6.0
• TOEFL Paper-Based Test (513 – 547)
• TOEFL Computer-Based Test (183 – 210)
• TOEFL Internet-Based Test (TBC)
• TOEFL Essentials (Online) (Band 8 – 9.5)
• PTE (Academic) – (42 – 57)
• GCE A Level (English) (Minimum C)
• IGCSE/GCSE (English) (C)</td><td>• CEFR C1 and C2
• MUET Band 5, 5+ & 6
• IELTS Band 6.5 – 9.0
• TOEFL Paper-Based Test (550 – 677)
• TOEFL Computer-Based Test (213 – 300)
• TOEFL Internet-Based Test (TBC)
• TOEFL Essentials (Online) (Band 10 – 12)
• PTE (Academic) (58 – 90)
• GCE A Level (English) (A and B)
• IGCSE/GCSE (English) (A and B)</td></tr>
<tr><td>Semester 2</td><td><u>Arts Stream</u>
GLT1050
Intermediate Reading and Writing for Social Sciences and Humanities</td><td><u>Science Stream</u>
GLT1051
Intermediate Reading and Writing for Science</td><td><u>Arts Stream</u>
GLT1054 Advanced Reading and Writing for Social Sciences and Humanities</td><td><u>Science Stream</u>
GLT1055 Advanced Reading and Writing for Science</td><td>GLTxxxx Foreign Languages</td></tr>
<tr><td>Semester 3</td><td colspan="2">GLT1052 Intermediate Speaking Skills</td><td colspan="2">GLT1056 Advanced Speaking Skills</td><td>GLTxxxx Foreign Languages</td></tr>
</table>

PETIKAN DARIPADA KAEDAH DAN PERATURAN
EXCERPTS FROM RULES AND REGULATIONS

PENDAFTARAN KURSUS
COURSE REGISTRATION

- Pelajar dikehendaki mengikuti program pengajiannya berdasarkan struktur program pengajian sepertimana yang ditentukan oleh Fakulti dan diluluskan oleh Senat.
- Pendaftaran kursus hendaklah disempurnakan sebelum sesuatu semester bermula. Pelajar yang tidak menyempurnakan pendaftaran dalam tempoh yang ditetapkan tidak dibenarkan untuk mengikuti kursus berkenaan.
- **Pelajar bertanggungjawab menyemak dan memastikan kod kursus yang didaftar adalah betul.** Selepas tamat tempoh yang ditetapkan, kursus yang didaftar adalah muktamad dan sebarang pindaan tidak dibenarkan
- Jumlah kredit maksimum yang boleh didaftar oleh pelajar adalah seperti berikut:

- *A student is required to pursue his programme of study based on the structure of the programme of study as prescribed by the Faculty and approved by the Senate.*
- *Registration for any course must be completed before the semester starts. Any student who does not complete his registration within the duration prescribed will not be allowed to pursue the course concerned.*
- ***A student is responsible to check and ensure that the course code that is registered for is correct.*** *At the end of the prescribed period, the courses that are registered is final and no further changes are allowed.*
- *The maximum number of credits which can be registered by a student is as follows:*

Status Pelajar ***Student's Status***	**Semester Biasa** ***Normal Semester***	**Semester Khas** ***Special Semester***
Pelajar Biasa *Normal Student*	22 Kredit *22 Credits*	11 Kredit *11 Credits*
Pelajar di bawah Tempoh Pemerhatian Akademik (PEMERHATIAN) *Students under the Academic Probationary Period (PROBATION)*	15 Kredit 15 *Credits*	9 Kredit *9 Credits*

KEHADIRAN
ATTENDANCE

- Pelajar **diwajibkan** menghadiri semua aktiviti pengajaran dan pembelajaran berkaitan dengan program pengajian yang diikutinya.
- Pelajar yang tidak menghadiri mana-mana aktiviti pengajaran dan pembelajaran dikehendaki memaklumkan alasan ketidakhadirannya kepada guru dengan segera dengan menyertakan dokumen sokongan yang berkaitan. Guru hendaklah memaklumkan kepada pelajar akibat ketidakhadiran dan bertanggungjawab menyimpan rekod pemakluman dan kehadiran kelas.

- *It is **compulsory** for a student to attend all teaching and learning activities related to his programme of study*
- *A student who does not attend any teaching and learning activities is required to inform the reason for his absence to the teacher immediately together with the relevant supporting documents. The teacher shall inform the student of the consequences of being absent and is responsible to keep the records of the notification and class attendance.*

SKIM PEMARKAHAN
GRADING SCHEME

Gred rasmi Universiti serta markah dan maksudnya adalah seperti berikut.

