



UPM
UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

PANDUAN PROGRAM PENGAJIAN PRASISWAZAH

Undergraduate Studies Programme Guide

Bachelor Sains dan Teknologi Makanan dengan Kepujian
Bachelor of Food Science and Technology with Honours

SESI AKADEMIK

Academic Session

2022/2023

FAKULTI SAINS DAN TEKNOLOGI MAKANAN

Faculty of Food Science
and Technology

FAKULTI SAINS DAN TEKNOLOGI MAKANAN

Maklumat Am

Ditubuhkan dalam tahun 1982, Fakulti Sains dan Teknologi Makanan merupakan Fakulti yang aktif dan mempunyai reputasi tinggi sebagai sebuah Fakulti yang terbaik di Universiti Putra Malaysia. Fakulti ini mempamerkan dasar visi penubuhan Universiti untuk memenuhi keperluan negara dalam bidang sains, teknologi, pembuatan, pengurusan, pemasaran dan khidmat makanan melalui pengajaran, penyelidikan, dan perkhidmatan profesional. Visi ini telah direalisasikan secara sistematik oleh kakitangan akademik dan sokongan Fakulti yang sangat komited dan sentiasa berkongsi pendapat dengan saintis di institusi akademik dan penyelidikan, industri dan pelanggan.

Tiga tunjang utama Fakulti adalah Jabatan Sains Makanan, Jabatan Teknologi Makanan, dan Jabatan Pengurusan dan Khidmat Makanan. Ketiga-tiga Jabatan mengamalkan kesepaduan persekitaran kerja yang interaktif di mana pendekatan sinergetik digunakan dalam menyumbang kepada kecemerlangan Fakulti Sains dan Teknologi Makanan.

Terdapat empat program yang ditawarkan oleh Fakulti iaitu Bachelor Sains dan Teknologi Makanan dengan Kepujian, Bachelor Sains Pengajian Makanan dengan Kepujian, Bachelor Sains Pengurusan Perkhidmatan Makanan dengan Kepujian dan Bachelor Sains Operasi Pembuatan Makanan dengan Kepujian. Program Bachelor Sains dan Teknologi Makanan dengan Kepujian menekankan latihan keseluruhan dalam bidang sains dan teknologi makanan yang merangkumi kimia, mikrobiologi, pemprosesan dan kejuruteraan makanan. Manakala program Bachelor Sains Pengajian Makanan dengan Kepujian merupakan kurikulum komprehensif yang bakal menghasilkan graduan terlatih dan profesional dalam bidang pemprosesan, pengeluaran, pengurusan dan pemasaran makanan. Program Bachelor Sains Pengurusan Perkhidmatan Makanan dengan Kepujian pula di wujudkan bagi melahirkan graduan profesional yang menyeluruh meliputi aspek sains makanan, kulinari dan gastronomi, layanan, pengurusan dan keusahawanan serta berupaya menjalankan penyelidikan dan pembangunan dalam bidang perkhidmatan makanan. Manakala Program Bachelor Sains Operasi Pembuatan Makanan dengan Kepujian yang ditawarkan bakal melahirkan profesional yang berpengetahuan dan berkemahiran teknikal dalam bidang operasi pembuatan makanan serta berkebolehan menyelesaikan masalah bidang operasi pembuatan makanan secara inovatif, kreatif dan beretika yang mampu berkomunikasi dan menunjukkan keupayaan pengendalian operasi pembuatan makanan serta mempunyai ciri keusahawanan dalam bidang yang diceburi dan juga mampu menjalankan penyelidikan dan pembangunan dalam bidang operasi pembuatan makanan.

FACULTY OF FOOD SCIENCE AND TECHNOLOGY

General Information

Established in 1982, the Faculty of Food Science and Technology is an active faculty which is highly regarded as one of the best faculties at Universiti Putra Malaysia. The faculty depicts the foundations of the vision for the establishment of the university to fulfill the nation's needs in the field of food science, technology, manufacturing, management, marketing and service through teaching, research, and professional services. This vision has been systematically realized by academic and supporting faculty staff who are highly committed and frequently share ideas with scientists at academic and research institutions, industries, and clients.

The three main pillars of the faculty are the Department of Food Science, Department of Food Technology and the Department of Food Service and Management. All three departments have an integrated interactive working environment whereby a synergetic approach is adopted to contribute to excellence in the Faculty of Science and Technology.

