

BUKU PANDUAN PROGRAM PENGAJIAN PRASISWAZAH

*UNDERGRADUATE STUDY
PROGRAMME HAND BOOK*



**SESI AKADEMIK
ACADEMIC SESSION
— 2021/2022**

**FAKULTI
PERTANIAN**
FACULTY OF AGRICULTURE

FAKULTI PERTANIAN | FACULTY OF AGRICULTURE

Maklumat Am

Fakulti Pertanian adalah satu daripada tiga fakulti pengasas dalam penubuhan Universiti Pertanian Malaysia (kini Universiti Putra Malaysia) pada 1971. Bermula dengan tujuh jabatan di bawahnya, fakulti ini telah menjadi asas kepada penubuhan beberapa fakulti lain dalam proses pembangunan dengan membangunkan jabatan berkenaan hingga menjadi taraf fakulti sendiri.

Sehingga akhir 1998, Fakulti Pertanian mempunyai 3 jabatan akademik, iaitu Jabatan Agronomi dan Hortikultur, Jabatan Perlindungan Tumbuhan dan Jabatan Sains Tanah.

Bermula pada 1 Januari 1999, proses penstrukturkan semula di Universiti Putra Malaysia juga melibatkan Fakulti Pertanian. Penstrukturkan ini adalah berkonsepkan penyatuan atau integrasi elemen utama dalam sistem pertanian iaitu tanaman, tanah, ternakan, perniagaantani, teknologi dan perikanan. Berdasar kepada konsep ini, Fakulti Pertanian kini mempunyai tujuh jabatan, iaitu (1) Jabatan Sains Tanaman, (2) Jabatan Perlindungan Tumbuhan, (3) Jabatan Pengurusan Tanah, (4) Jabatan Sains Haiwan, (5) Jabatan Perniagaantani dan Ekonomi Biosumber, (6) Jabatan Teknologi Pertanian dan (7) Jabatan Akuakultur.

Sebagai fakulti yang terunggul dalam bidang pertanian, fakulti sentiasa bersedia memainkan peranan utama dalam menangani isu-isu semasa pertanian negara serta menyumbang kepada prospek pembangunan industri pertanian dalam jangka masa panjang dengan menyediakan program latihan sumber manusia dan tenaga terlatih yang terdiri daripada graduan yang holistik dan berdaya saing.

Seiring dengan matlamat pendidikan negara, Fakulti Pertanian sentiasa berusaha melahirkan pakar pertanian yang terlatih, berciri-ciri keusahawan dan berupaya mengendalikan perundingan khidmat nasihat kepada masyarakat bagi menjamin kelestarian bidang pertanian, di samping mencipta teknologi pertanian baru, hasil daripada struktur program yang berkualiti, semangat penyelidikan dan pengkomersilan produk pertanian.

General Information

The Faculty of Agriculture is one of three founding faculties of Universiti Pertanian Malaysia (now known as Universiti Putra Malaysia) in 1971. The faculty began with seven (7) departments and has become the basis for the establishment of several other faculties in the development process by developing the department to become an independent faculty.

The restructuring exercise at the Universiti Putra Malaysia which began from January 1, 1999, also involved the Faculty of Agriculture. The restructuring exercise at the faculty was based on the concept of unification or integration of the key elements in the agricultural system namely crops, soil, livestock, agribusiness, technology and fisheries. Based on this concept, the Faculty of Agriculture now comprises seven (7) departments, namely (1) Department of Crop Science, (2) Department of Plant Protection, (3) Department of Land Management, (4) Department of Animal Science, (5) Department of Agribusiness and Biosource Economics, (6) Department of Agricultural Technology and (7) Department of Aquaculture.

Along with the national education goals, the Faculty of Agriculture always strives to produce trained agricultural experts, entrepreneurial characteristics and able to conduct consultations to the community to ensure the sustainability of agriculture, while creating new agricultural technology, as a result of quality program structure, research spirit and commercialization of agricultural products.

PENGURUSAN FAKULTI | FACULTY MANAGEMENT

Dekan Fakulti <i>Dean of Faculty</i>	▪ Prof. Madya Dr. Nur Azura Adam
Timbalan Dekan (Akademik, Hal Ehwal Pelajar dan Alumni) <i>Deputy Dean (Academic, Student Affairs and Alumni)</i>	▪ Prof. Madya Dr. Juwaiddah Sharifuddin
Timbalan Dekan (Siswazah, Penyelidikan dan Antarabangsa) <i>Deputy Dean (Graduates Studies, Research and International)</i>	▪ Prof. Madya Dr. Natrah Fatin Mohd Ikhsan
Timbalan Dekan (Pembangunan, Jaringan Industri dan Masyarakat) <i>Deputy Dean (Development, Networking and Community)</i>	▪ Prof. Dr. Anjas Asmara@Ab. Hadi Bin Samsudin
Ketua Jabatan Sains Tanaman <i>Head, Department of Crop Science</i>	▪ Prof. Madya Dr. Muhammad Saiful Ahmad Hamdani
Ketua Jabatan Perlindungan Tumbuhan <i>Head, Department of Plant Protection</i>	▪ Prof. Madya Dr. Norida Mazlan
Ketua Jabatan Pengurusan Tanah <i>Head, Department of Land Management</i>	▪ Prof. Madya Dr. Christopher Teh Boon Sung
Ketua Jabatan Teknologi Pertanian <i>Head, Department of Agriculture Technology</i>	▪ Prof. Madya Dr. Siva Kumar Balasundram
Ketua Jabatan Sains Haiwan <i>Head, Department of Animal Science</i>	▪ Prof. Madya Dr. Henny Akit
Ketua Jabatan Perniagaantani dan Ekonomi Biosumber <i>Head, Department of Agribusiness and Economic Bioresource</i>	▪ Prof. Madya Dr. Nitty Hirawaty Kamarulzaman
Ketua Jabatan Akuakultur <i>Head, Department of Aquaculture</i>	▪ Prof. Madya Dr. Yuzine Esa
Timbalan Pendaftar <i>Deputy Registrar</i>	▪ Mrs. Salinah @ Lina Junid
Penolong Pendaftar Kanan Pejabat Timbalan Dekan (Akademik, Hal Ehwal Pelajar dan Alumni) <i>Senior Assistant Register</i> <i>Office of Deputy Dean (Academic, Student Affairs and Alumni)</i>	▪ Ms. Fahezah Nor bt Mohamed
Penolong Pendaftar Kanan Timbalan Dekan (Siswazah, Penyelidikan dan Antarabangsa) <i>Senior Assistant Register</i> <i>Office of Deputy Dean (Graduates Studies, Research and International)</i>	▪ Mrs. Shaerin Azlin Ab Rahman
Penolong Pendaftar Kanan Timbalan Dekan (Pembangunan, Jaringan Industri dan Masyarakat) <i>Senior Assistant Register</i> <i>Office of Deputy Dean (Development, Networking and Community)</i>	▪ Mr. Ahmad Afeeq Roslan

PROGRAM PRASISWAZAH YANG DITAWARKAN

UNDERGRADUATE PROGRAMS OFFERED

Bacelor | *Bachelor*

1. Bacelor Sains Pertanian dengan Kepujian
Bachelor of Agricultural Science with Honours
2. Bacelor Sains Hortikultur dengan Kepujian
Bachelor of Horticultural Science with Honours
3. Bacelor Sains Perniagaantani dengan Kepujian
Bachelor of Science in Agribusiness with Honours
4. Bacelor Sains Haiwan dengan Kepujian
Bachelor of Animal Science with Honours
5. Bacelor Sains Akuakultur dengan Kepujian
Bachelor of Science in Aquaculture with Honours
6. Bacelor Sains Pengurusan Perladangan dengan Kepujian
Bachelor of Science Plantation Management with Honours

PUTRA ENGLISH LANGUAGE EXPERIENCE PACKAGE | PAKEJ PUTRA ELEX
STUDY SCHEME FOR FOUR-YEAR PROGRAMMES (NEW)
(Effective for October 2021 intake and above)

STUDY COMPONENT

LPE	COURSES KURSUS	LAX	Graduation Requirement
Compulsory Courses Kursus Wajib	Certificate Courses Kursus Sijil	Language activities without credit Aktiviti bahasa tanpa kredit	Syarat Keperluan Bergraduat
Three (3) credit hour course in curriculum which focuses on the construction of language skills.	Off -curricular courses - with the concept of 'workshop style' method: (a) face -to -face teaching (2 hours); and (b) 'self-directed learning' (2 hours).	Extra informal face-to-face learning activities independently to cultivate self -confidence and oral fluency using English.	Fulfill all LPE+CEL+LAX as stipulated in the ELEX scheme
Kursus 3 jam kredit dalam kurikulum Yang berfokuskan kepada pembinaan kemahiran bahasa.	Kursus luar kurikulum berkonsepkan kaedah 'workshop style': (a) pengajaran secara bersemuka (2 jam); dan (b) 'self-directed learning' (2 jam).	Aktiviti luar waktu pembelajaran formal dan bersemuka (secara kendiri) bagi memupuk daya keyakinan diri dan kelancaran lisan menggunakan Bahasa Inggeris.	Memenuhi semua LPE+CEL+LAX seperti yang terkandung dalam skema Pakej ELEX

COURSE ENROLMENT

Graduation Requirement	2 LPE + 1 CEL + 24 point LAX	2 LPE + 2 CEL + 24 point LAX	3 LPE + 3 CEL + 24 Point LAX
	or		
	1 LPE + 1 CEL + 24 point LAX + + 1 Global Language		
CEFR Level	C1 – C2	B1 – B2	A2
MUET Band	5.0 – 5+	3.0 – 4.5	2.0 - 2.5
TOEFL/IELTS Score	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0	TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	TOEFL iBT N/A IELTS 3.0 – 3.5
CIEP Level	-	104 – 109	101 – 103
Pearson Test of English (PTE) Academic Score	76 - 90	43 – 75	30 – 42
Cambridge English Score	180 – 230	140 – 179	120 – 139

PUTRA ELEX's STUDY SCHEME

SCHEME FOR 4-YEAR PROGRAMMES							
SEM	MUET 2.0 - 2.5 TOEFLiBT N/A IELTS 3.0 - 3.5 CIEP 101-103 PTE 30 - 42 CE 120 - 139 CEFR A2		MUET 3.0 - 4.5 TOEFLiBT 42 - 94 IELTS 4.0 - 6.5 CIEP 104 - 109 PTE 43 - 75 CE 140 - 179 CEFR B1 - B2		MUET 5.0 - 5+ TOEFLiBT 95 - 120 IELTS 7.0 - 9.0 CIEP N/A PTE 76 - 90 CE 180 - 230 CEFR C1 - C2		
1	LAX 12 points		LAX 6 points		LAX 6 points		
2	LAX 6 points	CEL2102	LPE2301		Choose ONE: CEL 2103/2104		
3	LPE2401		LPE2501		Choose ONE: LPE2402 / LPE2502 / Global Language		
4	LPE2301		LAX 6 points	LAX 6 points*	LAX 6 points		
5	LPE2501		Choose ONE: CEL 2105/2106/2107		Choose ONE: LPE2402 / LPE2502 / Global Language		
6	LAX 6 points*	Choose ONE: CEL 2105/2106/2107	Choose ONE: CEL 2105/2106/2107		LAX 6 points		
7	Choose ONE: CEL 2105/2106/2107		LAX 6 points		LAX 6 points		
8	-*		-*		-		

*Faculty of Agriculture students will undergo Internship Courses

Nota/Note:

- Students must follow the prescribed scheme of study based on their MUET results (or equivalent) every semester.
- Student should register (**YW – Kursus Wajib**) as a status of the courses.
- MUET Band 5 and 5+ students can choose to enroll in either one (1) or two (2) LPE courses. If they choose to do one (1) LPE course, they must also enroll in one (1) global language.
- An **Industrial Training** semester student is **prohibited** to enroll or register on any ELEX Package for the particular semester.
- Faculty of Agriculture's students are compulsory to record their own LAX activity's point manually throughout their study.

INFORMATION SHEETS

1. LANGUAGE PROFICIENCY ENGLISH

LPE Courses [(2+1) credits]

- (a) LPE2401 (Reading for Academic Purposes)
- (b) LPE2301 (Academic Interaction and Presentation)
- (c) LPE2501 (Academic Writing)
- (d) LPE2502 (Creative Writing Skills) for MUET Band 5 & 5+ students only
- (e) LPE2402 (Critical Reading Skills) for MUET Band 5 & 5+ students only

Nota/Note:

If students fail in any LPE's course, they must REPEAT and pass the course before they can enroll in a subsequent LPE's course.

2. CERTIFICATE IN ENGLISH LANGUAGE

CEL Courses [(2+1) credits]

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

Nota/Note:

- CEL Courses have maximum of (4) level.
- **Passing level is (2) and above;**
- If students obtain LEVEL (1), they must REPEAT and pass the course which is minimum at LEVEL (2) and above.

3. LANGUAGE ACTIVITIES WITHOUT CREDIT

LAX ACTIVITY

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

Nota/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 (Total 24 Point).

4. PRE-REQUISITES FOR COURSES

- (a) LPE2401: MUET Band 2.0 – 2.5/equivalent
- (b) LPE2301: CEL 2102 Level 2 or MUET Band 3.0 – 4.5/equivalent
- (c) LPE2501: Passed LPE2301
- (d) CEL2103: Passed LPE2501 or MUET Band 5.0 – 5+/equivalent
- (e) CEL2102, 2105, 2106, 2107: No pre-requisite required

STRUKTUR KURIKULUM | CURRICULUM STRUCTURE

Nama Program Study Programme	:	Bachelor Sains Pertanian dengan Kepujian <i>Bachelor of Agricultural Science with Honours</i>
Jumlah Kredit Bergraduat Total Graduate Credit Hours	:	128 Jam Kredit 128 Credit Hours
Tempoh Pengajian Study Duration	:	8 Semester/ <i>Semesters</i> (4 Tahun/ <i>Years</i>)
Matlamat Program Programme Outcomes	:	<ol style="list-style-type: none"> Menghasilkan pegawai pertanian yang berpengetahuan dalam aspek teori dan praktikal serta berdaya saing melalui pembelajaran sepanjang hayat dan pendekatan kemahiran berfikir secara saintifik dalam menerajui bidang pertanian. Menghasilkan pegawai pertanian yang mampu membangun dan mengurus aktiviti pertanian dengan menitikberatkan amalan pertanian lestari dan pemuliharaan alam sekitar serta memberi khidmat nasihat kepada petani. Menghasilkan pegawai pertanian yang boleh mengaplikasikan pengetahuan sains pertanian untuk mengendalikan penyelidikan serta pengajian lanjutan.

RINGKASAN HASIL PEMBELAJARAN PROGRAM

SUMMARY OF PROGRAM LEARNING OUTCOMES

PROGRAM	Hasil Pembelajaran Program									
	Pengetahuan dan kefahaman	Kemahiran praktikal	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)	Kepimpinan, autonomi dan tanggungjawab (LS)	Kemahiran numerasi (NS)
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
Bachelor Sains Pertanian dengan kepujian <i>Bachelor of Agricultural Science with Honours</i>	39	25	16	9	10	14	15	7	7	4

KURSUS UNIVERSITI | UNIVERSITY COURSES (25 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Wajib (YW)
 Registration status in eSMP : Compulsory Course (YW)

Kod Kursus Course Code	Nama Kursus Course Name	Kr K A	Prasyarat Prerequisite
LPE2301	Interaksi dan Pembentangan Akademik <i>Academic Interaction and Presentation</i>	3 2 1	LPE2401 @ CEL2102 Tahap 2
LPE2501	Penulisan Akademik <i>Academic Writing</i>	3 2 1	LPE2301
KOM3403	Pengucapan Awam <i>Public Oration</i>	3 3 0	Tiada/None
FCE3204	Kemahiran Berfikir <i>Thinking Skills</i>	2 2 0	Tiada/None
SKP2101*	Kenegaraan Malaysia <i>Malaysian Nationhood</i>	3 3 0	Pelajar Tempatan <i>Local Students</i>
FEM2401**	Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	2 2 0	Pelajar Antarabangsa <i>International Students</i>
SKP3112*	Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	2 2 0	Pelajar Tempatan <i>Local Students</i>
SKP3113**	Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	2 2 0	Pelajar Antarabangsa <i>International Students</i>
Atau/or			
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>	2 2 0	Pelajar Antarabangsa <i>International Students</i>
SKP3122*	Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	2 2 0	Pelajar Tempatan <i>Local Students</i>
LPM2100**	Bahasa Melayu Komunikasi (AW) <i>Malay Language Communication (AW)</i> 	2 2 0	Pelajar Antarabangsa <i>International Students</i>
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	2 1 1	Tiada/None
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	3 1 2	Tiada/None
QXX0000	Kokurikulum - 1 <i>Co-curriculum</i>	1 0 1	Tiada/None
QXX0000	Kokurikulum -2 <i>Co-curriculum</i>	1 0 1	Tiada/None

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

PELAJAR ANTARABANGSA / INTERNATIONAL STUDENT

Status pendaftaran dalam eSMP : Audit Wajib (AW)
 Registration status in eSMP : Compulsory Audit (AW)



Kod Kursus Course Code	Nama Kursus Course Name	Kr K A	Prasyarat Prerequisite
LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	2 2 0	Pelajar Antarabangsa / <i>International Student</i>

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

- Pelajar yang mendapat MUET band 2.0-2.5 perlu mengambil kursus **LPE2401 Reading for Academic Purposes** sebagai pra-syarat untuk mengambil kursus LPE2301. Pelajar yang mendapat MUET band 5.0-5+ adalah **dikecualikan** mengambil kursus LPE2301 dan LPE2501.
*Students who achieve MUET at band 2.0-2.5 are required to register **LPE2401 Reading for Academic Purposes** course as a prerequisite to register for LPE2301 course in the first semester. Students with MUET band 5.0-5+ are excluded from the LPE2301 and LPE2501 courses.*
- Pelajar dikehendaki untuk memilih taraf (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi Kursus Universiti kecuali pelajar antarabangsa yang mendaftar kursus LPM2100 Bahasa Melayu Komunikasi perlu memilih taraf (Audit Wajib – AW).
Students are required to choose (Compulsory-YW) as a level in Student Information System Portal for all University Courses except for LPM2100 Malay Communications which is compulsory for international students register as (Audit Compulsory - AW).