The official grade of the University and its meaning are as follow.

Markah Marks	**Gred** Grade	**Mata Gred** *Grade Pointer*	**Maksud** Meaning
90.00 - 100.00	A+	4.00	Amat Cemerlang | *High Distinction*
80.00 - 89.99	A	4.00	Cemerlang | *Distinction*
75.00 -79.99	A-	3.70	Cemerlang | *Distinction*
70.00 - 74.99	B+	3.30	Kepujian | *Good*
65.00 - 69.99	B	3.00	Kepujian | *Good*
60.00 - 64.99	B-	2.70	Kepujian | *Good*
55.00 - 59.99	C+	2.30	Lulus | *Pass*
50.00 - 54.99	C	2.00	Lulus | *Pass*
45.00 - 49.99	C-	1.70	Gagal | *Fail*
40.00 - 44.99	D+	1.30	Gagal | *Fail*
35.00 - 39.99	D	1.00	Gagal | *Fail*
00.00 - 34.99	F	0.00	Gagal | *Fail*

- **Gred lulus** bagi semua kursus adalah **gred C**.
- Pelajar **hendaklah memperolehi PNG dan PNGK tidak kurang daripada 2.00** pada setiap semester sehingga tamat pengajiannya.

- *The **passing grade** for all courses is **grade C.***
- *A student **shall obtain a GPA and CGPA of not less than 2.00** for each semester until the completion of his studies.*

RAYUAN TERHADAP KEPUTUSAN PEPERIKSAAN
APPEAL AGAINST EXAMINATION RESULTS

- Pelajar yang tidak berpuas hati dengan keputusan peperiksaannya termasuk komponen penilaian berterusan dan/atau peperiksaan akhir kursus boleh merayu untuk semakan semula keputusan peperiksaan. Rayuan hendaklah dibuat dalam tempoh tujuh (7) hari dari tarikh pengumuman rasmi keputusan peperiksaan.
- Satu (1) bayaran atas kadar yang ditetapkan hendaklah dikenakan bagi memproses rayuan untuk semakan semula keputusan peperiksaan. Bayaran itu tidak akan dikembalikan sama ada rayuan berjaya atau tidak.
- Borang rayuan tidak akan diterima sekiranya ia:
  a) dikemukakan selepas tempoh yang dinyatakan dalam subperaturan (1) di atas;
  b) tidak lengkap; atau
  c) dikemukakan tanpa resit bayaran.

- *A student who is not satisfied with his examination results including the continuous assessment component and/or final examination of the course may appeal for a review of his examination results. The appeal shall be made within **seven (7) days** from the official date of announcement of his examination results.*
- *A payment based on the prescribed rate shall be made to process the application for examination results to be reviewed. The payment made is non-refundable regardless whether the appeal is successful or otherwise.*
- *The form for an appeal will not be accepted if it is:*
  a) submitted after the period stipulated in subregulation (1) above;
  b) incomplete; or
  c) submitted without the payment receipt

ANUGERAH DEKAN
DEAN'S LIST AWARD

- Pelajar hendaklah memperolehi PNG da**n PNGK tidak kurang daripada 2.00** pada setiap semester sehingga tamat pengajiannya

- Pelajar yang mencapai PNG 3.70 dan ke atas bagi mana-mana semester dan memenuhi syarat berikut layak diberikan Anugerah Dekan bagi semester berkenaan.

  a) Menyempurnakan sekurang-kurangnya 15 kredit dalam semester berkenaan yang mengandungi empat (4) kursus, tidak termasuk kursus yang kreditnya tidak diambil kira dalam pengiraan kredit kira.

  b) Memperolehi tidak kurang daripada gred C bagi semua kursus yang disempurnakan dalam semester berkenaan; dan

  c) Tidak pernah mengulang kursus yang gagal dan/atau mempertingkatkan gred kursus dalam semester berkenaan.

- *A student should strive to maintain **a CGPA of 2.00** and above each semester until the end of his/her studies.*

- *A student who obtains a GPA of 3.70 and above in any semester and fulfills the following conditions shall be awarded Dean's list Award for the semester.*

  a) has completed a minimum of 15 credits in the respective semester with a minimum of four (4) courses, not including courses which the credits are not taken into account in the calculation of credit counted.

  b) has obtained not lower than a C grade for all the courses completed in the respective semester.

  c) Has not repeat any of the course in which he has failed prior and/or improved his grade in the respective semester.