The faculty offers four programs i.e. Bachelor of Food Science and Technology with Honours, Bachelor of Science in Food Studies with Honours, Bachelor of Science in Food Service Management with Honours and Bachelor of Science in Food Manufacturing Operations with Honours. The Bachelor of Food Science and Technology with Honours program emphasizes on overall training in the field of food

science and technology which include food chemistry, microbiology, processing, and engineering. Meanwhile, the Bachelor of Science in Food Studies with Honours program has a comprehensive curriculum designed to produce well-trained and professional graduates in the field of food processing, production, management, and marketing. The Bachelor of Science in Food Service Management with Honours program was established to produce wholesome professional graduates covering aspects of food science, culinary and gastronomy, service, management, and entrepreneurship and can conduct research and development in the field of food service management. The Bachelor of Food Manufacturing Operations with Honours program, on the other hand, will produce professionals who are knowledgeable and technically skilled in the field of food manufacturing operations as well as able to solve problems in the field of food manufacturing operations in an innovative, creative and ethical manner, and can communicate and demonstrate the ability to handle food manufacturing operations and entrepreneurship in the field ventured and are also able to conduct research and development in the field of food manufacturing operations.

Pengurusan Fakulti/ Faculty Management

Dekan/ Dean

Prof. Madya Dr. Anis Shobirin Meor Hussin

Timbalan Dekan (Akademik dan Hal Ehwal Pelajar)

Deputy Dean (Academic and Student Affairs)

Prof. Madya Dr. Radhiah binti Shukri

Timbalan Dekan (Siswazah, Penyelidikan dan Inovasi)

Deputy Dean (Postgraduate, Research, and Innovation)

Prof. Madya Dr. Rabiha binti Sulaiman

Timbalan Dekan (Pembangunan dan Jaringan)

Deputy Dean (Development and Networking)

Prof. Madya Dr. Maimunah Sanny

Ketua Jabatan Sains Makanan

Head, Department of Food Science

Dr. Rashidah Sukor

Ketua Jabatan Teknologi Makanan

Head, Department of Food Technology

Prof. Madya Dr. Chong Gun Hean

Ketua Jabatan Pengurusan dan Khidmat Makanan

Head, Department of Food Service and Management

Dr. Ungku Fatimah Ungku Zainal Abidin

Ketua Penolong Pendaftar

Head Assistant Registrar

Pn. Rozi Tamin

Program Prasiswazah yang ditawarkan/Undergraduate Programs being offered:

Bachelor/Bachelor

1. Bacelor Sains dan Teknologi Makanan dengan Kepujian / *Bachelor of Food Science and Technology with Honours*
2. Bacelor Sains Pengajian Makanan dengan Kepujian / *Bachelor of Science in Food Studies with Honours*
3. Bacelor Sains Pengurusan Perkhidmatan Makanan dengan Kepujian / *Bachelor of Science in Food Service Management with Honours*
4. *Bachelor Sains Operasi Pembuatan Makanan dengan Kepujian / Bachelor of Science in Food Manufacturing Operations with Honours*

MAKLUMAT DAN SKEMA PENGAJIAN PAKEJ ELEx UNTUK PROGRAM 4 TAHUN/

INFORMATION AND STUDY SCHEME ELEX PACKAGE FOR 4 YEAR PROGRAM

**(Berkuatkuasa Untuk Ambilan Oktober 2021 Dan Seterusnya/
Effective For intake October 2021 onwards)**

ELEX Requirements for Graduation

The required number of LPE courses, CEL courses and LAX points to be fulfilled is based on MUET Bands as shown in the table below:

CEFR Tahap	MUET Tahap	TOEFL/IELTS Skor	CIEP Tahap	Pearson Test of English (PTE) Academic Skor	Cambridge English Skor	Keperluan Bergraduat
C1 – C2	5.0 – 5+	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0	-	76 - 90	180 – 230	2 LPE + 1 CEL + 24 mata LAX <u>atau</u> 1 LPE + 1 CEL + 24 mata LAX + 1 Bahasa global
B1 – B2	3.0 – 4.5	TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	104 – 109	43 – 75	140 – 179	2 LPE + 2 CEL + 24 mata LAX
A1-A2	1.0 - 2.5	TOEFL iBT N/A IELTS 2.5 – 3.5	101 – 103	24 – 42	100 – 139	3 LPE + 3 CEL + 24 mata LAX

ELEX Scheme

Students **must** enroll in LPE, CEL and LAX each semester as specified in the ELEX Scheme.