KURSUS TERAS | CORE COURSES (71 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Wajib (YW) : Compulsory Course (YW)
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Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
AGR3001	Amalan ladang: Tanaman Makanan <i>Farm Practice: Food Crops</i>	1	0	1	Tiada/None
AGR3002	Amalan ladang: Tanaman Perladangan <i>Farm Practices: Plantation Crops</i>	1	0	1	Tiada/None
AGR3101	Botani Pertanian <i>Agricultural Botany</i>	3	2	1	Tiada/None
AGR3102	Prinsip Sains Rumpai <i>Principles of Weed Science</i>	3	2	1	Tiada/None
AGR3204	Pembibitan Tumbuhan <i>Plant Breeding</i>	3	2	1	Tiada/None
AGR3301	Fisiologi Tanaman <i>Crop Physiology</i>	3	2	1	Tiada/None
AGR3501	Tanaman Perladangan <i>Plantation Crops</i>	2	2	0	Tiada/None
AGR3502	Tanaman Makanan <i>Food Crops</i>	2	2	0	Tiada/None
AKU3201	Prinsip Akuakultur <i>Principles of Aquaculture</i>	3	2	1	Tiada/None
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	3	2	1	Tiada/None
PLP3104	Entomologi Asas <i>Fundamentals of Entomology</i>	3	2	1	Tiada/None
PLP3204	Patologi Tumbuhan Asas <i>Fundamentals of Plant Pathology</i>	3	2	1	Tiada/None
AGR3701	Eksperimentasi dan Biometri Pertanian <i>Experimentation and Agriculture Biometry</i>	4	3	1	Tiada/None
PRT3403	Kimia dan Biokimia Pertanian <i>Agricultural Chemistry and Biochemistry</i>	4	3	1	Tiada/None
PRT4901#	Latihan Industri <i>Industrial Training</i>	12	0	12	Tiada/None
PRT4959	Disertasi Bacelor <i>Bachelor Dissertation</i>	6	0	6	Tiada/None
SHW3002	Pertanian Ternakan <i>Animal Agriculture</i>	3	2	1	Tiada/None

SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	3	2	1	Tiada/ <i>None</i>
SST3603	Pengurusan Kesuburan Tanah <i>Soil Fertility Management</i>	3	2	1	Tiada/ <i>None</i>
TKP3201	Pengembangan Pertanian <i>Agricultural Extension</i>	3	2	1	Tiada/ <i>None</i>
TKP3501	Mekanisasi Pertanian dan Pengairan <i>Agricultural Mechanisation and Irrigation</i>	3	2	1	Tiada/ <i>None</i>

Nota: #Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.

The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

KURSUS ELEKTIF | ELECTIVE COURSES (32 Kredit/Credit)

Status pendaftaran dalam eSMP	: Kursus Elective (EL)
Registration status in eSMP	: Elective Course (EL)

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
AGR3504	Tanaman Industri Minor <i>Minor Industrial Crops</i>	3	2	1	Tiada/ <i>None</i>
AGR4100	Agrobiodiversiti <i>Agrobiodiversity</i>	3	3	0	Tiada/ <i>None</i>
AGR4101	Botani Pertanian Lanjutan <i>Advanced Agricultural Botany</i>	3	2	1	Tiada/ <i>None</i>
AGR4802	Teknologi Bijih Benih <i>Seed Technology</i>	3	2	1	AGR3301 atau (or) HRT3002
AGR4302	Sains Racun Herba <i>Herbicide Science</i>	3	2	1	AGR3102
AGR4203	Genetik Kuantitatif <i>Quantitative Genetics</i>	3	2	1	Tiada/ <i>None</i>
AGR4301	Fisiologi Tanaman Lanjutan <i>Advanced Plant Physiology</i>	3	2	1	Tiada/ <i>None</i>
AGR4303	Pemakanan Tanaman <i>Crop Nutrition</i>	3	2	1	AGR3301 atau (or) HRT3002
SHW3405	Sains Pastura <i>Pasture Science</i>	3	2	1	Tiada/ <i>None</i>
AGR4503	Pengeluaran Tanaman Padi <i>Rice Crop Production</i>	3	2	1	Tiada/ <i>None</i>
AGR4507	Pengeluaran Tanaman Perladangan - Kelapa Sawit <i>Plantation Crop Production: Oil Palm</i>	3	2	1	Tiada/ <i>None</i>
AGR4508	Pengeluaran Tanaman Perladangan - Getah <i>Plantation Crop Production : Rubber</i>	3	2	1	Tiada/ <i>None</i>
AGR4801	Pertanian Lestari <i>Sustainable Agriculture</i>	2	2	0	Tiada/ <i>None</i>
AKU3302	Teknologi Pembenihan Ikan dan Pengurusan Fri <i>Fish Seed Technology and Fry Management</i>	3	2	1	Tiada/ <i>None</i>
AKU3401	Pemakanan Akuakultur <i>Aquaculture Nutrition</i>	3	2	1	Tiada/ <i>None</i>
AKU4202	Kultur Ikan dan Tumbuhan Akuatik Hiasan <i>Culture of Ornamental Fish and Aquatic Plants</i>	3	1	2	Tiada/ <i>None</i>

EPT3202	Pengurusan Ladang <i>Farm Management</i>	3	3	0	ECN3100 atau (or) EPT3100 atau (or) EPT3102
EPT4204	Perancangan dan Pengurusan Projek Pertanian <i>Agriculture Project Planning and Management</i>	3	3	0	EPT3100 atau (or) EPT3110 atau (or) EPT3102 atau (or) ECN3100 dan (and) PPT3701
EPT4301	Pemasaran Pertanian <i>Agricultural Marketing</i>	3	3	0	EPT3100 atau (or) ECN3100 atau (or) EPT3102
HRT3400	Pengeluaran Tanaman Hortikultur <i>Horticultural Crop Production</i>	3	3	0	Tiada/None
HRT4800	Kultur Tanpa Tanah <i>Soilless Culture</i>	3	2	1	Tiada/None
HRT4300	Pengawalatur Tumbesaran Tumbuhan <i>Plant Growth Regulators</i>	3	2	1	AGR3301 atau (or) HRT3002
HRT4441	Pengurusan Rumput Turf <i>Turfgrass Management</i>	3	2	1	Tiada/None
HRT4400	Tanaman Eksotika <i>Exotic Crop</i>	2	2	0	Tiada/None
HRT4803	Pembibitan Mikro Tumbuhan <i>Plant Micropropagation</i>	3	2	1	Tiada/None
PLP3105	Pengurusan Perosak Bandaran <i>Urban Pest Management</i>	3	2	1	Tiada/None
PLP4001	Pengawalan Perosak <i>Pest Control</i>	3	2	1	Tiada/None
PLP4101	Entomologi <i>Entomology</i>	3	2	1	Tiada/None
PLP4201	Patologi Tumbuhan <i>Plant Pathology</i>	3	2	1	Tiada/None
PRT3501	Mikrobiologi Pertanian <i>Agricultural Microbiology</i>	3	2	1	Tiada/None
PRT4302	Agroiklim <i>Agroclimatology</i>	3	3	0	Tiada/None
PRT4002	Pertanian Persis <i>Precision Agriculture</i>	3	2	1	Tiada/None
PRT4041	Sistem Pengeluaran Organik <i>Organic Production Systems</i>	3	2	1	Tiada/None
SHW3503	Produksi Ternakan Pedaging <i>Meat Livestock Production</i>	3	2	1	SHW3002
SHW3512	Produksi Poltri <i>Poultry Production</i>	3	2	1	SHW3002
SST4201	Pembentukan dan Pengelasan Tanah <i>Soil Formation and Classification</i>	3	2	1	Tiada/None
SST4303	Pemuliharaan Tanah <i>Soil Conservation</i>	3	2	1	Tiada/None
TKP3205	Komunikasi Pengembangan dan Demonstrasi Kaedah Pertanian <i>Agriculture Extension Communication and Method Demonstration</i>	3	2	1	Tiada/None
TKP3301	Taman Pertanian Rekreasi <i>Agriculture Recreational Park</i>	3	2	1	Tiada/None
TKP4203	Perencanaan Program Pengembangan Pertanian <i>Programme Planning in Agricultural Extension</i>	3	2	1	Tiada/None

Elektif Bebas (Kemanusiaan dan Liberal Arts) <i>Elective course</i> <i>(Humanities and Liberal Arts)</i>	6 - - - Tiada/ <i>None</i>
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Jam Kredit/Credit Hour, K = Kredit | Credit, A = Amali | Laboratory, T = Tutorial

Nota/Note:

- Pelajar dikehendaki mengambil sejumlah (32) kredit kursus elektif. Sebanyak (9) kredit daripadanya hendaklah berkaitan dengan Disertasi Bacelor daripada kursus yang tersenarai, 17 kredit daripada mana-mana kursus elektif yang tersenarai dan (6) kredit kursus elektif bebas (Kemanusiaan dan Liberal Arts). *Students are required to fulfill a total of (32) credits on elective courses. A total of (9) credits will be related to the Bachelor's Dissertation from the listed courses, 17 credits from any elective courses listed, and (6) credits select from any elective course (Humanities and Liberal Arts).*
- Pembentukan kursus baharu jabatan akan dibentuk dari semasa ke semasa berdasarkan keperluan terkini. Pelajar yang sedang mengikuti program ini boleh mendaftar kursus tersebut sebagai kursus elektif bagi memenuhi keperluan bergraduat dengan persetujuan fakulti. *The development of a new course will be formulated from time-to-time accordance to the latest needs. Students attending this program may take the course as an elective course to meet the requirements of graduating with faculty consent.*
- Pelajar diwajibkan memilih (2) kredit daripada kursus kokurikulum yang ditawarkan oleh universiti. *Students must take (2) credits of co-curriculum courses offered by the university.*
- Pelajar perlu melengkapkan pakej keperluan Bahasa Inggeris seperti jadual di bawah: (Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat 4 buku panduan ini). *Students need to complete the English package as the table below: (For more details on CEL and LAX please refer to page 4 of this book).*

Graduation Requirement	2 LPE + 1 CEL + 24 point LAX		
	or	2 LPE + 2 CEL + 24 point LAX	3 LPE + 3 CEL + 24 Point LAX
	1 LPE + 1 CEL + 24 point LAX + + 1 Global Language		
CEFR Level	C1 – C2	B1 – B2	A2
MUET Band	5.0 – 5+	3.0 – 4.5	2.0 - 2.5
TOEFL/IELTS Score	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0	TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	TOEFL iBT N/A IELTS 3.0 – 3.5
CIEP Level	-	104 – 109	101 – 103
Pearson Test of English (PTE) Academic Score	76 - 90	43 – 75	30 – 42
Cambridge English Score	180 – 230	140 – 179	120 – 139

Kursus Pakej Keperluan Bahasa Inggeris adalah berstatus **WAJIB**. Pelajar dikehendaki untuk memilih status **(Kursus Wajib – YW)** dalam Sistem Maklumat Pelajar bagi kursus LPE, CEL dan LAX.

*English Learning Experience (ELEX) Package Course is **COMPULSORY**. Students are required to choose (**Required - YW**) in the Student Information System for all the LPE, CEL, and LAX courses.*

PELAN PENGAJIAN | STUDY SCHEME

TAHUN 1, SEMESTER 1 | 1st YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SKP2101*	Pelajar Tempatan Sahaja (Local Students Only) Kenegaraan Malaysia <i>Malaysian Nationhood</i>	YW	3	3	0
FEM2401**	Pelajar Antarabangsa Sahaja (International Students Only) Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	YW	2	2	0
SKP3112*	Pelajar Tempatan Sahaja (Local Students Only) Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	YW	2	2	0
SKP3113**	Pelajar Antarabangsa Sahaja (International Students Only) Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	YW	3	3	0
Atau/ Or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>				
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	YW	3	2	1
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	YW	2	1	1
AGR3101	Botani Pertanian <i>Agricultural Botany</i>	YW	3	2	1
KOM3403	Pengucapan Awam <i>Public Oration</i>	YW	3	3	0
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Kokurikulum <i>Co-Curriculum</i>	YW	1	0	1
JUMLAH/TOTAL		-	17	13	4

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 1, SEMESTER 2 | 1st YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SKP3122*	Pelajar Tempatan Sahaja (Local Students Only) Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	YW	2	2	0
LPM2100**	Pelajar Antarabangsa Sahaja (International Students Only) Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	AW	2	2	0
AGR3301	Fisiologi Tanaman <i>Crop Physiology</i>	YW	3	2	1

PRT3403	Kimia Dan Biokimia Pertanian <i>Agricultural Chemistry and Biochemistry</i>	YW	4	3	1
FCE3204	Kemahiran Berfikir <i>Thinking Skills</i>	YW	2	2	0
AGR3502	Tanaman Makanan <i>Food Crops</i>	YW	2	2	0
AGR3001	Amalan ladang: Tanaman Makanan <i>Farm Practice: Food Crops</i>	YW	1	0	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Kokurikulum <i>Co-Curriculum</i>	YW	1	0	1
JUMLAH/TOTAL		-	15	11	4

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

TAHUN 2, SEMESTER 1 | 2nd YEAR, SEMESTER 1

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
AGR3501	Tanaman Perladangan <i>Plantation Crops</i>	YW	2	2	0
AGR3204	Pembibitan Tumbuhan <i>Plant Breeding</i>	YW	3	2	1
AKU3201	Prinsip Akuakultur <i>Principles of Aquaculture</i>	YW	3	2	1
SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	YW	3	2	1
PLP3104	Entomologi Asas <i>Fundamentals of Entomology</i>	YW	3	2	1
AGR3002	Amalan ladang: Tanaman Perladangan <i>Farm Practices: Plantation Crops</i>	YW	1	0	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	15	10	5

TAHUN 2, SEMESTER 2 | 2nd YEAR, SEMESTER 2

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
TKP3201	Pengembangan Pertanian <i>Agricultural Extension</i>	YW	3	2	1
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	YW	3	1	2
PLP3204	Patologi Tumbuhan Asas <i>Fundamentals of Plant Pathology</i>	YW	3	2	1
SHW3002	Pertanian Ternakan <i>Animal Agriculture</i>	YW	3	2	1
AGR3102	Prinsip Sains Rumpai <i>Principles of Weed Science</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	3	0	0
JUMLAH/TOTAL		-	18	9	6

TAHUN 3, SEMESTER 1 | 3rd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AGR3701	Eksperimentasi dan Biometri Pertanian <i>Experimentation and Agriculture Biometry</i>	YW	4	3	1
TKP3501	Mekanisasi Pertanian dan Pengairan <i>Agricultural Mechanisation and Irrigation</i>	YW	3	2	1
SST3603	Pengurusan Kesuburan Tanah <i>Soil Fertility Management</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	0	0
JUMLAH/TOTAL		-	19	7	3

TAHUN 3, SEMESTER 2 | 3rd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PRT4959A	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	12	0	0
JUMLAH/TOTAL		-	15	0	3

TAHUN 4, SEMESTER 1 | 4th YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PRT4959B	Disertasi Bacelor/ <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	0	0
JUMLAH/TOTAL		-	12	0	3

TAHUN 4, SEMESTER 2 | 4th YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PRT4901	Latihan Industri <i>Industrial Training</i>	YW	12	0	12
JUMLAH/TOTAL		-	12	0	12

Nota/Note:

1. Sila rujuk Skema PUTRA ELEX bagi pendaftaran kursus Bahasa Inggeris.
Please refer to ELEX Scheme for English course registration.
2. Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.
The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

STRUKTUR KURIKULUM | CURRICULUM STRUCTURE

Nama Program Study Programme	: Bachelor Sains Hortikultur dengan Kepujian <i>Bachelor of Horticultural Science with Honours</i>
Jumlah Kredit Bergraduat Total Graduate Credit Hours	: 126 Jam Kredit 126 Credit Hours
Tempoh Pengajian Study Duration	: 8 Semester/ <i>Semesters</i> (4 Tahun/ <i>Years</i>)
Matlamat Program Programme Outcomes	: <ol style="list-style-type: none"> 1. Melahirkan pegawai hortikultur yang berpengetahuan dalam aspek teori dan praktikal serta berdaya saing selaras dengan keperluan industri hortikultur semasa. 2. Melahirkan pegawai hortikultur yang mampu mengurus ladang hortikultur, turf dan bidang pertanian yang lain dengan menitikberatkan amalan penanaman dan penjagaan yang baik bagi tanaman dan alam sekitar. 3. Melahirkan pegawai hortikultur yang berkebolehan untuk mengaplikasi pengetahuan sains hortikultur dalam mengendali penyelidikan serta pengajian lanjutan.