GAGAL KELUAR DAN DITAMATKAN PENGAJIAN
FAILED AND TERMINATED FROM PROGRAMME OF STUDY

- Pelajar boleh gagal keluar dan ditamatkan daripada program pengajiannya sekiranya:

  a) sedang berada dalam Tempoh Pemerhatian Akademik dan selepas itu mendapat PNG 1.30 atau kurang untuk dua (2) semester berturut-turut;

  b) memperoleh PNG kurang daripada 2.00 untuk empat (4) semester berturutturut;

  c) memperoleh gred F sebanyak tiga (3) kali bagi kursus yang sama;

  d) memperoleh PNGK kurang daripada 1.00 untuk dua (2) semester berturut-turut; atau

  e) gagal menyempurnakan keperluan program pengajiannya dalam tempoh maksimum yang ditetapkan.

- Apabila seseorang pelajar ditamatkan daripada program pengajiannya, notis penamatan hendaklah dihantar kepada pelajar oleh Universiti.

- Mana-mana pelajar yang merayu dan diterima masuk semula akan ditamatkan pengajiannya sekiranya memperoleh PNG kurang daripada 2.00 pada semester di mana pelajar tersebut diterima masuk semula. Pelajar tersebut juga masih tertakluk kepada syarat-syarat seperti yang dinyatakan di dalam subperaturan (1) di atas.

- *A candidate is termed as failed and terminated from the programme of study if:*

a) is placed under an Academic Probationary Period and subsequently obtains a GPA of 1.30 or less for two (2) consecutive semesters;

b) obtains a GPA of less than 2.00 for four (4) consecutive semesters;

c) obtains a grade F three (3) times for the same course;

d) obtains a CGPA of less than 1.00 for two (2) consecutive semesters; or

e) fails to complete the requirements of his programme of study within the prescribed maximum period.

- *When a student has been terminated from his programme of study, the termination notice shall be sent to the student by the University*

- *Any student who appealed and is re-admitted after being terminated from his programme of study, shall have his study terminated if he obtains a GPA of less than 2.00 for the semester in which the student is re-admitted. The said student remains subjected to the conditions stated in the subregulation (1) above.*

PENGANUGERAHAN IJAZAH SARJANA MUDA LULUS DENGAN KEPUJIAN

CONFERMENT OF BACHELOR'S DEGREE WITH HONOURS

- Pelajar boleh dianugerahkan ijazah apabila telah memenuhi keperluan program pengajian seperti yang ditetapkan dalam Peraturan 46 di atas.

- Ijazah yang dianugerahkan adalah ijazah kepujian berdasarkan PNGK terakhir. Untuk melayakkan dianugerahkan ijazah Lulus Dengan Kepujian ini, **pelajar hendaklah mencapai PNGK terakhir tidak kurang daripada 2.00.**

- *A student may be awarded a degree once he has fulfilled the requirements of his programme of study as prescribed in Regulation 46 above.*

- *The degree awarded is an honours degree based on the final CGPA. In order to qualify to be awarded a Pass With Honours degree, the student* ***shall obtain a final CGPA of not less than 2.00.***

PENGANUGERAHAN IJAZAH SARJANA MUDA LULUS DENGAN KEPUJIAN (DENGAN CEMERLANG)

CONFERMENT OF BACHELOR'S DEGREE WITH HONOURS (WITH DISTINCTION)

- Pelajar layak dianugerahkan ijazah Sarjana Muda Lulus Dengan Kepujian (Dengan Cemerlang) sekiranya:

  a) mencapai PNGK terakhir 3.70 dan ke atas;

  b) tidak pernah mendapat gred F bagi mana-mana kursus sepanjang tempoh program pengajiannya;

  c) tidak pernah mengulang kursus yang gagal dan/atau mempertingkatkan gred kursus; dan

  d) berjaya menamatkan program pengajian dalam tempoh minimum atau tempoh yang diluluskan.

- *A student is qualified to be awarded with Bachelor's Degree of a Pass With Honours (With Distinction) if he:*

  a) achieves a final CGPA of 3.70 and above;

  b) has never obtained grade F for any course throughout the duration of his programme of study;

  c) has never repeated any course where he failed and/or upgraded his course grade; and

  d) has successfully completed his programme of study within the minimum duration or approved duration.