The following table shows the ELEX Scheme for each semester according to MUET Bands

Semester	SKEMA UNTUK PROGRAM 4 TAHUN		
	MUET 1.0 – 2.5 IELTS 2.5 – 3.5 CIEP 101 – 103 PTE 30 – 42 CE 120 – 139	MUET 3.0 – 4.5 TOEFL iBT 42 – 94 IELTS 4.0 – 6.5 CIEP 104 – 109 PTE 43 – 75 CE 140 – 179	MUET 5.0 – 5+ TOEFL iBT 95 – 120 IELTS 7.0 – 9.0 PTE 76 – 90 CE 180 – 230
1	LAX 12 mata		LAX 6 mata
2	CEL2102	LAX 6 mata	LPE2403
3	LPE2302		LPE2503
4	LPE2403		LAX 6 mata
5	LPE2503		Pilih SATU: CEL 2105/2106/2107
			Pilih SATU: CEL 2103/2104
			Pilih SATU: LPE2303/LPE2504/ Bahasa global
			LAX 6 mata
			Pilih SATU: LPE2303/LPE2504/

			Bahasa global
6	Pilih SATU: CEL 2105/2106/2107	Pilih SATU: CEL 2105/2106/2107	LAX 6 mata
7	Pilih SATU: CEL 2105/2106/2107	LAX 6 mata	LAX 6 mata
8	LAX 6 mata	LAX 6 mata	-

Note:

Students must follow the scheme of study provided based on MUET (or equivalent) every semester.

- Students MUET Band 5 and 6 have the option of taking either one or two LPE courses. Students who choose one LPE course, must also take a course in global language.
- Students who are on Industrial Training in a specific semester, do not need to register for English Language course or English Language skills activities for that semester but have to register and attend the course or activity in the preceding or prospective semester (subject to pre-requisite courses).

Information for ELEX (English Language Experience) package

I. LPE courses [credit (2+1)]

- LPE2302 (Reading for Academic Purposes)
- LPE2403 (Academic Interaction and Presentation)
- LPE2503 (Academic Writing)
- LPE2303 - **ONLY** for MUET Band 5 & 6
- LPE2504 - **ONLY** for MUET Band 5 & 6

Note: Students who failed the BBI course, must repeat the course until they pass before taking the next course.

II. CEL courses

- CEL2102 (Effective Listening and Speaking)
- CEL2103 (Writing Academic Texts)
- CEL2105 (Spoken Communication for the Workplace)
- CEL2106 (Communication for Professional Development)
- CEL2107 (Written Business Communication)

Note: Students who obtained Level 1 for CEL course, must repeat the course until pass (Level 2 and above).

III. LAX

- LAX (6 points or 12 points); 1 point = 2 hours per week
- 6 points LAX = 6 weeks x 2 hours per week
- 12 points LAX = 12 weeks x 2 hours per week
- LAX activities offered each semester will be announced by CALC (Centre for the Advancement of Language Competence)

Note: Students who obtained TM (Not Satisfactory), must take the same or different LAX activities to replace the failed activity points (TM). Students must ensure that the required number of LAX points is fulfilled before graduation.

Note:

Students must follow the prescribed scheme of study based on their MUET results (or equivalent) every semester.

- MUET Band 5 and 6 students can choose to enrol in either one or two BBI courses. If they choose to do one BBI course, they must also enrol in one global language.
- Students who are away on Industrial Training in any semester do not have to enrol in any course or LAX activity for that particular semester. However, they must enrol in a course or LAX activity in the prior or subsequent semester (subject to course pre-requisites).

ELEX Package Information

I. BBI Courses [(2+1) credits]

- LPE2302 (Reading for Academic Purposes)
- LPE2403 (Academic Interaction and Presentation)
- LPE2503 (Academic Writing)
 - BBI2425 – for MUET Band 5 & 6 students only
 - BBI2426 – for MUET Band 5 & 6 students only

Note: If students fail in a BBI course, they must repeat and pass the course before they can enrol in a subsequent BBI course.

II. CEL Courses

- CEL2102 (Effective Listening and Speaking)
- CEL2103 (Writing Academic Texts)
- CEL2105 (Spoken Communication for the Workplace)
- CEL2106 (Communication for Professional Development)
- CEL2107 (Written Business Communication)

Note: If students obtain LEVEL 1, they must repeat and pass the course (LEVEL 2 and above).

III. LAX

- LAX (6 points or 12 points); 1 point = 2 hours per week
- 6-point LAX = 6 weeks x 2 hours per week
- 12-point LAX = 12 weeks x 2 hours per week

Note: If students obtain TM (*Tidak Memuaskan*/Unsatisfactory), they must enrol in the same or different LAX activity to replace the failed points. Students must ensure that they fulfil the required number of LAX points for graduation.