RINGKASAN HASIL PEMBELAJARAN PROGRAM

SUMMARY OF PROGRAM LEARNING OUTCOMES

PROGRAM	Hasil Pembelajaran Program									
	Pengetahuan dan kefahaman	Kemahiran praktikal	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)	Kepimpinan, autonomi dan tanggungjawab (LS)	Kemahiran numerasi (NS)
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
Bachelor Sains Hortikultur dengan Kepujian Bachelor of Horticultural Science with Honours	41	23	20	16	12	12	16	9	5	4

KURSUS UNIVERSITI | UNIVERSITY COURSES (25 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Wajib (YW)
 Registration status in eSMP : Compulsory Course (YW)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPE2301	Interaksi dan Pembentangan Akademik <i>Academic Interaction and Presentation</i>	3	2	1	LPE2401 @ CEL2102 Tahap 2
LPE2501	Penulisan Akademik <i>Academic Writing</i>	3	2	1	LPE2301
KOM3403	Pengucapan Awam <i>Public Oration</i>	3	3	0	Tiada/None
FCE3204	Kemahiran Berfikir <i>Thinking Skills</i>	2	2	0	Tiada/None
SKP2101*	Kenegaraan Malaysia <i>Malaysian Nationhood</i>	3	3	0	Pelajar Tempatan <i>Local Students</i>
FEM2401**	Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3112*	Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
SKP3113**	Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
Atau/or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3122*	Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
LPM2100**	Bahasa Melayu Komunikasi (AW) <i>Malay Language Communication (AW)</i> 	2	2	0	Pelajar Antarabangsa <i>International Students</i>
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	2	1	1	Tiada/None
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	3	1	2	Tiada/None
QXX0000	Kokurikulum - 1 <i>Co-curriculum</i>	1	0	1	Tiada/None
QXX0000	Kokurikulum - 2 <i>Co-curriculum</i>	1	0	1	Tiada/None

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

PELAJAR ANTARABANGSA / INTERNATIONAL STUDENT

Status pendaftaran dalam eSMP : Audit Wajib (AW)
 Registration status in eSMP : Compulsory Audit (AW)



Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	2	2	0	Pelajar Antarabangsa / <i>International Student</i>

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

- Pelajar yang mendapat MUET band 2.0-2.5 perlu mengambil kursus **LPE2401 Reading for Academic Purposes** sebagai pra-syarat untuk mengambil kursus LPE2301. Pelajar yang mendapat MUET band 5.0-5+ adalah **dikecualikan** mengambil kursus LPE2301 dan LPE2501.
*Students who achieve MUET at band 2.0-2.5 are required to register **LPE2401 Reading for Academic Purposes** course as a prerequisite to register for LPE2301 course in the first semester. Students with MUET band 5.0-5+ are excluded from the LPE2301 and LPE2501 courses.*
- Pelajar dikehendaki untuk memilih taraf (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi Kursus Universiti kecuali pelajar antarabangsa yang mendaftar kursus LPM2100 Bahasa Melayu Komunikasi perlu memilih taraf (Audit Wajib – AW).
*Students are required to choose (*Compulsory-YW*) as a level in Student Information System Portal for all University Courses except for LPM2100 Malay Communications which is compulsory for international students register as (*Audit Compulsory - AW*).*

KURSUS TERAS | CORE COURSES (68 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Wajib (YW) : Compulsory Course (YW)
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Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
AGR3204	Pembibakan Tumbuhan <i>Plant Breeding</i>	3	2	1	Tiada/ <i>None</i>
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	3	2	1	Tiada/ <i>None</i>
HRT3402	Pembibakan Tumbuhan dan Pengurusan Semaian <i>Plant Propagation and Nursery Management</i>	3	2	1	Tiada/ <i>None</i>
AGR3101	Botani Pertanian <i>Agricultural Botany</i>	3	2	1	Tiada/ <i>None</i>
AGR3301	Fisiologi Tanaman <i>Crop Physiology</i>	3	2	1	Tiada/ <i>None</i>
HRT3420	Amalan Ladang : Pengeluaran Buah-buahan <i>Farm Practice: Fruit Production</i>	1	0	1	Tiada/ <i>None</i>
HRT3410	Amalan Ladang : Pengeluaran Sayur-sayuran <i>Farm Practice: Vegetable Production</i>	1	0	1	Tiada/ <i>None</i>
HRT3430	Amalan Ladang : Hortikultur Hiasan dan Lanskap <i>Farm Practice: Ornamental and Landscape Horticulture</i>	1	0	1	Tiada/ <i>None</i>
HRT3440	Amalan Ladang :Turf <i>Farm Practice: Turf</i>	1	0	1	Tiada/ <i>None</i>
HRT3411	Pengeluaran Sayur-Sayuran <i>Vegetable Production</i>	2	2	0	Tiada/ <i>None</i>
HRT3421	Pomologi <i>pomology</i>	2	2	0	Tiada/ <i>None</i>
HRT3431	Pengeluaran Tanaman Hiasan dan Bunga <i>Ornamental and Flower Production</i>	2	2	0	Tiada/ <i>None</i>
HRT3441	Sains Turf <i>Turf Science</i>	2	2	0	Tiada/ <i>None</i>
SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	3	2	1	Tiada/ <i>None</i>
PLP3106	Entomologi Tanaman Hortikultur <i>Horticultural Plant Entomology</i>	2	1	1	Tiada/ <i>None</i>
PLP3205	Patologi Tanaman Hortikultur <i>Horticultural Plant Pathology</i>	2	1	1	Tiada/ <i>None</i>

PRT3402	Biokimia Pertanian <i>Agricultural Biochemistry</i>	3	2	1	Tiada/None
AGR3701	Eksperimentasi dan Biometri Pertanian <i>Experimentation and Agriculture Biometry</i>	4	3	1	Tiada/None
PPT3301	Prinsip Pengurusan dan Pemasaran Pertanian <i>Principles of Agricultural Management and Marketing</i>	3	3	0	Tiada/None
PRT4901#	Latihan Industri <i>Industrial Training</i>	12	0	12	Tiada/None
PRT4959	Disertasi Bacelor <i>Bachelor Dissertation</i>	6	0	6	Tiada/None
TKP3201	Pengembangan Pertanian <i>Agricultural Extension</i>	3	2	1	Tiada/None
TKP3501	Mekanisasi Pertanian dan Pengairan <i>Agricultural Mechanisation and Irrigation</i>	3	2	1	Tiada/None

Nota: #Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.

The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

KURSUS ELEKTIF | ELECTIVE COURSES (33 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Elective (EL) : Elective Course (EL)
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Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
HRT3600	Fisiologi Lepas Tuai <i>Postharvest Physiology</i>	3	2	1	Tiada/None
HRT3800	Pengenalan Rekabentuk Lanskap <i>Introduction to Landscape Design</i>	3	2	1	HRT3302 atau (or) HRT3431
HRT4800	Kultur Tanpa Tanah <i>Soilless Culture</i>	3	2	1	Tiada/None
HRT4804	Tumbuhan Ubatan dan Herba <i>Medicinal Plants and Herbs</i>	2	2	0	Tiada/None
HRT4402	Pertanian Bandar <i>Urban Agriculture</i>	2	2	0	Tiada/None
HRT4802	Hortikultur Persekutuan Terkawal <i>Controlled Environment Horticulture</i>	2	2	0	HRT3000 atau (or) HRT3400 atau (or) AGR3301
HRT4422	Pengeluaran Komersil Buah-buahan <i>Commercial Fruit Production</i>	3	2	1	Tiada/None
HRT4432	Kultur Orkid <i>Orchid Culture</i>	3	2	1	Tiada/None
HRT4400	Tanaman Eksotika <i>Exotic Crop</i>	2	2	0	Tiada/None
HRT4300	Pengawalatur Tumbesaran Tumbuhan <i>Plant Growth Regulators</i>	3	2	1	AGR3301 atau (or) HRT3002
HRT4441	Pengurusan Rumput Turf <i>Turfgrass Management</i>	3	2	1	Tiada/None
HRT4803	Pembibitan Mikro Tumbuhan <i>Plant Micropropagation</i>	3	2	1	Tiada/None
AGR3102	Prinsip Sains Rumpai <i>Principles of Weed Science</i>	3	2	1	Tiada/None

AGR3502	Tanaman Makanan <i>Food Crops</i>	2	2	0	Tiada/ <i>None</i>
AGR4101	Botani Pertanian Lanjutan <i>Advanced Agricultural Botany</i>	3	2	1	Tiada/ <i>None</i>
AGR4802	Teknologi Biji Benih <i>Seed Technology</i>	3	2	1	AGR3301 atau (or) HRT3002
AGR4302	Sains Racun Herba <i>Herbicide Science</i>	3	2	1	AGR3102
AGR4203	Genetik Kuantitatif <i>Quantitative Genetics</i>	3	2	1	Tiada/ <i>None</i>
AGR4301	Fisiologi Tanaman Lanjutan <i>Advanced Plant Physiology</i>	3	2	1	Tiada/ <i>None</i>
AGR4303	Pemakanan Tanaman <i>Crop Nutrition</i>	3	2	1	AGR3301 atau (or) HRT3002
EPT3202	Pengurusan Ladang <i>Farm Management</i>	3	2	1	ECN3100 atau (or) EPT3100 atau (or) EPT3102
EPT4204	Perancangan dan Pengurusan Projek Pertanian <i>Agriculture Project Planning and Management</i>	3	3	0	EPT3100 atau (or) EPT3110 atau (or) EPT3102 atau (or) ECN3100 & PPT3701
PLP4005	Pengurusan Perosak Rumput Turf dan Tanaman Hortikultur <i>Pest Management of Turfgrass and Horticultural Crops</i>	3	2	1	Tiada/ <i>None</i>
PLP4101	Entomologi <i>Entomology</i>	3	2	1	Tiada/ <i>None</i>
PLP4201	Patologi Tumbuhan <i>Plant Pathology</i>	3	2	1	Tiada/ <i>None</i>
PLP4601	Sains Racun Perosak <i>Pesticide Science</i>	3	2	1	Tiada/ <i>None</i>
PRT3501	Mikrobiologi Pertanian <i>Agricultural Microbiology</i>	3	2	1	Tiada/ <i>None</i>
PRT4041	Sistem Pengeluaran Organik <i>Organic Production Systems</i>	3	2	1	Tiada/ <i>None</i>
SST3802	Pengurusan Sisa Pertanian <i>Agricultural Waste Management</i>	3	2	1	Tiada/ <i>None</i>
SST4304	Perubahan Iklim Dan Pertanian <i>Climate Change And Agriculture</i>	3	2	1	SST3005
SST4601	Kesuburan Tanah Lanjutan <i>Advanced Soil Fertility</i>	3	2	1	Tiada/ <i>None</i>
TKP3001	Teknologi Pertanian Moden <i>Modern Agricultural Technology</i>	3	2	1	Tiada/ <i>None</i>
TKP3104	Bioteknologi Pertanian <i>Agricultural Biotechnology</i>	3	2	1	Tiada/ <i>None</i>
TKP3301	Taman Pertanian Rekreasi <i>Agriculture Recreational Park</i>	3	2	1	Tiada/ <i>None</i>
TKP4203	Perencanaan Program Pengembangan Pertanian <i>Programme Planning in Agricultural Extension</i>	3	2	1	Tiada/ <i>None</i>
	Elektif Bebas (Kemanusiaan dan Liberal Arts) <i>Elective course</i> <i>(Humanities and Liberal Arts)</i>	6	0	0	Tiada/ <i>None</i>

Jam Kredit/Credit Hour, K = Kredit | Credit, A = Amali | Laboratory, T = Tutorial

Nota/Note:

- Pelajar mesti memilih lima belas (15) kredit dari kursus berkod HRT, dua belas (12) kredit daripada kursus lain yang disenaraikan dan enam (6) kredit kursus elektif bebas (Kemanusian dan Liberal Arts) untuk melengkapkan keperluan 33 kredit elektif dengan persetujuan Ketua Jabatan.
Students require to choose fifteen (15) credits from HRT-coded courses, twelve (12) credits from other courses listed, and six (6) elective course credits (Humanity and Liberal Arts) to complete the requirement of 33 elective credits with agreement Head of Department.
- Pembentukan kursus baharu jabatan akan dibentuk dari semasa ke semasa berdasarkan keperluan terkini. Pelajar yang sedang mengikuti program ini boleh mendaftar kursus tersebut sebagai kursus elektif bagi memenuhi keperluan bergraduat dengan persetujuan fakulti.
The development of a new course will be formulated from time-to-time accordance to the latest needs. Students attending this program may take the course as an elective course to meet the requirements of graduating with faculty consent.
- Pelajar diwajibkan memilih (2) kredit daripada kursus kokurikulum yang ditawarkan oleh universiti.
Students must take (2) credits of co-curriculum courses offered by the university.
- Pelajar perlu melengkapkan pakej keperluan Bahasa Inggeris seperti jadual di bawah: (Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat 4 buku panduan ini).
Students need to complete the English package as the table below: (For more details on CEL and LAX please refer to page 4 of this book).

Graduation Requirement	2 LPE + 1 CEL + 24 point LAX	2 LPE + 2 CEL + 24 point LAX	3 LPE + 3 CEL + 24 Point LAX
	or 1 LPE + 1 CEL + 24 point LAX + + 1 Global Language		
CEFR Level	C1 – C2	B1 – B2	A2
MUET Band	5.0 – 5+	3.0 – 4.5	2.0 - 2.5
TOEFL/IELTS Score	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0	TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	TOEFL iBT N/A IELTS 3.0 – 3.5
CIEP Level	-	104 – 109	101 – 103
Pearson Test of English (PTE) Academic Score	76 - 90	43 – 75	30 – 42
Cambridge English Score	180 – 230	140 – 179	120 – 139

Kursus Pakej Keperluan Bahasa Inggeris adalah berstatus **WAJIB**. Pelajar dikehendaki untuk memilih status **(Kursus Wajib – YW)** dalam Sistem Maklumat Pelajar bagi kursus LPE, CEL dan LAX.

*English Learning Experience (ELEX) Package Course is **COMPULSORY**. Students are required to choose (**Required - YW**) in the Student Information System for all the LPE, CEL, and LAX courses.*

PELAN PENGAJIAN | STUDY SCHEME

TAHUN 1, SEMESTER 1 | 1st YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
KOM3403	Pengucapan Awam <i>Public Oration</i>	YW	3	2	1
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	YW	2	1	1
SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	YW	3	2	1
AGR3101	Botani Pertanian <i>Agricultural Botany</i>	YW	3	2	1
HRT3402	Pembibitan Tumbuhan dan Pengurusan Semaian <i>Plant Propagation and Nursery Management</i>	YW	3	2	1
PRT3402	Biokimia Pertanian <i>Agricultural Biochemistry</i>	YW	3	2	1
QXX0000	Ko-kurikulum <i>Co-Curriculum</i>	YW	1	0	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	18	11	7

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

TAHUN 1, SEMESTER 2 | 1st YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SKP2101*	Pelajar Tempatan Sahaja (Local Students Only) Kenegaraan Malaysia <i>Malaysian Nationhood</i>	YW	3	3	0
FEM2401**	Pelajar Antarabangsa Sahaja (International Students Only) Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	YW	2	2	0
AGR3301	Fisiologi Tanaman <i>Crop Physiology</i>	YW	3	2	1
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	YW	3	2	1
HRT3430	Amalan Ladang: Hortikultur Hiasan dan Lanskap <i>Farm Practice: Ornamental and Landscape Horticulture</i>	YW	1	0	1
HRT3431	Pengeluaran Tanaman Hiasan dan Bunga <i>Ornamental and Flower Production</i>	YW	2	2	0
PLP3106	Entomologi Tanaman Hortikultur <i>Horticultural Plant Entomology</i>	YW	2	1	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Ko-Kurikulum <i>Co-Curriculum</i>	YW	1	0	1
JUMLAH/TOTAL		-	15	10	5

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

TAHUN 2, SEMESTER 1 | 2nd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SKP3122	Pelajar Tempatan Sahaja (Local Students Only) Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	YW	2	2	0
LPM2100*	Pelajar Antarabangsa Sahaja (International Students Only) Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	AW	2	2	0
AGR3204	Pembibitan Tumbuhan <i>Plant Breeding</i>	YW	3	2	1
HRT3410	Amalan Ladang: Pengeluaran Sayur-sayuran <i>Farm Practice: Vegetable Production</i>	YW	1	0	1
HRT3420	Amalan Ladang: Pengeluaran Buah-buahan <i>Farm Practice: Fruit Production</i>	YW	1	0	1
HRT3411	Pengeluaran Sayur-Sayuran <i>Vegetable Production</i>	YW	2	2	0
HRT3421	Pomologi <i>pomology</i>	YW	2	2	0
PLP3205	Patologi Tanaman Hortikultur <i>Horticultural Plant Pathology</i>	YW	2	1	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	13	9	4

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 2, SEMESTER 2 | 2nd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
FCE3204	Kemahiran Berfikir <i>Thinking Skills</i>	YW	2	2	0
HRT3441	Sains Turf <i>Turf Science</i>	YW	2	2	0
HRT3440	Amalan Ladang :Turf <i>Farm Practice: Turf</i>	YW	1	0	1
PPT3301	Prinsip Pengurusan dan Pemasaran Pertanian <i>Principles of Agricultural Management and Marketing</i>	YW	3	3	0
TKP3501	Mekanisasi Pertanian dan Pengairan <i>Agricultural Mechanisation and Irrigation</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	6	0	0
JUMLAH/TOTAL		-	17	9	2

TAHUN 3, SEMESTER 1 | 3rd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SKP3112*	Pelajar Tempatan Sahaja (Local Students Only) Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	YW	2	2	0
SKP3113**	Pelajar Antarabangsa Sahaja (International Students Only) Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	YW	3	3	0
Atau/ Or	Atau/ Or				
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>				
AGR3701	Eksperimentasi dan Biometri Pertanian <i>Experimentation and Agriculture Biometry</i>	YW	4	3	1
TKP3201	Pengembangan Pertanian <i>Agricultural Extension</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	0	0
JUMLAH/TOTAL		-	18	7	2

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 3, SEMESTER 2 | 3rd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	YW	3	1	2
PRT4959A	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	0	0
JUMLAH/TOTAL		-	15	1	5

TAHUN 4, SEMESTER 1 | 4th YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PRT4959B	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	0	0
JUMLAH/TOTAL		-	12	0	3

TAHUN 4, SEMESTER 2 | 4th YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PRT4901	Latihan Industri <i>Industrial Training</i>	YW	12	0	12
JUMLAH/TOTAL		-	12	0	12

Nota/Note:

1. Sila rujuk Skema PUTRA ELEX bagi pendaftaran kursus Bahasa Inggeris.
Please refer to ELEX Scheme for English course registration.
2. Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.
The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

STRUKTUR KURIKULUM | CURRICULUM STRUCTURE

Nama Program Study Programme	: Bacelor Sains Perniagaantani dengan Kepujian <i>Bachelor of Science in Agribusiness with Honours</i>
Jumlah Kredit Bergraduat Total Graduate Credit Hours	: 126 Jam Kredit 126 Credit Hours
Tempoh Pengajian Study Duration	: 8 Semester/ <i>Semesters</i> (4 Tahun/ <i>Years</i>)
Matlamat Program Programme Outcomes	: 1. melahirkan pegawai eksekutif yang berkebolehan mengurus perniagaan dan perkhidmatan perniagaantani; 2. melahirkan pegawai eksekutif yang menjalankan aktiviti keusahawanan perniagaantani dengan menggunakan teknologi maklumat dan komunikasi terkini; dan 3. melahirkan pegawai eksekutif yang mempunyai komitmen dalam meningkatkan ilmu pengetahuan melalui pembelajaran berterusan atau penyelidikan dalam bidang perniagaantani selaras dengan perkembangan semasa sektor pertanian.