Sila rujuk Pelan Pengajian Program serta **Kaedah-Kaedah & Peraturan-Peraturan Universiti Malaya (Ijazah Sarjana Muda) 2024**

Kindly refer to your Programme Structure as well as the ***Universiti Malaya (Bachelor's Degree) Rules and Regulations 2024***

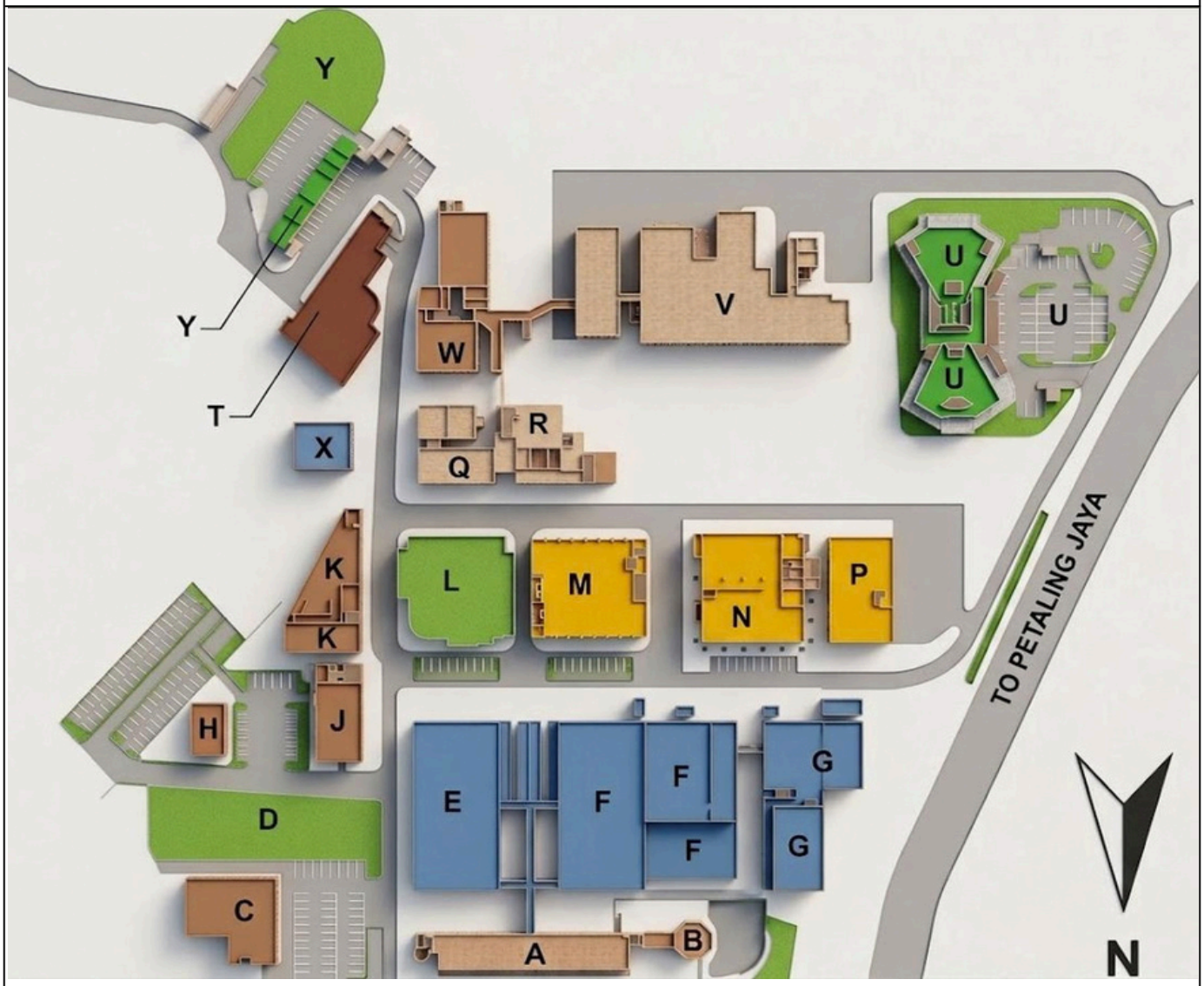
UNIVERSITI MALAYA

FAKULTI KEJURUTERAAN
Faculty of Engineering

KEMUDAHAN DAN PETA FAKULTI

FACILITIES AND FACULTY MAP

DIRECTORY BUILDING, FACULTY OF ENGINEERING UNIVERSITI MALAYA



Block A		Lecturer Rooms (Biomedical Engineering) / Biomedical Engineering Labs / Meeting Room
Block B		Lecture Hall 1 (DK1)
Block C	Level B	Mechanical Engineering Labs
	Level 1	Biomedical Engineering Labs / Green House (Outside)
	Level 2	Biomedical Engineering Labs
	Level 3	Biomedical Engineering Labs / Industrial Engineering Labs
	Level 4	Biomedical Engineering Labs / Industrial Engineering Labs
	Level 5	Industrial Engineering Labs / Mechanical Engineering Labs / Biomedical Engineering Labs
	Level 6	Industrial Engineering Labs
Block D	Level 1	Idea Realization Cube (IR Cube) / Biomedical Engineering Labs
	Level 2	The Cube 1 (Red, Orange, Green, Purple)
	Level 3	The Cube 2 (Red, Orange, Green) / BP204
Block E		Postgraduate Rooms (Electrical Engineering) / Electrical Engineering Labs
Block F		Civil Engineering Labs
Blok G		Lecturer Rooms
		Civil Engineering Labs
		Postgraduate Rooms (Civil Engineering)
Block H		Canteen
Block J		Student Centre (Mechanical Engineering)
	Level 2	Engineering Computer Center 1 (ECC1)
	Level 3	Engineering Computer Center 2 (ECC2)
Block K		Student Workshop / Mechanical Engineering Labs
		Male Prayer Room
Block L	Level 1	Café / Gallery / E-Rock Shop (vending machine)
	Level 2	Deputy Dean's (Development) Office / The Cube (meeting room) / Female Prayer Room Infineon Corner (student study area) / Lecture Hall 4 (DK4) / Lecture Hall 5 (DK5)
	Level 3	Dean's Office / Faculty Manager Office / Finance Office / Deputy Dean's (Undergraduate Studies) Office / Deputy Dean's (Postgraduates Studies) Office