IV. Pre-requisites for courses

- LPE2302: MUET Band 1 – 2/equivalent
- LPE2403: CEL 2102 Level 2 or MUET Band 3 – 4/equivalent
- LPE2503: Passed LPE2403
- CEL2103: Passed LPE2503 or MUET Band 5 – 6/equivalent
- CEL2102, 2105, 2106, 2107: No pre-requisite required

**Bachelor Sains dan Teknologi
Makanan dengan Kepujian**

***Bachelor of Food Science and
Technology with Honours***

STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Sains dan Teknologi Makanan dengan Kepujian/ Bachelor of Food Science and Technology with Honours**
Jumlah Kredit Bergraduat : **130 Jam Kredit/ Credit Hours**
Tempoh Pengajian : **8 Semester/ Semesters (4 Tahun/ Years)**

Matlamat Program : Matlamat program [Program Educational Objectives (PEO)] ini adalah untuk melahirkan:

1. Profesional yang kompeten dalam aspek teori dan praktikal bagi menerajui bidang berasaskan sains dan teknologi makanan
2. Profesional yang menunjukkan ciri kepemimpinan di sesebuah industri berkaitan sains dan teknologi makanan
3. Profesional yang berkemahiran penyelidikan bagi tujuan inovasi dan pengajian lanjutan dalam bidang sains dan teknologi makanan

Ringkasan Hasil Pembelajaran Program

Program	Pengetahuan dan kefahaman (C)	Kemahiran praktikal (P)	Kemahiran kognitif (CTPS)	Kemahiran komunikasi (CS)	Kemahiran interpersonal (TS)	Etika dan profesionalisme (EM)	Kemahiran digital dan pendidikan sepanjang hayat (LL)	Kemahiran personal dan keusahawanan (KK)	Kepemimpinan, autonomi dan tanggungjawab (LS)	Kemahiran numerasi (NS)
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
Bachelor Sains dan Teknologi Makanan	39	26	30	9	10	12	11	8	7	5

1. Kursus Universiti/ *University Courses (20 Kredit/ 20 Credits)*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T	PRASYARAT/ PREREQUISIT E	(√) Jika lulus/ if passed
SKP2101*	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0	Tiada/ <i>None</i>	
FEM2401**	Politik Malaysia Dan Masyarakat/ <i>Malaysian Politics and Society</i>	2	2	0		
SKP3112*	Falsafah dan Isu Semasa/ <i>Philosophy and Current Issues</i>	2	2	0	Tiada/ <i>None</i>	
SKP3113**	Falsafah dan Isu Semasa Masyarakat Sivil/ <i>Philosophy and Current Issues in Civil Society</i>					
atau/ <i>or</i>		3	3	0	Tiada/ <i>None</i>	
SKP3123**	Penghayatan Etika dan Peradaban di Malaysia/ <i>Internalization of Ethics and Civilization in Malaysia</i>					
SKP3122*	Penghayatan Etika dan Peradaban/ <i>Internalization of Ethics and Civilization</i>	2	2	0	Tiada/ <i>None</i>	
LPM2100**	Bahasa Melayu Komunikasi/ <i>Malay Language Communication</i>	2	2	0	Tiada / <i>None</i>	
PRT2009	Pertanian dan Kehidupan/ <i>Agriculture and Life</i>	2	1	1	Tiada/ <i>None</i>	
MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3	2	1	Tiada/ <i>None</i>	
LPE2403	Interaksi dan Pembentangan Akademik/ <i>Academic Interaction and Presentation</i>	3	3	0	LPE2302 or MUET Band 3 & 4	
LPE2503	Penulisan Akademik/ <i>Academic Writing</i>	3	3	0	LPE2403	
QK_XXXX	Ko-kurikulum I/ <i>Co-curriculum I</i>	1	0	1	Tiada/ <i>None</i>	
QK_XXXX	Ko-kurikulum II/ <i>Co-curriculum II</i>	1	0	1	Tiada/ <i>None</i>	

Nota/ Notes: * pelajar tempatan/ *local student* **pelajar antarabangsa/ *international student*

2. Kursus Teras/ *Core Courses (76 Kredit/ 76 Credits)*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T	PRASYARAT/ PREREQUISITE	(√) Jika lulus/ if passed
MTH3003	Statistik Bagi Sains Gunaan/ <i>Statistics for Applied Sciences</i>	4	3	1	Tiada/ <i>None</i>	
CHY3201	Kimia Organik I/ <i>Organic Chemistry I</i>	4	3	1	CHY2001#/ Setara	
FST3110	Biokimia Makanan/ <i>Food Biochemistry</i>	3	3	0	Tiada/ <i>None</i>	