RINGKASAN HASIL PEMBELAJARAN PROGRAM

SUMMARY OF PROGRAM LEARNING OUTCOMES

PROGRAM	Hasil Pembelajaran Program									
	Pengetahuan dan kefahaman	Kemahiran praktikal	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)	Kepimpinan, autonomi dan tanggungjawab (LS)	Kemahiran numerasi (NS)
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
Bacelor Sains Perniagaantani dengan Kepujian Bachelor of Science in Agribusiness with Honours	40	15	20	9	11	13	13	13	5	6

KURSUS UNIVERSITI | UNIVERSITY COURSES (20 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Wajib (YW)
 Registration status in eSMP : Compulsory Course (YW)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPE2301	Interaksi dan Pembentangan Akademik <i>Academic Interaction and Presentation</i>	3	2	1	LPE2401 @ CEL2102 Tahap 2
LPE2501	Penulisan Akademik <i>Academic Writing</i>	3	2	1	LPE2301
PPT4702	Keusahawanan Perniagaantani <i>Agribusiness Entrepreneurship</i>	3	2	1	Tiada/None
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	2	1	1	Tiada/None
SKP2101*	Kenegaraan Malaysia <i>Malaysian Nationhood</i>	3	3	0	Pelajar Tempatan <i>Local Students</i>
FEM2401**	Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3112*	Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
SKP3113**	Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
Atau/or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3122*	Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
LPM2100**	Bahasa Melayu Komunikasi (AW) <i>Malay Language Communication (AW)</i> 	2	2	0	Pelajar Antarabangsa <i>International Students</i>
QXX0000	Kokurikulum - 1 <i>Co-curriculum</i>	1	0	1	Tiada/None
QXX0000	Kokurikulum -2 <i>Co-curriculum</i>	1	0	1	Tiada/None

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

PELAJAR ANTARABANGSA / INTERNATIONAL STUDENT

Status pendaftaran dalam eSMP : Audit Wajib (AW)
 Registration status in eSMP : Compulsory Audit (AW)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	2	2	0	Pelajar Antarabangsa / <i>International Student</i>

Nota: *Pelajar Tempatan/*Local Students* **Pelajar Antarabangsa/*International Students*

- Pelajar yang mendapat MUET band 2.0-2.5 perlu mengambil kursus **LPE2401 Reading for Academic Purposes** sebagai pra-syarat untuk mengambil kursus LPE2301. Pelajar yang mendapat MUET band 5.0-5+ adalah **dikecualikan** mengambil kursus LPE2301 dan LPE2501.
*Students who achieve MUET at band 2.0-2.5 are required to register **LPE2401 Reading for Academic Purposes** course as a prerequisite to register for LPE2301 course in the first semester. Students with MUET band 5.0-5+ are excluded from the LPE2301 and LPE2501 courses.*
- Pelajar dikehendaki untuk memilih taraf (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi Kursus Universiti kecuali pelajar antarabangsa yang mendaftar kursus LPM2100 Bahasa Melayu Komunikasi perlu memilih taraf (Audit Wajib – AW).
Students are required to choose (Compulsory-YW) as a level in Student Information System Portal for all University Courses except for LPM2100 Malay Communications which is compulsory for international students register as (Audit Compulsory - AW).

KURSUS TERAS | CORE COURSES (78 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Wajib (YW) : Compulsory Course (YW)
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Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
AGR3001	Amalan ladang: Tanaman Makanan <i>Farm Practice: Food Crops</i>	1	0	1	Tiada/None
EPT3104	Ekonomi Pertanian <i>Agricultural Economics</i>	3	3	0	Tiada/None
FST3003	Pengenalan Kepada Sains Makanan <i>Introduction to Food Science</i>	3	3	0	Tiada/None
MGM3352	Undang-undang Perniagaan <i>Business Law</i>	3	3	0	Tiada/None
PPT3001	Pengenalan kepada Sistem Perniagaantani Malaysia <i>Introduction to Malaysian Agribusiness Systems</i>	3	3	0	Tiada/None
PPT3201	Prinsip Pengurusan Perniagaantani <i>Principles of Agribusiness Management</i>	3	3	0	Tiada/None
PPT3401	Perakaunan Perniagaantani <i>Agribusiness Accounting</i>	4	3	1	Tiada/None
PPT3403	Perakaunan Kos dan Pengurusan Perniagaantani <i>Agribusiness Cost and Management Accounting</i>	3	3	0	PPT3401
PPT3801	Statistik Perniagaantani <i>Agribusiness Statistics</i>	3	2	1	Tiada/None
PPT4212	Perancangan dan Pengurusan Projek Perniagaantani <i>Agribusiness Project Planning and Management</i>	3	3	0	Tiada/None
PPT4305	Pemasaran Perniagaantani <i>Agribusiness Marketing</i>	3	3	0	Tiada/None
PPT4306	Perniagaantani Digital <i>Digital Agribusiness</i>	3	2	1	PPT4305
PPT4402	Pengurusan Kewangan Perniagaantani <i>Agribusiness Financial Management</i>	3	3	0	Tiada/None
PPT4602	Kaedah Penyelidikan Perniagaantani <i>Agribusiness Research Methods</i>	3	2	1	Tiada/None
PPT4801	Teknik Kuantitatif Perniagaantani <i>Quantitative Techniques in Agribusiness</i>	3	2	1	PPT3801

PPT4901#	Latihan Industri Perniagaantani <i>Agribusiness Industrial Training</i>	12	0	12	Tiada/None
PPT4959	Disertasi Bacelor <i>Bachelor Dissertation</i>	6	0	6	Tiada/None
PRT3003	Pertanian, Persekutaran dan Sistem Makanan <i>Agriculture, Environment and Food System</i>	3	3	0	Tiada/None
SHW3003	Amalan Ladang: Pengeluaran Ternakan <i>Farm Practice : Livestock Production</i>	1	0	1	Tiada/None
SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	3	2	1	Tiada/None
TKP3001	Teknologi Pertanian Moden <i>Modern Agricultural Technology</i>	3	2	1	Tiada/None
TKP3002	Amalan Ladang Akuakultur <i>Aquaculture Farm Practices</i>	1	0	1	Tiada/None

Nota: #Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.

The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

KURSUS ELEKTIF | ELECTIVE COURSES (33 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Elective (EL)
 Registration status in eSMP : Elective Course (EL)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
EPT3203	Pengurusan Ladang <i>Farm Management</i>	3	3	0	Tiada/None
EPT4201	Analisis Keputusan Pertanian <i>Agricultural Decision Analysis</i>	3	3	0	PPT3801
EPT4202	Pengurusan Risiko Pertanian <i>Agricultural Risk Management</i>	3	3	0	EPT3104
EPT4501	Ekonomi dan Dasar Pembangunan Pertanian <i>Agricultural Development Economics and Policy</i>	3	3	0	Tiada/None
PPT4204	Ekonomi Perniagaantani <i>Agribusiness Economics</i>	3	3	0	EPT3104
PPT4206	Pengurusan Koperasi Pertanian <i>Management of Agricultural Cooperative</i>	3	3	0	Tiada/None
PPT4209	Sistem Pengurusan Perladangan <i>Plantation Management Systems</i>	3	3	0	Tiada/None
PPT4211	Pengurusan Strategik Perniagaantani <i>Agribusiness Strategic Management</i>	3	3	0	PPT3201
PPT4307	Pengurusan Rantaiang Bekalan Produk Makanan <i>Food Product Supply Chain Management</i>	3	3	0	Tiada/None
PPT4308	Pemasaran Perniagaantani Antarabangsa <i>International Agribusiness Marketing</i>	3	3	0	PPT4305
PPT4351	Pengurusan Perniagaantani Kecil dan Sederhana <i>Small and Medium Agribusiness Management</i>	3	3	0	Tiada/None
PPT4501	Polisi dan Peraturan Perniagaantani <i>Agribusiness Policy and Regulations</i>	3	3	0	EPT3104
PPT4503	Isu Semasa Perniagaantani <i>Current Issues in Agribusiness</i>	3	3	0	Tiada/None
TKP4203	Perencanaan Program Pengembangan Pertanian <i>Program Planning in Agricultural Extension</i>	3	2	1	Tiada/None
	Elektif Bebas – Bahasa Asing (Kemanusiaan dan Liberal Arts) <i>Elective course – Foreign Language (Humanities and Liberal Arts)</i>	6	0	0	Tiada/None

Jam Kredit/Credit Hour, K = Kredit | Credit, A = Amali | Laboratory, T = Tutorial

Nota/Note:

1. Pelajar mestilah memilih (33) kredit kursus elektif termasuk enam (6) kredit kursus elektif bebas dari mana-mana fakulti dalam UPM atau luar negara dengan persetujuan Ketua Jabatan.
Students require to choose thirty-three (33) credits and six (6) elective course credits (Humanity and Liberal Arts).
2. Pembentukan kursus baharu jabatan akan dibentuk dari semasa ke semasa berdasarkan keperluan terkini. Pelajar yang sedang mengikuti program ini boleh mendaftar kursus tersebut sebagai kursus elektif bagi memenuhi keperluan bergraduat dengan persetujuan fakulti.
The development of a new course will be formulated from time-to-time accordance to the latest needs. Students attending this program may take the course as an elective course to meet the requirements of graduating with faculty consent.
3. Pelajar diwajibkan memilih (2) kredit daripada kursus kokurikulum yang ditawarkan oleh universiti.
Students must take (2) credits of co-curriculum courses offered by the university.
4. Pelajar perlu melengkapkan pakej keperluan Bahasa Inggeris seperti jadual di bawah: (Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat 4 buku panduan ini).
Students need to complete the English package as the table below: (For more details on CEL and LAX please refer to page 4 of this book).

Graduation Requirement	2 LPE + 1 CEL + 24 point LAX	2 LPE + 2 CEL + 24 point LAX	3 LPE + 3 CEL + 24 Point LAX
	or 1 LPE + 1 CEL + 24 point LAX + + 1 Global Language		
CEFR Level	C1 – C2	B1 – B2	A2
MUET Band	5.0 – 5+	3.0 – 4.5	2.0 - 2.5
TOEFL/IELTS Score	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0	TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	TOEFL iBT N/A IELTS 3.0 – 3.5
CIEP Level	-	104 – 109	101 – 103
Pearson Test of English (PTE) Academic Score	76 - 90	43 – 75	30 – 42
Cambridge English Score	180 – 230	140 – 179	120 – 139

Kursus Pakej Keperluan Bahasa Inggeris adalah berstatus WAJIB. Pelajar dikehendaki untuk memilih status (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi kursus LPE, CEL dan LAX.

English Learning Experience (ELEX) Package Course is COMPULSORY. Students are required to choose (Required - YW) in the Student Information System for all the LPE, CEL, and LAX courses.

PELAN PENGAJIAN | STUDY SCHEME

TAHUN 1, SEMESTER 1 | 1st YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AGR3001	Amalan ladang: Tanaman Makanan <i>Farm Practice: Food Crops</i>	YW	1	0	1
FST3003	Pengenalan Kepada Sains Makanan/ <i>Introduction to Food Science</i>	YW	3	3	0
SKP2101*	Pelajar Tempatan Sahaja (Local Students Only) Kenegaraan Malaysia <i>Malaysian Nationhood</i>	YW	3	3	0
FEM2401**	Pelajar Antarabangsa Sahaja (International Students Only) Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	YW	2	2	0
PPT3001	Pengenalan kepada Sistem Perniagaantani Malaysia <i>Introduction to Malaysia Agribusiness System</i>	YW	3	3	0
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	YW	2	1	1
SKP3112*	Pelajar Tempatan Sahaja (Local Students Only) Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	YW	2	2	0
SKP3113**	Pelajar Antarabangsa Sahaja (International Students Only) Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	YW	3	3	0
Atau/ Or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>				
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Kokurikulum <i>Co-Curriculum</i>	YW	1	0	1
JUMLAH/TOTAL		-	15		3

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 1, SEMESTER 2 | 1st YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
MGM3352	Undang-undang Perniagaan <i>Business Law</i>	YW	3	3	0
PPT3201	Prinsip Pengurusan Perniagaantani <i>Principles of Agribusiness Management</i>	YW	3	3	0
PPT3401	Perakaunan Perniagaantani <i>Agribusiness Accounting</i>	YW	4	3	1
PRT3003	Pertanian, Persekuturan dan Sistem Makanan <i>Agriculture, Environment And Food System</i>	YW	3	3	0
SKP3122*	Pelajar Tempatan Sahaja (Local Students Only) Penghayatan Etika dan Peradaban	YW	2	2	0

Internalization of Ethics and Civilization

**Pelajar Antarabangsa Sahaja
(International Students Only)**

LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	AW	2	2	0
SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Kokurikulum <i>Co-Curriculum</i>	YW	1	0	1
JUMLAH/TOTAL		-	19	16	3

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 2, SEMESTER 1 | 2nd YEAR, SEMESTER 1

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
EPT3104	Ekonomi Pertanian <i>Agricultural Economics</i>	YW	3	3	0
PPT3801	Statistik Perniagaantani <i>Agribusiness Statistics</i>	YW	3	2	1
PPT4305	Pemasaran Perniagaantani <i>Agribusiness Marketing</i>	YW	3	3	0
TKP3001	Teknologi Pertanian Moden <i>Modern Agricultural Technology</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	3	3	0
JUMLAH/TOTAL		-	15	13	2

TAHUN 2, SEMESTER 2 | 2nd YEAR, SEMESTER 2

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
PPT4402	Pengurusan Kewangan Perniagaantani <i>Agribusiness Financial Management</i>	YW	3	3	0
PPT4801	Teknik Kuantitatif Perniagaantani <i>Quantitative Techniques in Agribusiness</i>	YW	3	2	1
TKP3002	Amalan Ladang: Akuakultur <i>Aquaculture Farm Practices</i>	YW	1	0	1
PPT4212	Perancangan dan Pengurusan Projek Perniagaantani <i>Agribusiness Project Planning and Management</i>	YW	3	3	0
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	3	3	0
JUMLAH/TOTAL		-	13	11	2

TAHUN 3, SEMESTER 1 | 3rd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PPT3403	Perakaunan Kos dan Pengurusan Perniagaantani <i>Agribusiness Cost and Management Accounting</i>	YW	3	3	0
PPT4602	Kaedah Penyelidikan Perniagaantani <i>Agribusiness Research Methods</i>	YW	3	2	1
PPT4702	Keusahawanan Perniagaantani <i>Agribusiness Entrepreneurship</i>	YW	3	2	1
SHW3003	Amalan Ladang: Pengeluaran Ternakan <i>Farm Practice: Livestock Production</i>	YW	1	0	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	9	0
JUMLAH/TOTAL		-	19	16	3

TAHUN 3, SEMESTER 2 | 3rd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PPT4306	Perniagaantani Digital <i>Digital Agribusiness</i>	YW	3	2	1
PPT4959A	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	9	0
JUMLAH/TOTAL		-	15	11	4

TAHUN 4, SEMESTER 1 | 4th YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PPT4959(B)	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	9	0
JUMLAH/TOTAL		-	12	9	3

TAHUN 4, SEMESTER 2 | 4th YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PPT4901	Latihan Industri Perniagaantani <i>Agribusiness Industrial Training</i>	YW	12	0	12
JUMLAH/TOTAL		-	12	0	12

Nota/Note:

- Sila rujuk Skema PUTRA ELEX bagi pendaftaran kursus Bahasa Inggeris.
Please refer to ELEX Scheme for English course registration.

2. Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEx.
The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEx.

STRUKTUR KURIKULUM | CURRICULUM STRUCTURE

Nama Program Study Programme	: Bachelor Sains Akuakultur dengan Kepujian <i>Bachelor of Science in Aquaculture with Honours</i>
Jumlah Kredit Bergraduat Total Graduate Credit Hours	: 127 Jam Kredit 127 Credit Hours
Tempoh Pengajian Study Duration	: 8 Semester/ <i>Semesters</i> (4 Tahun/ <i>Years</i>)
Matlamat Program Programme Outcomes	: 1. Melahirkan pegawai perikanan dalam bidang akuakultur yang berpengetahuan dalam aspek teori dan praktikal serta berdaya saing. 2. Melahirkan pegawai perikanan dalam bidang akuakultur yang boleh mengaplikasikan ilmu pengetahuan dalam mengurus dan melaksanakan penyelidikan secara teknikal dan beretika 3. Melahirkan pegawai perikanan dalam bidang akuakultur yang berkebolehan mengurus industri akuakultur secara berdikari atau berkhidmat dengan agensi berkaitan.