	Level 4	Deputy Dean's (Research) Office / Deputy Dean's (Student Affairs) Office Conference Room / Dean's Meeting Room / Lecture Hall 6 (DK6)
	Level 5	Lecturer Rooms / Meeting Room
	Level 6	Head of Department's Office / Lecturer Rooms
	Level 7	Lecturer Rooms
	Level 8	Lecturer Rooms

Block M	Level 1	FESEM Lab / Mechanical Engineering Lab
	Level 2	CAREF Lab / Mechanical Engineering Labs
	Level 3	Mechanical Engineering Labs / Chemical Engineering Labs
	Level 4	Mechanical Engineering Labs / Biomedical Engineering Labs / Electrical Engineering Labs
	Level 5	Postgraduate Rooms / Biomedical Engineering Labs / Electrical Engineering Labs
	Level 6	Library
Block N		Civil Engineering Labs
Block P		Civil Engineering Labs / Chemical Engineering Labs
Block Q		Mechanical Engineering Labs
Block R		Mechanical Engineering Labs / Electrical Engineering Labs
Block T		Multiple Level Parking Block
Block U	Level 1	Lecture Hall 2 (DK2) / Lecture Hall 3 (DK3) / Biomedical Engineering Labs
	Level 2	Classrooms (BK101 - BK105)
	Level 3	Classrooms (BK201 - BK205)
	Level 4	Classroom (BK301) / Auditorium 1
Block V	Level 1	Lecturer Rooms (Chemical Engineering) / Chemical Engineering Labs / Meeting Room / Male & Female Prayer Room
	Level 2	Chemical Engineering Labs
	Level 3	Engineering Computer Center 4 (ECC4) / Engineering Computer Center 5 (ECC5) / The Purple Cube (meeting room) / Classrooms (BKK3 & BKK4)
Block W		Chemical Engineering Labs / Postgraduate Rooms / Lecturer Rooms (Chemical Engineering) / Male & Female Prayer Room
Block X		Mechanical Engineering Labs
Block Y	Level 1	Lecture Hall 7/8/9 (DK7/DK8/DK9) / Auditorium 2 / The Cube 2 / Electrical Engineering Labs / Walkway to Faculty of Built Environment / Male & Female Prayer Room
	Level 2	Lecturer Rooms (Electrical Engineering) / Electrical Engineering Labs / Meeting Room
	Level 3	Lecturer Rooms (Electrical Engineering) / Student Centre (Electrical Engineering) / Electrical Engineering Labs
	Level 4	Engineering Computer Center 6 (ECC6) / Engineering Computer Center 7 (ECC7) / Engineering Computer Center 8 (ECC8) / Electrical Engineering Labs
	Level 5	Electrical Engineering Labs