FST3114	Kimia dan Analisis Komponen Makro Makanan/ <i>Chemistry And Analysis Of Food Macro-Components</i>	4	2	2	FST3110
FST3115	Kimia dan Analisis Komponen Mikro Makanan/ <i>Chemistry And Analysis Of Food Micro-Components</i>	3	2	1	FST3110
FST3201	Mikrobiologi Makanan Asas/ <i>Basic Food Microbiology</i>	3	2	1	Tiada/ None
FST3202	Mikrobiologi Makanan/ <i>Food Microbiology</i>	3	2	1	FST3201
FST3302	Asas Pemprosesan dan Pengawetan Makanan/ <i>Fundamentals of Food Processing and Preservation</i>	3	3	0	Tiada/ None
FST3401	Asas Kejuruteraan Makanan/ <i>Fundamentals of Food Engineering</i>	3	2	1	Tiada/ None
FST3404	Operasi Unit Pemprosesan Makanan I/ <i>Unit Operations in Food Processing I</i>	3	2	1	FST3401
FST3405	Operasi Unit Pemprosesan Makanan II/ <i>Unit Operations in Food Processing II</i>	3	2	1	FST3404
FST3601	Kebersihan dan Sanitasi Makanan/ <i>Food Hygiene and Sanitation</i>	2	2	0	FST3202
FST3603	Pemprosesan Makanan Halal/ <i>Halal Food Processing</i>	3	3	0	FST3302/ FMO3801
FST3702	Makanan dan Kesihatan/ <i>Food and Health</i>	3	3	0	Tiada/ None
FST4411	Reka Bentuk Loji Makanan/ <i>Food Plant Design</i>	3	3	0	FST3405
FST4828	Pembangunan Produk Makanan Baharu/ <i>New Food Product Development</i>	3	1	2	FST4832
FST4830	Teknologi Pemprosesan Hasil Tumbuhan/ <i>Processing Technology of Plant Products</i>	3	2	1	FST3302
FST4831	Teknologi Pemprosesan Hasil Haiwan/ <i>Processing Technology of Animal Products</i>	3	2	1	FST3302
FST4832	Penilaian Deria Makanan/ <i>Sensory Evaluation of Food</i>	2	1	1	MTH3003
FSM4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12	FST4959
FST4959	Disertasi Bachelo/ <i>Bachelor Dissertation</i>	6	0	6	Tiada/ None

Nota/ Notes: # Pengecualian daripada kursus CHY2001 (Kimia Am) diberi kepada pelajar yang memperolehi C+ ke atas bagi kimia peringkat diploma, matrikulasi, asasi dan STPM tetapi **pelajar perlu mengisi borang pengecualian atas talian**. # *Exemption from CHY2001 (General Chemistry) course is given to students who obtained C+ and above for their diploma, matriculation, foundation, and STPM level chemistry but **students are required to fill in the online exemption form.***

3. Kursus Elektif/ *Elective courses* (34 Kredit/ 34 Credits)

Pelajar dikehendaki memilih sekurang-kurangnya 34 kredit daripada mana-mana kursus yang ditawarkan di FSTM atau fakulti lain. Kursus yang dipilih pelajar hendaklah termasuk kursus Pengurusan Air dan Air Buangan Industri Makanan (FST4409), Perundangan Makanan (FST4609), sekurang-kurangnya satu kursus Teknologi Makanan yang tersenarai (seperti yang ditandakan dengan “@”) dan satu kursus bahasa global. / *Students are required to select at least 34 credits from any courses offered at FSTM or other faculties. Courses selected by students must include Food Industry Water and Wastewater Management (FST4409), Food Law (FST4609), at least one of the listed Food Technology courses (as indicated by “@”) and one global language course.*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T	PRASYARAT/ PREREQUISITE	(√) Jika lulus/ if passed
FST4408*	Pembungkusan Makanan/ <i>Food Packaging</i>	3	2	1	FST3302 atau FMO3801	
FST4409*	Pengurusan Air dan Air Buangan Industri Makanan/ <i>Food Industry Water and Wastewater Management</i>	2	2	0	FST4611	
FST4609*	Perundangan Makanan/ <i>Food Law</i>	2	2	0	FST4828	
FST4611*	Keselamatan Kimia Makanan/ <i>Food Chemical Safety</i>	3	3	0	FST3110	
FST4612*	Pengurusan Kualiti Makanan/ <i>Food Quality Management</i>	3	3	0	FST4611 atau FMP3101	
FST4201	Kaedah Pantas dalam Analisis Makanan/ <i>Rapid Methods in Food Analysis</i>	3	2	1	FST3202	
FST4407	Pengurusan Operasi Loji Makanan/ <i>Operational Management of Food Plant</i>	3	3	0	FST3405 atau FMO3402	
FST4410	Kejuruteraan Sisa Industri Makanan/ <i>Food Industry Waste Engineering</i>	2	2	0	Tiada/ <i>None</i>	
FST4505	Biopemprosesan Makanan/ <i>Food Bioprocessing</i>	3	3	0	Tiada/ <i>None</i>	
FST4705	Makanan Fungsian/ <i>Functional Food</i>	3	3	0	FST3115	
FST4833	Pengendalian Lepastuai Buah-buahan dan Sayur-sayuran/ <i>Postharvest Handling of Fruits and Vegetables @</i>	3	2	1	FST4830	
FST4834*	Teknologi Minyak dan Lemak/ <i>Technology of Oils and Fats @</i>	3	2	1	FST4830	
FST4835*	Teknologi Bijirin dan Kekacang/ <i>Cereals and Legumes Technology @</i>	3	2	1	FST4830	
FST4836*	Teknologi Tenusu/ <i>Dairy Technology @</i>	3	2	1	FST4831	
FST4837*	Teknologi Minuman/ <i>Beverage Technology @</i>	3	2	1	FST4830	
FST4838	Teknologi Konfeksi Coklat dan Gula/ <i>Chocolate and Sugar Confectionery Technology @</i>	3	2	1	FST4830	
FST4839	Teknologi Hasilan Akuatik/ <i>Aquatic Product Technology @</i>	3	2	1	FST4831	
FST4840*	Teknologi Daging/ <i>Meat Technology @</i>	3	2	1	FST4831	
FST4110*	Makanan Masa Hadapan	3	3	0	FST3110	
FMP3401	Pengurusan Sistem Maklumat dan Digitalisasi dalam Industri Makanan	3	2	1	Tiada/ <i>None</i>	