RINGKASAN HASIL PEMBELAJARAN PROGRAM

SUMMARY OF PROGRAM LEARNING OUTCOMES

PROGRAM	Hasil Pembelajaran Program									
	Pengetahuan dan kefahaman		Kemahiran praktikal		Kemahiran kognitif (CTPS)		Kemahiran komunikasi (CS)		Kemahiran interpersonal (TS)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
Bachelor Sains Akuakultur dengan Kepujian <i>Bachelor of Science in Aquaculture with Honours</i>	39	26	13	11	12	15	13	10	5	4

KURSUS UNIVERSITI | UNIVERSITY COURSES (27 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Wajib (YW)
 Registration status in eSMP : Compulsory Course (YW)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPE2301	Interaksi dan Pembentangan Akademik <i>Academic Interaction and Presentation</i>	3	2	1	LPE2401 @ CEL2102 Tahap 2
LPE2501	Penulisan Akademik <i>Academic Writing</i>	3	2	1	LPE2301
SKP2101*	Kenegaraan Malaysia <i>Malaysian Nationhood</i>	3	3	0	Pelajar Tempatan <i>Local Students</i>
FEM2401**	Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3112*	Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
SKP3113**	Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
Atau/or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3122*	Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
LPM2100**	Bahasa Melayu Komunikasi (AW) <i>Malay Language Communication (AW)</i> 	2	2	0	Pelajar Antarabangsa <i>International Students</i>
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	2	1	1	Tiada/None
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	3	1	2	Tiada/None
TKP3206	Pengembangan Akuakultur <i>Aquaculture Extension</i>	2	1	1	Tiada/None
QKS2112	Renang Asas (Kokurikulum - 1) <i>Basic Swimming (Co-curriculum -1)</i>	1	0	1	Tiada/None
QXX0000	Kokurikulum -2 <i>Co-curriculum</i>	1	0	1	Tiada/None

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

PELAJAR ANTARABANGSA / INTERNATIONAL STUDENT

Status pendaftaran dalam eSMP : Audit Wajib (AW)
 Registration status in eSMP : Compulsory Audit (AW)



Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	2	2	0	Pelajar Antarabangsa / <i>International Student</i>

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

- Pelajar yang mendapat MUET band 2.0-2.5 perlu mengambil kursus **LPE2401 Reading for Academic Purposes** sebagai pra-syarat untuk mengambil kursus LPE2301. Pelajar yang mendapat MUET band 5.0-5+ adalah **dikecualikan** mengambil kursus LPE2301 dan LPE2501.
*Students who achieve MUET at band 2.0-2.5 are required to register **LPE2401 Reading for Academic Purposes** course as a prerequisite to register for LPE2301 course in the first semester. Students with MUET band 5.0-5+ are excluded from the LPE2301 and LPE2501 courses.*
- Pelajar dikehendaki untuk memilih taraf (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi Kursus Universiti kecuali pelajar antarabangsa yang mendaftar kursus LPM2100 Bahasa Melayu Komunikasi perlu memilih taraf (Audit Wajib – AW).
Students are required to choose (Compulsory-YW) as a level in Student Information System Portal for all University Courses except for LPM2100 Malay Communications which is compulsory for international students register as (Audit Compulsory - AW).
- Kursus Ko-Kurikulum Renang Asas** merupakan kursus yang **WAJIB** didaftarkan oleh setiap pelajar program ini. Tiada sebarang Pengecualian Kursus dan Pemindahan Kredit dibenarkan.
*The Basic Swimming as Co-Curriculum Courses is a **COMPULSORY** course will be registered by every student in this programme. No exemptions and credit transfers can be applied for this course.*

KURSUS TERAS | CORE COURSES (73 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Wajib (YW) : Compulsory Course (YW)
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Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
AKU3103	Iktiologi <i>Ichthyology</i>	3	2	1	Tiada/None
AKU3105	Biologi Invertebrat Akuatik <i>Aquatic Invertebrate Biology</i>	3	2	1	Tiada/None
AKU3106	Botani Akuatik <i>Aquatic Botany</i>	3	2	1	Tiada/None
AKU3201	Prinsip Akuakultur <i>Principles of Aquaculture</i>	3	2	1	Tiada/None
AKU3301	Genetik dan Pembiakbaakan Ikan <i>Fish Genetics and Breeding</i>	3	2	1	Tiada/None
AKU3302	Teknologi Pemberian Ikan dan Pengurusan Fri <i>Fish Seed Technology and Fry Management</i>	3	2	1	Tiada/None
AKU3401	Pemakanan Akuakultur <i>Aquaculture Nutrition</i>	3	2	1	Tiada/None
AKU3501	Pengurusan Kesihatan Ikan <i>Fish Health Management</i>	3	2	1	Tiada/None
AKU3601	Kualiti Air dan Tanah dalam Akuakultur <i>Water and Soil Quality in Aquaculture</i>	3	2	1	Tiada/None
AKU4901#	Latihan Industri <i>Industrial Training</i>	12	0	12	Tiada/None
PPT3301	Prinsip Pengurusan dan Pemasaran Pertanian <i>Principles of Agricultural Management and Marketing</i>	3	3	0	Tiada/None
AKU3602	Ekologi Akuatik <i>Aquatic Ecology</i>	3	2	1	Tiada/None
AKU4959	Disertasi Bacelor <i>Bachelor Dissertation</i>	6	0	6	Tiada/None
AKU4402	Pengeluaran Makanan Hidup dalam Akuakultur <i>Live Food Production in Aquaculture</i>	3	2	1	Tiada/None

AKU3108	Statistik dan Penyelidikan dalam Akuakultur <i>Statistics and Research in Aquaculture</i>	4	3	1	Tiada/None
AKU3210	Kultur Ikan <i>Finfish Culture</i>	3	1	2	Tiada/None
AKU3109	Fisiologi Ikan dan Biokimia <i>Fish Physiology and Biochemistry</i>	4	3	1	Tiada/None
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	3	2	1	Tiada/None
AKU3801	Pasca Tuai dalam Akuakultur <i>Postharvest in Aquaculture</i>	2	1	1	Tiada/one
AKU3802	Inovasi dalam Akuakultur <i>Innovation in Aquaculture</i>	3	1	2	Tiada/one

Nota: #Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.

The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.*

KURSUS ELEKTIF | ELECTIVE COURSES (32 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Elective (EL) : Elective Course (EL)
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Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
AKU4701	Teknologi Maklumat dan Komunikasi dalam Akuakultur <i>Information and Communications Technology in Aquaculture</i>	3	1	2	Tiada/None
AKU4203	Sistem Pengeluaran Akuakultur <i>Aquaculture Production Systems</i>	3	2	1	Tiada/None
AKU4102	Limnologi <i>Limnology</i>	3	2	1	Tiada/None
AKU4202	Kultur Ikan dan Tumbuhan Akuatik Hiasan <i>Culture of Ornamental Fish and Aquatic Plants</i>	3	1	2	Tiada/None
AKU4221	Kultur Krustasea <i>Crustacean Culture</i>	3	1	2	Tiada/None
AKU4231	Kultur Molusk <i>Mollusc Culture</i>	3	1	2	Tiada/None
AKU4301	Endokrinologi Ikan <i>Fish Endocrinology</i>	3	2	1	Tiada/None
AKU4801	Perikanan Rekreasi dalam Ekopelancongan <i>Perairan Darat/ Recreational Fisheries in Inland Waters Ecotourism</i>	3	2	1	Tiada/None
AKU4501	Mikrobiologi Akuatik <i>Aquatic Microbiology</i>	3	2	1	Tiada/None
AKU4502	Imunologi Ikan <i>Fish Immunology</i>	3	2	1	Tiada/None
AKU4601	Ekologi dan Pengurusan Tanah Basah <i>Ecology and Management of Wetlands</i>	3	2	1	Tiada/None
AKU4101	Penilaian dan Pengurusan Sumber Perikanan <i>Fisheries Resource Assessment and Management</i>	3	2	1	Tiada/None
AKU4802	Biologi Molekul Dalam Akuakultur <i>Molecular Biology in Aquaculture</i>	3	2	1	Tiada/None
AKU4401	Teknologi Makanan Akuakultur	3	1	2	Tiada/None

Aquafeed Technology						
AKU4243	Kultur Alga <i>Algae Culture</i>	3	2	1	Tiada/None	
AKU4804	Polisi dan Akta Untuk Perikanan dan Akuakultur <i>Policy and Acts for Fisheries and Aquaculture</i>	2	2	0	Tiada/None	
AKU4204	Kultur Spesies Unik <i>Unique Species Culture</i>	2	2	0	Tiada/None	
AKU4103	Oseanografi <i>Oceanography</i>	3	2	1	Tiada/None	
	Elektif Bebas (Kemanusiaan dan Liberal Arts) <i>Elective course</i> <i>(Humanities and Liberal Arts)</i>	6	-	-	Tiada/None	

Jam Kredit/Credit Hour, K = Kredit | Credit, A = Amali | Laboratory, T = Tutorial

Nota/Note:

- Pelajar mestilah memilih (32) kredit kursus elektif termasuk (6) kredit kursus elektif bebas dari mana-mana fakulti dalam UPM atau luar negara dengan persetujuan Ketua Jabatan.
Students require to choose (32) credit elective courses which are including (6) credits from any faculty in UPM or abroad with the approval of the Head of Department.
- Pembentukan kursus baharu jabatan akan dibentuk dari semasa ke semasa berdasarkan keperluan terkini. Pelajar yang sedang mengikuti program ini boleh mendaftar kursus tersebut sebagai kursus elektif bagi memenuhi keperluan bergraduat dengan persetujuan fakulti.
The development of a new course will be formulated from time-to-time accordance to the latest needs. Students attending this program may take the course as an elective course to meet the requirements of graduating with faculty consent.
- Pelajar diwajibkan memilih (2) kredit daripada kursus kokurikulum yang ditawarkan oleh universiti dan salah satunya adalah **WAJIB** daftar QKS2112 Renang Asas.
Students must take (2) credits of co-curriculum courses offered by the university and one of the courses should be QKS2112 Basic Swimming.
- Pelajar perlu melengkapkan pakej keperluan Bahasa Inggeris seperti jadual di bawah : (Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat 4 buku panduan ini).
Students need to complete the English package as the table below: (For more details on CEL and LAX please refer to page 4 of this book).

Graduation Requirement	2 LPE + 1 CEL + 24 point LAX	2 LPE + 2 CEL + 24 point LAX	3 LPE + 3 CEL + 24 Point LAX
	or		
	1 LPE + 1 CEL + 24 point LAX + + 1 Global Language		
CEFR Level	C1 – C2	B1 – B2	A2
MUET Band	5.0 – 5+	3.0 – 4.5	2.0 - 2.5
TOEFL/IELTS Score	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0	TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	TOEFL iBT N/A IELTS 3.0 – 3.5
CIEP Level	-	104 – 109	101 – 103

Pearson Test of English (PTE) Academic Score	76 - 90	43 – 75	30 – 42
Cambridge English Score	180 – 230	140 – 179	120 – 139

Kursus Pakej Keperluan Bahasa Inggeris adalah berstatus **WAJIB**. Pelajar dikehendaki untuk memilih status **(Kursus Wajib – YW)** dalam Sistem Maklumat Pelajar bagi kursus LPE, CEL dan LAX.

*English Learning Experience (ELEX) Package Course is **COMPULSORY**. Students are required to choose **(Required - YW)** in the Student Information System for all the LPE, CEL, and LAX courses.*

PELAN PENGAJIAN | STUDY SCHEME

TAHUN 1, SEMESTER 1 | 1st YEAR, SEMESTER 1

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
AKU3103	Iktiologi <i>Ichthyology</i>	YW	3	2	1
AKU3105	Biologi Invertebrat Akuatik <i>Aquatic Invertebrate Biology</i>	YW	3	2	1
AKU3602	Ekologi Akuatik <i>Aquatic Ecology</i>	YW	3	2	1
SKP2101*	Pelajar Tempatan Sahaja (Local Students Only) Kenegaraan Malaysia <i>Malaysian Nationhood</i>	YW	3	3	0
FEM2401**	Pelajar Antarabangsa Sahaja (International Students Only) Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	YW	2	2	0
SKP3112*	Pelajar Tempatan Sahaja (Local Students Only) Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	YW	2	2	0
SKP3113**	Pelajar Antarabangsa Sahaja (International Students Only) Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	YW	3	3	0
Atau/ Or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>				
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Ko-kurikulum - 1 <i>Co-Curriculum - 1</i>				
Atau/or					
QKS2112	Renang Asas <i>Basic Swimming</i>	YW	1	0	1
JUMLAH/TOTAL					
- 15 11 4					

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 1, SEMESTER 2 | 1st YEAR, SEMESTER 2

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	YW	2	1	1
AKU3106	Botani Akuatik <i>Aquatic Botany</i>	YW	3	2	1
AKU3109	Fisiologi Ikan dan Biokimia <i>Fish Physiology and Biochemistry</i>	YW	4	3	1

SKP3122*	Pelajar Tempatan Sahaja (Local Students Only) Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	YW	2	2	0
LPM2100**	Pelajar Antarabangsa Sahaja (International Students Only) Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	AW	2	2	0
PPT3301	Prinsip Pengurusan dan Pemasaran Pertanian <i>Principles of Agricultural Management and Marketing</i>	YW	3	3	0
QXX0000	Ko-kurikulum - 2 <i>Co-Curriculum – 2</i>				
Atau/or		YW	1	0	1
QKS2112	Renang Asas <i>Basic Swimming</i>				
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	15	11	4

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 2, SEMESTER 1 | 2nd YEAR, SEMESTER 1

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	YW	3	1	2
AKU3201	Prinsip Akuakultur <i>Principles of Aquaculture</i>	YW	3	2	1
AKU4402	Pengeluaran Makanan Hidup dalam Akuakultur <i>Live Food Production in Aquaculture</i>	YW	3	2	1
AKU3601	Kualiti Air dan Tanah dalam Akuakultur <i>Water and Soil Quality in Aquaculture</i>	YW	3	2	1
AKU3501	Pengurusan Kesihatan Ikan <i>Fish Health Management</i>	YW	3	2	1
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	18	11	7

TAHUN 2, SEMESTER 2 | 2nd YEAR, SEMESTER 2

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Taraf Status	Kr	K	A
TKP3206	Pengembangan Akuakultur <i>Aquaculture Extension</i>	YW	2	1	1
AKU3301	Genetik dan Pembiakbakaan Ikan <i>Fish Genetics and Breeding</i>	YW	3	2	1
AKU3302	Teknologi Pemberian Ikan dan Pengurusan Fri <i>Fish Seed Technology and Fry Management</i>	YW	3	2	1
AKU3401	Pemakanan Akuakultur <i>Aquaculture Nutrition</i>	YW	3	2	1

AKU3210	Kultur Ikan <i>Finfish Culture</i>	YW	3	1	2
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	3	0	0
JUMLAH/TOTAL		-	17	8	6

TAHUN 3, SEMESTER 1 | 3rd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AKU3802	Inovasi dalam Akuakultur <i>Innovation in Aquaculture</i>	YW	3	1	2
AKU3108	Statistik dan Penyelidikan dalam Akuakultur <i>Statistics and Research in Aquaculture</i>	YW	4	3	1
AKU3801	Pasca Tuai dalam Akuakultur <i>Postharvest in Aquaculture</i>	YW	2	1	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	6	4	2
JUMLAH/TOTAL		-	15	9	6

TAHUN 3, SEMESTER 2 | 3rd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AKU4959A	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	14	8	6
JUMLAH/TOTAL		-	17	8	9

TAHUN 4, SEMESTER 1 | 4th YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AKU4959B	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	6	3
JUMLAH/TOTAL		-	12	6	6

TAHUN 4, SEMESTER 2 | 4th YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AKU4901	Latihan Industri <i>Industrial Training</i>	YW	12	0	12
JUMLAH/TOTAL		-	12	0	12

Nota/Note:

1. Sila rujuk Skema PUTRA ELEX bagi pendaftaran kursus Bahasa Inggeris.
Please refer to ELEX Scheme for English course registration.
2. Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.
The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

STRUKTUR KURIKULUM | CURRICULUM STRUCTURE

Nama Program Study Programme	:	Bachelor Sains Haiwan dengan Kepujian <i>Bachelor of Animal Science with Honours</i>
Jumlah Kredit Bergraduat Total Graduate Credit Hours	:	133 Jam Kredit 133 Credit Hours
Tempoh Pengajian Study Duration	:	8 Semester/ <i>Semesters</i> (4 Tahun/ <i>Years</i>)
Matlamat Program Programme Outcomes	:	<ol style="list-style-type: none"> 1. Penawaran program ini adalah selari dengan keperluan negara untuk memenuhi keperluan tenaga manusia yang meningkat sebanyak 7.1% setiap tahun. 2. Menghasilkan graduan yang mampu mengurus ladang ternakan dan menjaga haiwan dengan menitikberatkan amalan penternakan baik dan kelestarian alam sekitar. 3. Graduan yang berkebolehan menjalankan aktiviti keusahawanan dalam agro-industri ternakan dan bidang berkaitan. 4. Graduan yang mempunyai komitmen dalam meningkatkan ilmu pengetahuan melalui pembelajaran berterusan atau penyelidikan dalam bidang sains haiwan.

RINGKASAN HASIL PEMBELAJARAN PROGRAM PO10

SUMMARY OF PROGRAM LEARNING OUTCOMES

PROGRAM	Hasil Pembelajaran Program									
	Pengetahuan dan kefahaman	Kemahiran praktikal	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)	Kepimpinan, autonomi dan tanggungjawab (LS)	Kemahiran numerasi (NS)
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
Bachelor Sains Haiwan dengan Kepujian <i>Bachelor of Animal Science with Honours</i>	38	30	23	6	9	14	13	6	5	4

KURSUS UNIVERSITI | UNIVERSITY COURSES (25 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Wajib (YW)
 Registration status in eSMP : Compulsory Course (YW)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPE2301	Interaksi dan Pembentangan Akademik <i>Academic Interaction and Presentation</i>	3	3	0	Tiada/None
LPE2501	Penulisan Akademik <i>Academic Writing</i>	3	3	0	LPE2301
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	2	1	1	Tiada/None
SKP2101*	Kenegaraan Malaysia <i>Malaysian Nationhood</i>	3	3	0	Pelajar Tempatan <i>Local Students</i>
FEM2401**	Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3112*	Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
SKP3113**	Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
Atau/or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3122*	Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
LPM2100**	Bahasa Melayu Komunikasi (AW) <i>Malay Language Communication (AW)</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
QXX0000	Ko-kurikulum -1 <i>Co-curriculum</i>	1	0	1	Tiada/None
QXX0000	Ko-kurikulum -2 <i>Co-curriculum</i>	1	0	1	Tiada/None

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

PELAJAR ANTARABANGSA / INTERNATIONAL STUDENT

Status pendaftaran dalam eSMP : Audit Wajib (AW)
 Registration status in eSMP : Compulsory Audit (AW)



Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	2	2	0	Pelajar Antarabangsa / <i>International Student</i>

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

- Pelajar yang mendapat MUET band 2.0-2.5 perlu mengambil kursus **LPE2401 Reading for Academic Purposes** sebagai pra-syarat untuk mengambil kursus LPE2301. Pelajar yang mendapat MUET band 5.0-5+ adalah **dikecualikan** mengambil kursus LPE2301 dan LPE2501.
*Students who achieve MUET at band 2.0-2.5 are required to register **LPE2401 Reading for Academic Purposes** course as a prerequisite to register for LPE2301 course in the first semester. Students with MUET band 5.0-5+ are excluded from the LPE2301 and LPE2501 courses.*

- Pelajar dikehendaki untuk memilih taraf (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi Kursus Universiti kecuali pelajar antarabangsa yang mendaftar kursus LPM2100 Bahasa Melayu Komunikasi perlu memilih taraf (Audit Wajib – AW).

Students are required to choose (Compulsory-YW) as a level in Student Information System Portal for all University Courses except for LPM2100 Malay Communications which is compulsory for international students register as (Audit Compulsory - AW).

KURSUS TERAS | CORE COURSES (75 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Wajib (YW) : Compulsory Course (YW)
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Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
SHW3002	Pertanian Ternakan <i>Animal Agriculture</i>	3	2	1	Tiada/ <i>None</i>
EPT3104	Ekonomi Pertanian <i>Agricultural Economics</i>	3	3	0	Tiada/ <i>None</i>
SHW3407	Biokimia Haiwan <i>Animal Biochemistry</i>	3	2	1	Tiada/ <i>None</i>
SHW3105	Kelakuan dan Kebajikan Haiwan <i>Animal Behaviour and Welfare</i>	3	3	0	Tiada/ <i>None</i>
SHW3104	Pengurusan Kesihatan Haiwan <i>Animal Health Management</i>	3	2	1	Tiada/ <i>None</i>
SHW3106	Sains Daging <i>Meat Science</i>	3	2	1	Tiada/ <i>None</i>
SHW3200	Anatomi dan Fisiologi Haiwan Domestik I <i>Anatomy and Physiology of Domestic Animals I</i>	3	2	1	Tiada/ <i>None</i>
SHW3201	Anatomi dan Fisiologi Haiwan Domestik II <i>Anatomy and Physiology of Domestic Animals II</i>	3	2	1	Tiada/ <i>None</i>
SHW3203	Reproduksi Haiwan <i>Animal Reproduction</i>	3	2	1	Tiada/ <i>None</i>
SHW3303	Genetik Haiwan <i>Animal Genetics</i>	3	2	1	Tiada/ <i>None</i>
SHW3304	Pembibkaan Ternakan <i>Livestock Breeding</i>	3	2	1	SHW3303
SHW3403	Pemakanan Haiwan Asas <i>Basic Animal Nutrition</i>	3	2	1	Tiada/ <i>None</i>
SHW3405	Sains Pastura <i>Pasture Science</i>	3	2	1	Tiada/ <i>None</i>
SHW3501	Sains Haiwan Pedaging <i>Meat Animal Science</i>	3	2	1	SHW3201
SHW3502	Sains Tenusu <i>Dairy Science</i>	3	2	1	SHW3201
SHW3510	Sains Poltri <i>Poultry Science</i>	3	2	1	SHW3403
SHW3514	Sains Babi <i>Swine Science</i>	3	2	1	SHW3403
SHW3602	Statistik Sains Haiwan <i>Statistics for Animal Science</i>	3	2	1	Tiada/ <i>None</i>
SHW3700	Pengurusan Sisa Ternakan <i>Livestock Waste Management</i>	3	2	1	Tiada/ <i>None</i>

PRT4901#	Latihan Industri <i>Industrial Training</i>	12	0	12	Tiada/ <i>None</i>
SHW4959	Disertasi Bacelor <i>Bachelor Dissertation</i>	6	0	6	Tiada/ <i>None</i>

Nota: #Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.

The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.*

KURSUS ELEKTIF | ELECTIVE COURSES (33 Kredit/Credit)

Status pendaftaran dalam eSMP	: Kursus Elective (EL)
Registration status in eSMP	: Elective Course (EL)

Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
SHW4100	Hidupan Liar dan Haiwan Rekreasi <i>Wildlife and Recreational Animals</i>	3	2	1	Tiada/ <i>None</i>
SHW4106	Mikrobiologi Haiwan <i>Animal Microbiology</i>	3	2	1	Tiada/ <i>None</i>
SHW4201	Fisiologi Persekutaran <i>Environmental Physiology</i>	3	3	0	Tiada/ <i>None</i>
SHW4300	Genetik dan Pembiakbaakan Ternakan Gunaan <i>Applied Livestock Genetics and Breeding</i>	3	2	1	SHW3303
SHW4301	Sitogenetik Haiwan <i>Animal Cytogenetics</i>	3	2	1	SHW3303
SHW4401	Teknologi Pemprosesan Makanan Haiwan <i>Feed Processing Technology</i>	3	3	0	SHW3403
SHW4402	Bioteknologi dalam Makanan Haiwan <i>Biotechnology in Animal Feed</i>	3	3	0	SHW3403
SHW4403	Makanan dan Pemberian Makanan <i>Feeds and Feeding</i>	3	3	0	SHW3403
SHW4404	Pemakanan Haiwan Gunaan <i>Applied Animal Nutrition</i>	3	2	1	SHW3403
SHW4500	Rekabentuk dan Infrastruktur Ladang Ternakan <i>Livestock Farm Design and Infrastructure</i>	3	2	1	SHW3003
SHW4501	Produksi Ruminan Kecil <i>Small Ruminant Production</i>	3	2	1	Tiada/ <i>None</i>
SHW4502	Produksi Tenusu <i>Dairy Production</i>	3	2	1	SHW3502
SHW4503	Integrasi Ternakan-Tanaman <i>Livestock-Crop Integration</i>	3	3	0	Tiada/ <i>None</i>
SHW4504	Pengurusan Ragutan <i>Grazing Management</i>	3	2	1	Tiada/ <i>None</i>
SHW4505	Logistik Dan Rantaian Bekalan Produk Ternakan <i>Logistics and Supply Chain of Livestock Products</i>	3	2	1	Tiada/ <i>None</i>
SHW4511	Sains Babi Lanjutan <i>Advanced Swine Science</i>	3	2	1	SHW3511
SHW4512	Produksi Ayam Penelur <i>Layer Production</i>	3	2	1	SHW3510
SHW4513	Produksi Ayam Pedaging <i>Broiler Production</i>	3	2	1	SHW3510

SHW4514	Produksi Ayam Pembiak <i>Poultry Breeder Production</i>	3	2	1	Tiada/None
SHW4515	Pengurusan Burung Walit <i>Swiftlet Management</i>	3	2	1	Tiada/None
SHW4540	Pengurusan Ekuin <i>Equine Management</i>	3	2	1	Tiada/None
SHW4600	Metodologi Penyelidikan <i>Research Methodology</i>	3	2	1	SHW3602
SHW4703	Teknologi Pemprosesan Daging <i>Meat Processing Technology</i>	3	2	1	Tiada/None
SHW4801	Perancangan Dan Penilaian Sumber <i>Resource Planning and Evaluation</i>	3	2	1	Tiada/None
Elektif (Sains Sosial dan Kemasyarakatan) Elective (Social Sciences and Social Sciences)					
KOC3301	Pengenalan Komunikasi Korporat <i>Introduction to Corporate Communication</i>	3	3	0	Tiada/None
	Elektif Bebas (Kemanusiaan dan Liberal Arts) <i>Elective course (Humanities and Liberal Arts)</i>	6	-	-	Tiada/None

Jam Kredit/Credit Hour, K = Kredit | Credit, A = Amali | Laboratory, T = Tutorial

Nota/Note:

1. Pelajar mestilah memilih (27) kredit kursus elektif termasuk (6) kredit kursus elektif bebas dari mana-mana fakulti dalam UPM atau luar negara dengan persetujuan Ketua Jabatan.
Students require to choose (27) credit elective courses which are including (6) credits from any faculty in UPM or abroad with the approval of the Head of Department.
2. Pembentukan kursus baharu jabatan akan dibentuk dari semasa ke semasa berdasarkan keperluan terkini. Pelajar yang sedang mengikuti program ini boleh mendaftar kursus tersebut sebagai kursus elektif bagi memenuhi keperluan bergraduat dengan persetujuan fakulti.
The development of a new course will be formulated from time-to-time accordance to the latest needs. Students attending this program may take the course as an elective course to meet the requirements of graduating with faculty consent.
3. Pelajar diwajibkan memilih (2) kredit daripada kursus kokurikulum yang ditawarkan oleh universiti.
Students must take (2) credits of co-curriculum courses offered by the university.
4. Pelajar perlu melengkapkan pakej keperluan Bahasa Inggeris seperti jadual di bawah: (Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat 4 buku panduan ini).
Students need to complete the English package as the table below: (For more details on CEL and LAX please refer to page 4 of this book).

Graduation Requirement	2 LPE + 1 CEL + 24 point LAX	or	2 LPE + 2 CEL + 24 point LAX	3 LPE + 3 CEL + 24 Point LAX
			1 LPE + 1 CEL + 24 point LAX + + 1 Global Language	
CEFR Level	C1 – C2		B1 – B2	A2
MUET Band	5.0 – 5+		3.0 – 4.5	2.0 - 2.5
TOEFL/IELTS Score	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0		TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	TOEFL iBT N/A IELTS 3.0 – 3.5

CIEP Level	-	104 – 109	101 – 103
Pearson Test of English (PTE) Academic Score	76 - 90	43 – 75	30 – 42
Cambridge English Score	180 – 230	140 – 179	120 – 139

Kursus Pakej Keperluan Bahasa Inggeris adalah berstatus **WAJIB**. Pelajar dikehendaki untuk memilih status **(Kursus Wajib – YW)** dalam Sistem Maklumat Pelajar bagi kursus LPE, CEL dan LAX.

*English Learning Experience (ELEX) Package Course is **COMPULSORY**. Students are required to choose **(Required - YW)** in the Student Information System for all the LPE, CEL, and LAX courses.*

PELAN PENGAJIAN | STUDY SCHEME

TAHUN 1, SEMESTER 1 | 1st YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
EPT3104	Ekonomi Pertanian <i>Agricultural Economics</i>	YW	3	3	0
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	YW	2	1	1
	Pelajar Tempatan Sahaja (Local Students Only)	YW	3	3	0
SKP2101*	Kenegaraan Malaysia <i>Malaysian Nationhood</i>				
	Pelajar Antarabangsa Sahaja (International Students Only)	YW	2	2	0
FEM2401**	Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>				
SKP3112*	Pelajar Tempatan Sahaja (Local Students Only)	YW	2	2	0
	Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>				
	Pelajar Antarabangsa Sahaja (International Students Only)	YW	3	3	0
SKP3113**	Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>				
Atau/ Or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>				
SHW3002	Pertanian Ternakan <i>Animal Agriculture</i>	YW	3	2	1
SHW3200	Anatomji dan Fisiologi Haiwan Domestik I <i>Anatomy and Physiology of Domestic Animals I</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Ko-kurikulum -1 <i>Co-curriculum</i>	YW	1	0	1
JUMLAH/TOTAL		-	17	14	3

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 1, SEMESTER 2 | 1st YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
TKP3207	Pengembangan Ternakan <i>Livestock Extension</i>	YW	2	1	1
SHW3407	Biokimia Haiwan <i>Animal Biochemistry</i>	YW	3	2	1
SKP3122*	Pelajar Tempatan Sahaja (Local Students Only) Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	YW	2	2	0
	Pelajar Antarabangsa Sahaja (International Students Only)				
LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	AW	2	2	0
SHW3602	Statistik Sains Haiwan <i>Statistics for Animal Science</i>	YW	3	2	1
SHW3201	Anatomi dan Fisiologi Haiwan Domestik II <i>Anatomy and Physiology of Domestic Animals II</i>	YW	3	2	1
PPT3702	Keusahawanan Pertanian <i>Agricultural Entrepreneur</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	0	0	0
QXX0000	Ko-kurikulum -2 <i>Co-curriculum - 2</i>	YW	1	0	1
JUMLAH/TOTAL		-	17	11	6

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 2, SEMESTER 1 | 2nd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
LPE2301	Interaksi dan Persempahan Akademik <i>Academic Interaction and presentation</i>	YW	3	3	0
SHW3403	Pemakanan Haiwan Asas <i>Basic Animal Nutrition</i>	YW	3	2	1
SHW3105	Kelakuan dan Kebajikan Haiwan <i>Animal Behaviour and Welfare</i>	YW	3	3	0
SHW3203	Reproduksi Haiwan <i>Animal Reproduction</i>	YW	3	2	1
SHW3303	Genetik Haiwan <i>Animal Genetics</i>	YW	3	2	1
SHW3405	Sains Pastura <i>Pasture Science</i>	YW	3	2	1
ELEX	English Learning Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	18	12	5

TAHUN 2, SEMESTER 2 | 2nd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
LPE2501	Penulisan Akademik <i>Academic Writing</i>	YW	3	3	0
SHW3304	Pembibitan Ternakan <i>Livestock Breeding</i>	YW	3	2	1
SHW3501	Sains Haiwan Pedaging <i>Meat Animal Science</i>	YW	3	2	1
SHW3502	Sains Tenusu <i>Dairy Science</i>	YW	3	2	1
SHW3510	Sains Poltri <i>Poultry Science</i>	YW	3	2	1
SHW3514	Sains Babi <i>Swine Science</i>	YW	3	2	1
ELEX	English Learning Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	18	13	5

TAHUN 3, SEMESTER 1 | 3rd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SHW3700	Pengurusan Sisa Ternakan <i>Livestock Waste Management</i>	YW	3	2	1
SHW3106	Sains Daging <i>Meat Science</i>	YW	3	2	1
ELEX	English Learning Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
Kursus Elektif <i>Electives Courses</i>		EL	12	10	2
JUMLAH/TOTAL		-	18	14	4

TAHUN 3, SEMESTER 2 | 3rd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SHW3104	Pengurusan Kesihatan Haiwan <i>Animal Health Management</i>	YW	3	2	1
SHW4959A	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
Kursus Elektif <i>Electives Courses</i>		EL	9	8	1
JUMLAH/TOTAL		-	15	10	5

TAHUN 4, SEMESTER 1 | 4th YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SHW4959B	Disertasi Bacelor <i>Bachelor Dissertation</i>	YW	3	0	3
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
Kursus Elektif <i>Electives Courses</i>		EL	12	9	3
JUMLAH/TOTAL		-	15	9	6

TAHUN 4, SEMESTER 2 | 4th YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SHW4901	Latihan Industri <i>Industrial Training</i>	YW	12	0	12
JUMLAH/TOTAL		-	12	0	12

Nota/Note:

1. Sila rujuk Skema PUTRA ELEX bagi pendaftaran kursus Bahasa Inggeris.
Please refer to ELEX Scheme for English course registration.
2. Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.
The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

STRUKTUR KURIKULUM | CURRICULUM STRUCTURE

Nama Program Study Programme	: Bacelor Sains Pengurusan Perladangan dengan Kepujian <i>Bachelor of Science in Plantation Management with Honours</i>
Jumlah Kredit Bergraduat Total Graduate Credit Hours	: 123 Jam Kredit 123 Credit Hours
Tempoh Pengajian Study Duration	: 8 Semester/ <i>Semesters</i> (4 Tahun/ <i>Years</i>)
Matlamat Program Programme Outcomes	: 1. boleh merancang dan menjalankan penanaman tanaman perladangan secara teknikal dan beretika. 2. boleh mengendali pengurusan perladangan dengan cekap dan berkesan. 3. boleh mengendali dan membangun sumber manusia untuk meningkatkan hasil perladangan secara lestari.

RINGKASAN HASIL PEMBELAJARAN PROGRAM

SUMMARY OF PROGRAM LEARNING OUTCOMES

PROGRAM	Hasil Pembelajaran Program									
	Pengetahuan dan kefahaman	Kemahiran praktikal	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)	Kepimpinan, autonomi dan tanggungjawab (LS)	Kemahiran numerasi (NS)
Bacelor Sains Pengurusan Perladangan dengan Kepujian <i>Bachelor of Science in Plantation Management with Honours</i>	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
3u1i	32	19	13	5	9	13	10	6	3	4

KURSUS UNIVERSITI | UNIVERSITY COURSES (20 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Wajib (YW)
 Registration status in eSMP : Compulsory Course (YW)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPE2301	Interaksi dan Pembentangan Akademik <i>Academic Interaction and Presentation</i>	3	2	1	LPE2401 @ CEL2102 Tahap 2
LPE2501	Penulisan Akademik <i>Academic Writing</i>	3	2	1	LPE2301
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	3	1	2	Tiada/None
SKP2101*	Kenegaraan Malaysia <i>Malaysian Nationhood</i>	3	3	0	Pelajar Tempatan <i>Local Students</i>
FEM2401**	Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3112*	Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
SKP3113**	Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
Atau/or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
SKP3122*	Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	2	2	0	Pelajar Tempatan <i>Local Students</i>
LPM2100**	Bahasa Melayu Komunikasi (AW) <i>Malay Language Communication (AW)</i>	2	2	0	Pelajar Antarabangsa <i>International Students</i>
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	2	1	1	Tiada/None
QXX0000	Kokurikulum -1 <i>Co-curriculum</i>	1	0	1	Tiada/None
QXX0000	Kokurikulum -2 <i>Co-curriculum</i>	1	0	1	Tiada/None

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

PELAJAR ANTARABANGSA / INTERNATIONAL STUDENT

Status pendaftaran dalam eSMP : Audit Wajib (AW)
 Registration status in eSMP : Compulsory Audit (AW)



Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
LPM2100**	Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	2	2	0	Pelajar Antarabangsa / <i>International Student</i>

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

- Pelajar yang mendapat MUET band 2.0-2.5 perlu mengambil kursus **LPE2401 Reading for Academic Purposes** sebagai pra-syarat untuk mengambil kursus LPE2301. Pelajar yang mendapat MUET band 5.0-5+ adalah **dikecualikan** mengambil kursus LPE2301 dan LPE2501.
*Students who achieve MUET at band 2.0-2.5 are required to register **LPE2401 Reading for Academic Purposes** course as a prerequisite to register for LPE2301 course in the first semester. Students with MUET band 5.0-5+ are excluded from the LPE2301 and LPE2501 courses.*

- Pelajar dikehendaki untuk memilih taraf (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi Kursus Universiti kecuali pelajar antarabangsa yang mendaftar kursus LPM2100 Bahasa Melayu Komunikasi perlu memilih taraf (Audit Wajib – AW).