FMP3601	Keusahawanan Dalam Industri Makanan	3	2	1	MGM 3180
FMP4101	Aditif Makanan/ <i>Food Additives</i>	3	3	0	Tiada/ <i>None</i>
LP_2101*	Bahasa Global Asas I/ <i>Basic Global Language I</i>	3	3	0	Tiada/ <i>None</i>

* Kursus elektif bebas popular yang dijangka akan diambil oleh pelajar dipilih bagi tujuan pengiraan.

Nota/ Notes : Kr = Jam Kredit/ *Credit Hour*, K = Kuliah/ *Lecture*, A = Amali/ *Laboratory*, T = Tutorial

SKEMA PENGAJIAN BACELOR SAINS DAN TEKNOLOGI MAKANAN DENGAN KEPUJIAN/ *STUDY SCHEME FOR BACHELOR OF FOOD SCIENCE AND TECHNOLOGY WITH HONOURS*

TAHUN 1/ *1ST YEAR*

SEMESTER 1/ *1ST SEMESTER*

KOD KURSUS/ <i>COURSE CODE</i>	NAMA KURSUS/ <i>COURSE NAME</i>	Kr	K	A/T
PRT2009	Pertanian dan Kehidupan/ <i>Agriculture and Life</i>	2	1	1
SKP2101*	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
FEM2401**	Politik Malaysia Dan Masyarakat/ <i>Malaysian Politics and Society</i>	2	2	0
SKP3112*	Falsafah dan Isu Semasa/ <i>Philosophy and Current Issues</i>	2	2	0
SKP3113**	Falsafah dan Isu Semasa Masyarakat Sipil/ <i>Philosophy and Current Issues in Civil Society</i>	3	3	0
atau/ <i>or</i> SKP3123**	Penghayatan Etika dan Peradaban di Malaysia/ <i>Internalization of Ethics and Civilization in Malaysia</i>			
MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3	2	1
MTH3003	Statistik bagi Sains Gunaan/ <i>Statistics for Applied Sciences</i>	4	3	1
QK_XXXX	Ko-kurikulum I/ <i>Co-curriculum I</i>	1	0	1
	<i>LAX (6 points)</i>			
JUMLAH/ TOTAL		15	11	4

SEMESTER 2/ *2ND SEMESTER*

KOD KURSUS/ <i>COURSE CODE</i>	NAMA KURSUS/ <i>COURSE NAME</i>	Kr	K	A/T
LPE2403	Academic Interaction and Presentation	3	3	0
CHY3201#	Kimia Organik I/ <i>Organic Chemistry I</i>	4	3	1
FST3110	Biokimia Makanan/ <i>Food Biochemistry</i>	3	3	0

FST3201	Mikrobiologi Makanan Asas/ <i>Basic Food Microbiology</i>	3	2	1
FST3401	Asas Kejuruteraan Makanan/ <i>Fundamentals of Food Engineering</i>	3	2	1
QK_XXXX	Ko-kurikulum II/ <i>Co-curriculum II</i>	1	0	1
JUMLAH/ TOTAL		17	13	4

Nota/ Notes: # CHY2001 (Kimia Am) adalah prasyarat kepada CHY3201 (Kimia Organik 1). Pengecualian diberi kepada pelajar yang memperolehi C+ ke atas bagi kimia peringkat diploma, matrikulasi, asasi dan STPM tetapi **pelajar perlu mengisi borang pengecualian atas talian**. # *Exemption from CHY2001 (General Chemistry) course is given to students who obtained C+ and above for their diploma, matriculation, foundation, and STPM level chemistry but **students are required to fill in the online exemption form.***