Students are required to choose (Compulsory-YW) as a level in Student Information System Portal for all University Courses except for LPM2100 Malay Communications which is compulsory for international students register as (Audit Compulsory - AW).

KURSUS TERAS | CORE COURSES (70 Kredit/Credit)

Status pendaftaran dalam eSMP Registration status in eSMP	: Kursus Wajib (YW) : Compulsory Course (YW)
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Kod Kursus <i>Course Code</i>	Nama Kursus <i>Course Name</i>	Kr	K	A	Prasyarat <i>Prerequisite</i>
Sains/ Science					
AGR3101	Botani Pertanian <i>Agricultural Botany</i>	3	2	1	Tiada/None
AGR3102	Prinsip Sains Rumpai <i>Principles of Weed Science</i>	3	2	1	Tiada/None
AGR3302	Fisiologi Tanaman Saka <i>Perennial Crop Physiology</i>	3	2	1	Tiada/None
AGR4507	Pengeluaran Tanaman Perladangan – Kelapa Sawit <i>Production of Plantation Crop – Oil Palm</i>	3	2	1	Tiada/None
PLP3104	Entomologi Asas <i>Fundamentals of Entomology</i>	3	2	1	Tiada/None
PLP3204	Patologi Tumbuhan Asas <i>Fundamentals of Plant Pathology</i>	3	2	1	Tiada/None
PRT3204	Biometri <i>Biometri</i>	4	3	1	Tiada/None
TKP3205	Komunikasi Pengembangan Dan Demonstrasi Kaedah Pertanian <i>Agriculture Extension Communication and Method Demonstration</i>	3	2	1	Tiada/None
SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	3	2	1	Tiada/None
SPP4999	Kajian Kes Pengurusan Perladangan <i>Plantation Management Case Study</i>	3	0	3	Tiada/None
Pengurusan/ Management					
AGR3503	Tanaman Perladangan Industri Minor <i>Minor Industrial Plantation Crops</i>	3	1	2	Tiada/None
AGR4511	Pengurusan Perladangan Getah <i>Rubber Plantation Management</i>	3	1	2	Tiada/None
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	3	2	1	Tiada/None
PPT3401	Perakaunan Perniagaantani <i>Agribusiness Accounting</i>	4	3	1	Tiada/ one
PRT4901#	Latihan Industri <i>Industrial Training</i>	12	0	12	Tiada/None
SPP4905	Pengurusan Dan Pengoperasian Ladang <i>Plantation Management and Operation</i>	14	0	14	SPP4999

Nota: #Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Paket ELEX.

The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

KURSUS ELEKTIF | ELECTIVE COURSES (33 Kredit/Credit)

Status pendaftaran dalam eSMP : Kursus Elective (EL)
 Registration status in eSMP : Elective Course (EL)

Kod Kursus Course Code	Nama Kursus Course Name	Kr	K	A	Prasyarat Prerequisite
Sains/ Science (15 Kredit/ Credits)					
AGR3204	Pembibakkalan Tumbuhan <i>Plant Breeding</i>	3	2	1	Tiada/None
AGR4302	Sains Racun Herba <i>Herbicide Science</i>	3	2	1	AGR3102
AGR4509	Pengeluaran Tanaman Makanan <i>Production of Food Crops</i>	3	2	1	Tiada/None
PLP4601	Sains Racun Perosak <i>Pesticide Science</i>	3	2	1	Tiada/None
PRT4002	Pertanian Persis <i>Precision Agriculture</i>	3	2	1	Tiada/None
SST4202	Survei Tanah Dan Pengkelasan Kesesuaian Guna Tanah <i>Soil Survey and Land Use Suitability Classification</i>	3	2	1	Tiada/None
TKP3001	Teknologi Pertanian Moden <i>Modern Agricultural Technology</i>	3	2	1	Tiada/None
TKP3501	Mekanisasi Pertanian dan Pengairan <i>Agricultural Mechanisation and Irrigation</i>	3	2	1	Tiada/None
Pengurusan/ Management (18 Kredit/ Credits)					
FHM3213	Perhutanan Tani <i>Agroforestry</i>	3	2	1	Tiada/None
MGM3113	Gelagat Organisasi <i>Organisation Behavior</i>	3	3	0	MGM3101 atau (or) PPT3201
MGM3352	Undang-Undang Perniagaan <i>Business Law</i>	3	3	0	Tiada/None
PPT3201	Prinsip Pengurusan Perniagaantani <i>Principles of Agribusiness Management</i>	3	2	1	Tiada/None
PPT4202	Perniagaantani <i>Agribusiness Project Planning and Management</i>	3	2	1	EPT3102
PPT4210	Pembangunan Sumber Manusia Dalam Sektor Pertanian <i>Human Resource Development in Agricultural Sector</i>	3	3	0	Tiada/None
PPT4302	Pemasaran Perniagaantani Antarabangsa <i>International Agribusiness Marketing</i>	3	2	1	Tiada/None
SST4303	Pemuliharaan Tanah <i>Soil Conservation</i>	3	2	1	Tiada/None
SST4602	Kelestarian Perladangan dan Pengurusan Kualiti <i>Plantation Sustainability and Quality Management</i>	3	2	1	Tiada/None
Elektif Bebas (Kemanusiaan dan Liberal Arts) <i>Elective course (Humanities and Liberal Arts)</i>				6	- - - Tiada/None

Jam Kredit/Credit Hour, K = Kredit | Credit, A = Amali | Laboratory, T = Tutorial

Nota/Note:

1. Pelajar diwajibkan memilih (2) kredit daripada kursus kokurikulum yang ditawarkan oleh universiti.
It is compulsory for students to take (2) credits of co-curriculum courses offered by the university.
2. Pelajar perlu melengkapkan pakej keperluan Bahasa Inggeris seperti jadual di bawah : (Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat 4 buku panduan ini).
Students need to complete the english package as the table below: (For more details on CEL and LAX please refer to page 4 of this book).

Graduation Requirement	2 LPE + 1 CEL + 24 point LAX	2 LPE + 2 CEL + 24 point LAX	3 LPE + 3 CEL + 24 Point LAX
	or 1 LPE + 1 CEL + 24 point LAX + + 1 Global Language		
CEFR Level	C1 – C2	B1 – B2	A2
MUET Band	5.0 – 5+	3.0 – 4.5	2.0 - 2.5
TOEFL/IELTS Score	TOEFL iBT 95 – 120 IELTS 7.0 – 9.0	TOEFL iBT 42 – 94 IELTS 4.0 – 6.5	TOEFL iBT N/A IELTS 3.0 – 3.5
CIEP Level	-	104 – 109	101 – 103
Pearson Test of English (PTE) Academic Score	76 - 90	43 – 75	30 – 42
Cambridge English Score	180 – 230	140 – 179	120 – 139

Kursus Pakej Keperluan Bahasa Inggeris adalah taraf WAJIB. Pelajar dikehendaki untuk memilih status (Kursus Wajib – YW) dalam Sistem Maklumat Pelajar bagi kursus LPE, CEL dan LAX.

English Learning Experience (ELEX) Package Course is COMPULSORY. Students are required to choose (Required - YW) in the Student Information System for all the LPE, CEL and LAX courses.

PELAN PENGAJIAN | STUDY SCHEME

TAHUN 1, SEMESTER 1 | 1st YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AGR3101	Botani Pertanian/ <i>Agricultural Botany</i>	YW	3	2	1
AGR3302	Fisiologi Tanaman Saka <i>Perennial Crop Physiology</i>	YW	3	2	1
PRT2009	Pertanian dan Kehidupan <i>Agriculture and Life</i>	YW	2	1	1
SKP3112*	Pelajar Tempatan Sahaja (Local Students Only) Falsafah dan Isu Semasa <i>Philosophy and Current Issues</i>	YW	2	2	0
SKP3113**	Pelajar Antarabangsa Sahaja (International Students Only) Falsafah dan Isu Semasa Masyarakat <i>Philosophy and Current Issues in Society</i>	YW	3	3	0
Atau/ Or					
SKP3123**	Penghayatan Etika dan Peradaban Malaysia <i>Internalization of Ethics and civilization in Malaysia</i>				
SKP3122	Pelajar Tempatan Sahaja (Local Students Only) Penghayatan Etika dan Peradaban <i>Internalization of Ethics and Civilization</i>	YW	2	2	0
LPM2100*	Pelajar Antarabangsa Sahaja (International Students Only) Bahasa Melayu Komunikasi <i>Malay Language Communication</i>	AW	2	2	0
SST3005	Sains Tanah Asas <i>Basic Soil Science</i>	YW	1	0	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
QXX0000	Kokurikulum <i>Co-Curriculum</i>	YW	1	0	1
JUMLAH/TOTAL				16	11
Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students					

TAHUN 1, SEMESTER 2 | 1st YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SKP2101*	Pelajar Tempatan Sahaja (Local Students Only) Kenegaraan Malaysia <i>Malaysian Nationhood</i>	YW	3	3	0
FEM2401**	Pelajar Antarabangsa Sahaja (International Students Only) Politik Malaysia dan Masyarakat <i>Malaysian Politics and Society</i>	YW	2	2	0
AGR3102	Prinsip Sains Rumpai <i>Principles of Weed Science</i>	YW	3	2	1
TKP3205	Komunikasi Pengembangan dan Demonstrasi Kaedah Pertanian <i>Agriculture Extension Communication and Method Demonstration</i>	YW	3	2	1
PLP3104	Entomologi Asas <i>Fundamentals of Entomology</i>	YW	3	2	1
QXX0000	Kokurikulum <i>Co-Curriculum</i>	YW	1	0	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
JUMLAH/TOTAL		-	12	8	4

Nota: *Pelajar Tempatan/Local Students **Pelajar Antarabangsa/International Students

TAHUN 2, SEMESTER 1 | 2nd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AGR4507	Pengeluaran Tanaman Perladangan –Kelapa Sawit <i>Production of Plantation Crop – Oil Palm</i>	YW	3	2	1
PLP3204	Patologi Tumbuhan Asas <i>Fundamentals of Plant Pathology</i>	YW	3	2	1
PPT3701	Keusahawanan Pertanian <i>Agricultural Entrepreneurship</i>	YW	3	1	2
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	6		
JUMLAH/TOTAL		-	15	5	4

TAHUN 2, SEMESTER 2 | 2nd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AGR3503	Tanaman Perladangan Industri Minor <i>Minor Industrial Plantation Crops</i>	YW	3	1	2
EPT3102	Ekonomi Pertanian <i>Agricultural Economics</i>	YW	3	2	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	12	0	0
JUMLAH/TOTAL		-	18	3	3

TAHUN 3, SEMESTER 1 | 3rd YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
AGR4511	Pengurusan Perladangan Getah <i>Rubber Plantation Management</i>	YW	3	1	2
PRT3204	Biometri <i>Biometri</i>	YW	4	3	1
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
ELEX [Jika berkaitan] [if applicable]	Selaraskan kursus Paket (ELEX) Adjusted (ELEX) Package English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	9	0	0
JUMLAH/TOTAL		-	16	4	3

TAHUN 3, SEMESTER 2 | 3rd YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PPT3401	Perakaunan Perniagaantani <i>Agribusiness Accounting</i>	YW	4	3	1
SPP4999	Kajian Kes Pengurusan Perladangan <i>Estate Management Case Study</i>	YW	3	3	0
ELEX	English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
ELEX [Jika berkaitan] [if applicable]	Selaraskan kursus Paket ELEX Adjusted (ELEX) Package English Language Experience (ELEX) (LPE/LAX/CEL)	YW	-	-	-
	Kursus Elektif <i>Electives Courses</i>	EL	6	-	-
JUMLAH/TOTAL		-	13	6	1

TAHUN 4, SEMESTER 1 | 4th YEAR, SEMESTER 1

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
SPP4905	Pengurusan dan Pengoperasian Ladang <i>Plantation Management and Operation</i>	YW	14	0	14
JUMLAH/TOTAL		-	14	0	14

TAHUN 4, SEMESTER 2 | 4th YEAR, SEMESTER 2

Kod Kursus Course Code	Nama Kursus Course Name	Taraf Status	Kr	K	A
PRT4901	Latihan Industri <i>Industrial Training</i>	YW	12	0	12
JUMLAH/TOTAL		-	12	0	12

Nota/Note:

1. Sila rujuk Skema PUTRA ELEX bagi pendaftaran kursus Bahasa Inggeris.
Please refer to ELEX Scheme for English course registration.

2. Kursus Latihan Industri hanya boleh didaftar sekiranya pelajar telah LULUS keseluruhan kursus dalam Program Pengajian. Ini termasuklah Kursus Ko-Kurikulum dan Pakej ELEX.
The Industrial Training courses only able to register once a student's PASS all the courses in this programme. This including Co-Curriculum Courses and ELEX.

SINOPSIS KURSUS/ COURSE SYNOPSIS

Jabatan Akuakultur/ Department of Aquaculture

AKU3103 Iktiologi/ Ichthyology **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi kepelbagaian biologi dan ekologi ikan. Perbandingan struktur, tabiat dan keupayaan penyesuaian ikan di ruang geografi yang berbeza dibincangkan.

This course covers the diversity of fish biology and ecology. Comparison in structural, behavioural and adaptive ability of fishes in diverse geographical spaces are discussed.

AKU3104 Fisiologi Ikan/ Fish Physiology **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi biologi organ dan sel, peredaran darah, sensori, saraf, pergerakan, penghadaman, pembiakan dan endokrin ikan. Tindakbalas sistem fisiologi dalam proses untuk mencapai tahap keseimbangan dalam persekitaran akuatik dibincangkan.

This course covers the biology of organ and cell, blood circulation, sensory, nerve, movement, digestion, reproduction and endocrine in fish. The physiological reaction in the process to achieve equilibrium level in aquatic environment are discussed.

AKU3105 Biologi Invertebrat Akuatik/ Biology of Aquatic Invertebrates **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi diversiti dan ciri biologi kumpulan dan spesies invertebrat akuatik yang hidup dalam ekosistem marin dan air tawar. Pertalian ciri adaptasi dan kemandirian invertebrat dengan struktur dan sistem biologinya ditekankan.

The course covers diversity and biological characteristics of groups and species of aquatic invertebrates living in marine and freshwater ecosystems. Relationship between adaptation and survival of invertebrates with its structure and biological system is emphasised.

AKU3106 Botani Akuatik/ Aquatic Botany **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi taksonomi dan pengelasan, ciri morfologi penting bagi setiap kumpulan utama tumbuhan akuatik berdasarkan persekitaran air tawar dan marin. Kegunaan, kepentingan dan ancaman terhadap tumbuhan akuatik dibincangkan.

This course covers the taxonomy and classification, important characteristic for each main group of aquatic plants based on the freshwater and marine environments. Utilization, importance and threats to aquatic plants are discussed.

**AKU3108 Statistik Dan Penyelidikan Dalam Akuakultur/
Statistics and Research in Aquaculture** **4 (3+1)**

Prasyarat : Tiada

Kursus ini merangkumi asas statistik dan analisis data dalam akuakultur dan perikanan. Kursus ini menekankan interpretasi hasil analisis data dalam situasi sebenar, selain menekankan rekabentuk eksperimen dengan menggunakan formulasi statistik yang sesuai.

This course covers the fundamental of statistics and data analysis in aquaculture and fisheries. This course emphasises on interpretation of results of data analysis in the real-life situation, besides emphasises on the experimental design using appropriate statistical formulation.

AKU3109 Fisiologi Ikan dan Biokimia/ Fish Physiology and Biochemistry **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi sistem, fungsi dan komponen utama fisiologi untuk homeostasis berterusan dalam hidupan akuatik. Proses biokimia dan fisiologi ikan yang relevan dengan persekitaran dan pelbagai laluan metabolisme dalam organisma akuatik ditekankan.

This course covers the main system, function and physiological components for continuous homeostasis in aquatic life. Biochemical and fish physiological processes relevant to the environment and various metabolic pathways in aquatic organisms are emphasised.

AKU3201 Prinsip Akuakultur/ Principles Of Aquaculture **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi prinsip asas akuakultur untuk sekuriti makanan. Proses yang terlibat dalam pra-produksi, produksi, dan pasca-produksi akuakultur yang lestari mengikut piawaian yang ditetapkan dibincangkan

This course covers basic principle of aquaculture for food security. The processes involved in pre-production, production and post-production of sustainable aquaculture according to standard practices are discussed

AKU3210 Kultur Ikan/ Finfish Culture **3 (1+2)**

Prasyarat : Tiada

Kursus ini merangkumi pengkulturan dan pengurusan ikan makanan air tawar dan marin. Penekanan diberi kepada penjagaan, pengurusan pemakanan, pengurusan air, amalan akuakultur baik dan pengendalian pasca tuai.