TAHUN 2/ 2ND YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T
LPE2503	Penulisan Akademik/ <i>Academic Writing</i>	3	3	0
FST3114	Kimia dan Analisis Komponen Makro Makanan/ <i>Chemistry and Analysis of Food Macro-Components</i>	4	2	2
FST3202	Mikrobiologi Makanan/ <i>Food Microbiology</i>	3	2	1
FST3302	Asas Pemprosesan dan Pengawetan Makanan/ <i>Fundamentals of Food Processing and Preservation</i>	3	3	0
FST3404	Operasi Unit Pemprosesan Makanan I/ <i>Unit Operations in Food Processing I</i>	3	2	1
JUMLAH/ TOTAL		16	12	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T
SKP3122	Penghayatan Etika dan Peradaban/ <i>Internalization of Ethics and Civilization</i>	2	2	0
FST3115	Kimia Dan Analisis Komponen Mikro Makanan/ <i>Chemistry and Analysis Of Food Micro-Components</i>	3	2	1
FST3405	Operasi Unit Pemprosesan Makanan II/ <i>Unit Operations in Food Processing II</i>	3	2	1
FST3601	Kebersihan Dan Sanitasi Makanan/ <i>Food Hygiene and Sanitation</i>	2	2	0
FST3603	Pemprosesan Makanan Halal/ <i>Halal Food Processing</i>	3	3	0

FST3702	Makanan dan Kesehatan/ <i>Food and Health</i>	3	3	0
JUMLAH/ TOTAL		16	14	2

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T
FST4830	Teknologi Pemrosesan Hasil Tumbuhan/ <i>Processing Technology of Plant Products</i>	3	2	1
FST4831	Teknologi Pemrosesan Hasil Haiwan/ <i>Processing Technology of Animal Products</i>	3	2	1
FST4832	Penilaian Deria Makanan/ <i>Sensory Evaluation of Food</i>	2	1	1
FST4411	Reka Bentuk Loji Makanan/ <i>Food Plant Design</i>	3	3	0
	Kursus Elektif Bidang/ <i>Field Electives Courses</i> CEL2105/2106/2107	6		
JUMLAH/ TOTAL		17	8	3

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T
FST4828	Pembangunan Produk Makanan Baharu/ <i>New Food Product Development</i>	3	1	2
FST4959A	Disertasi Bacelor/ <i>Bachelor Dissertation</i>	3	0	3
	Kursus Elektif Bidang/ <i>Field Electives Courses</i> CEL2105/2106/2107	11		
JUMLAH/ TOTAL		17	1	5

TAHUN 4/ 4TH YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T
FST4959B	Disertasi Bacelor/ <i>Bachelor Dissertation</i>	3	0	3
	Kursus Elektif Bidang/ <i>Field Electives Courses</i>	11		
	Kursus Elektif Bebas/ <i>Free Electives Courses</i> LAX (6 points)	3		
JUMLAH/ TOTAL		17	0	3

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/ COURSE NAME	Kr	K	A/T
FSM4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12

Nota: * Pelajar dikehendaki mengambil sebanyak 31 kredit bagi kursus elektif bidang bertujuan untuk peningkatan ilmu dan kemahiran pelajar dalam sains dan teknologi makanan 3 kredit elektif bebas iaitu kursus bahasa global.

KURSUS TAWARAN FAKULTI ATAU PUSAT LAIN/ COURSES OFFERED BY OTHER FACULTIES OR CENTRES

(Sila rujuk sinopsis pada fakulti atau pusat berkenaan/ Please refer to course synopsis from the respective faculties or centres)

1. FAKULTI EKOLOGI MANUSIA/ FACULTY OF HUMAN ECOLOGY

1.1	SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3 (3+0)
1.2	SKP3112	Falsafah dan Isu Semasa/ <i>Philosophy and Current Issues</i>	2 (2+0)
1.3	SKP3122	Penghayatan Etika dan Peradaban/ <i>Internalization of Ethics and Civilization</i>	2 (2+0)

2. FAKULTI PERTANIAN/ FACULTY OF AGRICULTURE

2.1	PRT2009	Pertanian dan Kehidupan/ <i>Agriculture and Life</i>	2 (1+1)
2.2	PPT4202	Perancangan dan Pengurusan Projek Perniagaantani/ <i>Agricbusiness Project Planning and Management</i>	3 (3+0)
2.3	PPT4702	Keusahawanan Perniagaantani/ <i>Agricbusiness Entrepreneurship</i>	3 (2+1)

3. PUSAT PEMAJUAN KOMPETENSI BAHASA/ CENTRE FOR THE ADVANCEMENT OF LANGUAGE COMPETENCE (CALC)

3.1	LPE2302	<i>Reading for Academic Purposes</i>	3 (3+0)
3.2	LPE2403	<i>Academic Interaction and Presentation</i>	3 (3+0)
3.3	LPE2503	<i>Academic Writing</i>	3 (3+0)
3.4	BBI2412	<i>Writing for Academic Purposes</i>	3 (2+1)
3.5	LPE2303	<i>Critical Reading Skills</i>	3 (2+1)
3.6	LPE2504	<i>Creative Writing Skills</i>	3 (2+1)
3.7	LP_2101	Bahasa Global Asas I/ <i>Basic Global Language I</i>	3 (3+0)
3.8	LP_2102	Bahasa Global Asas II/ <i>Basic Global Language II</i>	3 (2+1)
3.9	LP_2103	Bahasa Global Asas III/ <i>Basic Global Language III</i>	3 (2+1)

4. FAKULTI EKONOMI DAN PENGURUSAN/ FACULTY OF ECONOMY AND MANAGEMENT

4.1	MGM3101	Prinsip Pengurusan/ <i>Principles of Management</i>	3 (2+1)
4.2	MGM3113	Gelagat Organisasi/ <i>Organizational Behavior</i>	3 (3+0)
4.3	MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3 (2+1)
4.4	MGM3211	Prinsip Pemasaran/ <i>Principles of Marketing</i>	3 (3+0)
4.5	MGM3244	Gelagat Pengguna/ <i>Consumer Behavior</i>	3 (3+0)
4.6	MGM4154	Pengurusan Perdagangan Antarabangsa/ <i>International Business Management</i>	3 (3+0)
4.7	MGM4183	Keusahawanan/ <i>Entrepreneurship</i>	3 (3+0)

4.8	MGM4204	Pemasaran Perkhidmatan/ <i>Services Marketing</i>	3 (3+0)
4.9	MGM4219	Pengurusan dan Strategi Pemasaran/ <i>Marketing Strategy and Management</i>	3 (3+0)
4.10	MGM4224	Pemasaran Langsung/ <i>Direct Marketing</i>	3 (3+0)
4.11	MGM4264	Penyelidikan Pemasaran/ <i>Marketing Research</i>	3 (3+0)
4.12	MGM4273	Pemasaran Antarabangsa/ <i>International Marketing</i>	3 (3+0)
4.13	MGM4284	Pengurusan Promosi/ <i>Promotion Management</i>	3 (3+0)
4.14	ACT2112	Perakaunan Pengenalan/ <i>Introductory Accounting</i>	4 (3+1)
4.15	ACT2131	Perakaunan Kos dan Pengurusan/ <i>Cost and Management Accounting</i>	3 (3+0)
4.16	ACT3211	Pengurusan Kewangan/ <i>Financial Management</i>	3 (3+0)
4.17	ACT3112	Perakaunan Pengenalan/ <i>Introductory Accounting</i>	4 (3+1)
4.18	ECN3100	Prinsip Ekonomi/ <i>Principles of Economics</i>	3 (3+0)
4.19	HPR4100	Pengurusan Hotel dan Pusat Peranginan/ <i>Hotel And Resort Management</i>	3 (3+0)
4.20	HPR4314	Pengurusan Acara, Konvensyen Dan Pameran/ <i>Event, Convention And Exhibition Management</i>	3 (3+0)

5. FAKULTI SAINS/ *FACULTY OF SCIENCE*

5.1	PHY2001	Fizik Am/ <i>General Physics</i>	4 (3+1)
5.2	CHY2001	Kimia Am/ <i>General Chemistry</i>	4 (3+1)
5.3	FST3201	Kimia Organik 1/ <i>Organic Chemistry I</i>	4 (3+1)
5.4	MTH3003	Statistik Bagi Sains Gunaan/ <i>Statistics for Applied Sciences</i>	4 (3+1)

6. FAKULTI PERUBATAN DAN SAINS KESIHATAN/ *FACULTY OF MEDICINE AND HEALTH SCIENCES*

6.1	DTK3000	Kaunseling Pemakanan/ <i>Nutrition Counseling</i>	3 (2+1)
6.2	DTK3200	Pemakanan Klinikal/ <i>Clinical Nutrition</i>	4 (3+1)
6.3	DTK3201	Diet Terapi I/ <i>Therapeutic Diet I</i>	3 (3+0)
6.4	SBP3202	Biokimia Klinikal/ <i>Clinical Biochemistry</i>	3 (2+1)

7. FAKULTI BAHASA MODEN DAN KOMUNIKASI/ *FACULTY OF MODERN LANGUAGE AND COMMUNICATION*

7.1	KOH3432	Kemahiran Komunikasi Interpersonal/ <i>Interpersonal Communication Skill</i>	3 (2+1)
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8. FAKULTI PENGAJIAN PENDIDIKAN / *FACULTY OF EDUCATIONAL STUDIES*

8.1	FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2 (2+0)
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