This course covers culture and management of food fish both in fresh and seawater. This course emphasises husbandry, feed management, water management, good aquaculture practices and post harvest handling.

AKU3301 Genetik dan Pembiakbakaan Ikan/ Fish Genetics And Breeding **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi konsep genetik, pembiakbakaan ikan, penghibridan dan kejuruteraan genetik. Penyelesaian masalah dalam pemilihan baka ikan dibincangkan.

This course covers concepts of fish genetics, breeding, hybridisation and genetic engineering. Problem solving for selective breeding in fish are discussed

AKU3302 Teknologi Pemberian Ikan dan Pengurusan Fri/ Fish Seed Technology And Fry Management **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi biologi pembiakan ikan, teknik pemberian ikan, larvikultur, pengurusan, pembungkusan dan pengangkutan fri. Permasalahan dalam pembiakan ikan dibincangkan.

This course covers fish reproductive biology, fish seed production techniques, larviculture, management, packaging and transportation of fry. Issues in fish breeding are discussed.

AKU3401 Pemakanan Akuakultur/ Aquaculture Nutrition **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi amalan penyediaan dan pemberian makanan dalam akuakultur. Nutrisi dalam bahan makanan untuk pertumbuhan optima haiwan akuatik, isu semasa dan kekangan dalam pemakanan akuakultur diberi penekanan.

This course covers preparation and feeding practices in aquaculture. Nutrition in feed ingredients for optimal growth of aquatic animals, current issues and limitations in aquaculture nutrition are emphasized.

AKU3501 Pengurusan Kesihatan Ikan/ Fish Health Management **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi konsep patologi, mikrobiologi dan parasitologi berhubung dengan penyakit ikan, tatacara diagnosis, kawalan dan rawatan. Kepentingan amalan pengurusan yang baik, pengawalan dan pencegahan penyakit dalam akuakultur dibincangkan

This course covers concepts of pathology, microbiology and parasitology in relation to fish diseases, diagnostic procedures, control and treatment. The importance of good husbandry, control and prevention of diseases in aquaculture are discussed

AKU3601 Kualiti Air dan Tanah dalam Akuakultur/ Water and Soil Quality in Aquaculture **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi teori dan penentuan kualiti air dan tanah untuk pemilihan tapak. Analisis dan tafsiran kimia dan fizikal air dan tanah diberi penekanan

This course covers theory and determination of water and soil quality for site selection. Analysis and interpretation of physico chemical of water and soil are emphasised

AKU3602	Ekologi Akuatik / Aquatic Ecology	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi komponen utama ekologi akuatik dan teknik ukuran parameter ekologi. Impak negatif terhadap ekosistem akuatik dan kaedah pemantauan serta pemulihan dibincangkan. <i>This course covers the major components of aquatic ecology and ecological parameters measurement techniques. Negative impacts towards aquatic ecosystem as well as the monitoring and the remediation techniques are discussed.</i>	
AKU3801	Pasca Tuai Dalam Akuakultur/ Postharvest In Aquaculture	2 (1+1)
Prasyarat : Tiada	Kursus ini merangkumi pengendalian pelbagai produk akuakultur, pemprosesan dan pengawalan kualiti. Produk akuatik ditambah nilai dan sampingan dibincangkan <i>This course covers handling of various types of aquatic produce, processing and quality control. Value added product and byproduct of aquatic produce are discussed</i>	
AKU3802	Inovasi dalam Akuakultur/ Innovation in Aquaculture	3 (1+2)
Prasyarat : Tiada	Kursus ini merangkumi teori dan inovasi produk, kekangan dan cabaran dalam sektor akuakultur. Kreativiti dan inovasi produk dan teknologi akuakultur ditekankan <i>This course covers theory and product innovation, constraint and challenges in aquaculture sector. Creativity and innovation of product and aquaculture technology are emphasised</i>	
AKU4101	Penilaian dan Pengurusan Sumber Perikanan/ Fisheries Resource Assessment and Management	3(2+1)
Prasyarat : Tiada	Kursus ini merangkumi pengelasan sumber perikanan, teknik penangkapan ikan dan polisi, dinamik populasi dan pengurusan perikanan. Aplikasi perisian komputer dalam penilaian stok ikan dan pengurusan sumber perikanan yang lestari dibincangkan. <i>This course covers the classification of fishery resources, fishing techniques and policies, population dynamics and management of fisheries. Application of computer software in fish stock assessment and sustainable fisheries resource management are discussed.</i>	
AKU4102	Limnologi/ Limnology	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi komponen biotik dan produktiviti biologi dalam ekosistem air tawar serta proses fiziko-kimia yang mempengaruhinya. Kepentingan dan aplikasi limnologi dalam pengurusan Perikanan darat dan akuakultur ditekankan <i>This course covers the biotic components and biological productivity of fresh water ecosystems and the physico-chemical processes affecting them. The importance and application of limnology in inland fisheries and aquaculture management are emphasised</i>	
AKU4103	Oseanografi/ Oceanography	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi faktor fizikal, kimia dan biologi dalam ekosistem lautan. Impak aktiviti antropogenik, perubahan iklim dan penyelesaian kepada kesan tersebut dibincangkan untuk kelestarian perikanan dan akuakultur <i>This course covers physical, chemical and biological factors in marine ecosystems. Impacts of anthropogenic activities, climate change and the solutions are discussed for the sustainability of fisheries and aquaculture</i>	
AKU4201	Sistem Akuakultur / Aquaculture Systems	3 (1+2)
Prasyarat : Tiada	Kursus ini merangkumi rekabentuk dan pembinaan pelbagai sistem akuakultur. Pengurusan dan kecekapan system juga dibincangkan. <i>This course covers design and construction of various aquaculture systems. The management and efficiency of the systems are discussed.</i>	

**AKU4202 Kultur Ikan dan Tumbuhan Hiasan Akuatik /
Culture of Ornamental Fish and Aquatic Plants** 3 (1+2)

Prasyarat : Tiada

Kursus ini merangkumi pengkulturan ikan dan tumbuhan hiasan akuatik terpilih. Kaedah dan manipulasi dalam pengkulturan serta pengurusan ikan dan tumbuhan hiasan akuatik yang berpotensi untuk pengkomersialan dibincangkan

This course covers the cultures of selected ornamental fishes and aquatic plants. Methods and manipulation of cultures as well as management of potential ornamental fishes and plants for commercialization are discussed

**AKU4203 Sistem Pengeluaran Akuakultur/
Aquaculture Production Systems** 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi reka bentuk, pemilihan peralatan asas dan pembinaan pelbagai sistem akuakultur. Pengurusan dan kecekapan sistem untuk operasi optima dibincangkan.

This course covers design, basic equipment selection and construction of various aquaculture systems. The management and efficiency of the systems for optimal operation are discussed.

AKU4204 Kultur Spesies Unik/ Unique Species Culture 2 (2+0)

Prasyarat : Tiada

Kursus ini merangkumi teknik kultur dan pengurusan pelbagai spesies akuatik unik di perairan Malaysia. Spesies unik marin dan air tawar yang belum dikultur secara komersial dalam industri akuakultur di Malaysia ditekankan. Kegunaan produk dari setiap spesies unik dibincangkan

The course encompasses the culture techniques and management of various unique aquatic species in Malaysian waters. Marine and fresh water unique species which are yet to be cultured commercially in Malaysian aquaculture industry are emphasised. Usage of product from each unique species are discussed

AKU4221 Kultur Krustasea/ Crustacean Culture 3 (1+2)

Prasyarat : Tiada

Kursus ini merangkumi biologi dan kemahiran pengkulturan krustasea komersial terpilih. Isu dan permasalahan dalam industri kultur haiwan krustasea dibincangkan

This course covers the biology and skills of culture on selected commercial crustaceans. Issues and problems in crustacean culture industry are discussed

AKU4231 Kultur Molusk/ Mollusc Culture 3 (1+2)

Prasyarat : Tiada

Kursus ini meliputi kultur spesies moluska komersial. Penambahbaikan spesies yang dikultur melalui pemilihan genetik dan manipulasi prosedur pengkulturan ditekankan. Pemuliharaan dan pengurusan dalam akuakultur ekstraktif organik dibincangkan

The course covers the culture of commercial mollusc species. Improvement of cultured species through genetic selection and manipulation of culture procedures are emphasised. Conservation and management in organic extractive aquaculture are discussed

AKU4242 Kultur Flora Akuatik / Culture of Aquatic Flora 3 (1+2)

Prasyarat : Tiada

Kursus ini merangkumi pelbagai teknik pembiakan dan pengkulturan flora akuatik. Kepentingan flora akuatik komersial terpilih dari segi ekonomi dan ekologi dibincangkan.

This course covers various propagation and culture techniques for aquatic flora. The economic and ecological importance of selected commercial aquatic flora is discussed.

AKU4243 Kultur Alga/ Algae Culture 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pelbagai teknik pembiakan dan pengkulturan mikroalga dan makroalga. Alga komersial terpilih dari segi kepentingan ekologi dan ekonomi dibincangkan

This course covers various propagation and culture techniques for microalgae and macroalgae culture. Selected commercial algae based on ecological and economical importance are discussed

AKU4301 Endokrinologi Ikan/ *Fish Endocrinology* **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi biosintesis kimia, struktur dan fungsi hormon daripada kelenjar endokrin.

Permasalahan berkaitan dengan endokrinologi ikan ditekankan. Tindakbalas dan peranan hormon terhadap tekanan fizikal dan kimia dalam persekitaran akuatik dibincangkan

This course covers the chemical biosynthesis, structures and functions of hormones from the endocrine glands. Problems related to fish endocrinology are emphasised. Reaction and roles of hormones on physical and chemical stresses in aquatic environment are discussed

AKU4401 Teknologi Makanan Akuakultur/ *Aquafeed Technology* **3 (1+2)**

Prasyarat : Tiada

Kursus ini meliputi pelbagai rumusan makanan ikan dan teknologi pembuatan. Setiap peringkat pemprosesan dan pengawalan mutu makanan untuk industri akuakultur ditekankan

This course covers various formulation and technologies for fish feed production. Every stage of feed processing and quality control for aquaculture industry are emphasized.

AKU4402 Pengeluaran Makanan Hidup dalam Akuakultur/ *Live Food Production in Aquaculture* **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi kepentingan pengeluaran makanan hidup dalam akuakultur. Jenis, teknik pengeluaran serta penyediaan makanan hidup dalam industri akuakultur diberi penekanan

This course covers the importance of live food production in aquaculture. Types, production techniques and preparation of live food in aquaculture industry are emphasized.

AKU4501 Mikrobiologi Akuatik/ *Aquatic Microbiology* **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi peranan, kesan, teknik pengesanan dan hubungan mikroorganisma dalam akuakultur. Kepentingan, aplikasi dan isu semasa mikrobiologi dalam akuakultur dibincangkan

This course covers the roles, effects, identification techniques and relations of microorganisms in aquaculture. The importance, applications and current issues of microbiology in aquaculture are discussed

AKU4502 Imunologi Ikan/ *Fish Immunology* **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi konsep, jenis, tindak balas dan pengawal ubah imun dalam sistem imuniti ikan.

Kepentingan dan aplikasi imunologi ikan untuk pencegahan penyakit dalam akuakultur dibincangkan

This course covers the concepts, types, responses and immunomodulators in fish immune system. The importance and application of fish immunology for diseases prevention in aquaculture are discussed

AKU4601 Ekologi dan Pengurusan Tanah Basah/ *Ecology and Management of Wetlands* **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi pelbagai ekosistem tanah basah semulajadi dan buatan, fungsi dan kepentingannya.

Pengurusan pelbagai ekosistem tanah basah dan faktor yang mempengaruhi sumber hidupannya akibat perubahan iklim dan persekitaran dibincangkan

This course covers the various natural and constructed wetland ecosystems, function and their importance. Management of various wetland ecosystems and factors affecting their living resources due to climate change and environment are discussed

AKU4701	Teknologi Maklumat dan Komunikasi Dalam Akuakultur/ Information and Communications Technology in Aquaculture	3 (1+2)
Prasyarat : Tiada	Kursus ini merangkumi kegunaan dan kepentingan teknologi maklumat dan komunikasi (ICT) dalam akuakultur. Kesesuaian teknologi maklumat dan komunikasi dalam operasi dan pengurusan akuakultur dibincangkan. <i>This course covers the utilization and importance of information and communications technology in aquaculture. The suitability of communications and information technology in aquaculture operation and management is discussed.</i>	
AKU4801	Perikanan Rekreasi Dalam Ekopelancongan Perairan Darat/ Recreational Fisheries in Inland Waters Ecotourism	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi konsep biologi dan sosio-ekonomi pengurusan perikanan rekreasi sebagai alternatif dalam pengurusan sumber. Pelaksanaan dan operasi perikanan rekreasi di Malaysia dan aspek eko-pelancongan dibincangkan <i>This course covers on the concept of biology and socio-economic in recreational fisheries management as alternatives for resource management. Implementation and operation of recreational fisheries in Malaysia and aspect of eco-tourism are discussed</i>	
AKU4802	Biologi Molekul Dalam Akuakultur/ Molecular Biology in Aquaculture	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi konsep dan teknik biologi molekul untuk sel tumbuhan, haiwan dan mikrob akuatik. Aplikasi teknologi kejuruteraan genetik dan isu semasa bioteknologi dalam akuakultur dibincangkan.. <i>This course covers concepts and molecular biology techniques for cells of plants, animals and aquatic microbes. Application of genetic engineering and current issues of biotechnology in aquaculture are discussed.</i>	
AKU4804	Polisi dan Akta Untuk Perikanan dan Akuakultur/ Policy and Acts for Fisheries and Aquaculture	2(2+0)
Prasyarat : Tiada	Kursus ini merangkumi polisi, akta dan perundangan dalam bidang perikanan dan akuakultur. Pelaksanaan peraturan dan undang-undang perikanan dan akuakultur ditekankan. Kepentingan penguatkuasaan dalam mengurus sumber perikanan dan akuakultur dibincang. This course covers the policy, act and legislation in fisheries and aquaculture. Implementation of rules and law in fisheries and aquaculture are emphasised. The importance of enforcement in fisheries and aquaculture resource management are discussed.	
AKU4901	Latihan Industri/ Industrial Training	12 (0+12)
Prasyarat : Persetujuan Penyelaras	Kursus ini melibatkan penempatan pelajar di ladang akuakultur swasta atau kerajaan. Pendedahan praktikal kepada keadaan pekerjaan dan amalan pengurusan sebenar dalam bidang akuakultur dan perikanan diberikan penekanan melalui projek jangka pendek <i>This course involves student attachment at a private or government aquaculture farm. A practical exposure to the actual working conditions and management practices carried out in the field of aquaculture and fisheries are emphasised through short term projects</i>	
AKU4959	Disertasi Bacelor/ Bachelor Dissertation	6 (0+6)
Prasyarat : Tiada	Kursus ini merangkumi sorotan bahan rujukan, penggunaan teknik penyelidikan yang sesuai, pengumpulan dan analisis data, penafsiran keputusan, perbincangan, kesimpulan dan keaslian kajian saintifik dalam projek penyelidikan. <i>This course covers literature review, use of appropriate research techniques, data collection and analyses, interpretation of results, discussion, conclusion and originality of scientific studies in research project.</i>	

**Jabatan Sains Haiwan/
Department of Animal Science**

SHW3002 Pertanian Ternakan/ Animal Agriculture

3(2+1)

Prasyarat : Tiada

Kursus ini merangkumi kepentingan pertanian ternakan kepada tamadun manusia, di samping memperkenalkan elemen sistem pertanian masa kini dan konsep pertanian lestari. Aspek asas dalam kebajikan dan kesihatan haiwan, serta pengenalan kepada amalan pengurusan haiwan yang baik juga akan dibincangkan. *This course encompasses the importance of animal agriculture to human civilization, apart from introducing students to the elements of current agricultural practices and sustainable agriculture. Basics animal welfare and animal health, as well as good animal health practices are also discussed*

SHW3104 Pengurusan Kesihatan Haiwan/ Animal Health Management

3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep asas kesihatan dan penyebab serta kesan penyakit terhadap haiwan makanan. Elemen fisiologi, epidemiologi, mikrobiologi, parasitologi, pemakanan dan pengurusan pengeluaran diintegrasikan dalam pendekatan pengurusan kesihatan haiwan. Amalan perladangan baik, penyakit pekerjaan berkaitan industri haiwan, dan prinsip zoonosis turut dibincangkan.

This course encompasses basic concepts of health and causes including effects of diseases on food animals. Elements of physiology, epidemiology, microbiology, parasitology, nutrition, and production management are integrated with the approach of animal health management. Good farming practices, occupational diseases related to the animal industry, and principles of zoonosis are discussed.

**SHW3105 Kelakuan dan Kebajikan Haiwan/
Animal Behaviour and Welfare**

3(3+0)

Prasyarat : Tiada

Kursus ini meliputi pelbagai aspek kelakuan haiwan, penyebab kelakuan dan implikasinya ke atas pengurusan, produksi, kesihatan dan kebajikan. Penekanan akan diberi ke atas masalah, penilaian dan peningkatan kebajikan haiwan. Pengaruh interaksi manusia-haiwan, domestikasi dan persekitaran fizikal yang disediakan oleh manusia ke atas kelakuan dan kebajikan haiwan dibincangkan.

This course covers various aspects of animal behaviour, causes of behaviour and their implications on management, production, health and welfare. Emphasis will be given to the problems, assessment and improvement of animal welfare. The influence of human-animal interaction, domestication and physical environment provided by human beings on behaviour and welfare of animals are discussed.

SHW3106 Sains Daging/ Meat Science

3(2+1)

Prasyarat : Tiada

Kursus ini merangkumi prinsip pembentukan dan komposisi daging. Faktor penentuan kualiti daging, kaedah penyimpanan dan pemprosesan daging dan prinsip *Hazard Analysis Critical Control Point* (HACCP) yang penting untuk kegunaan selepas penyembelihan dan proses hiliran turut dibincangkan.

This course incorporates the principles of meat formation and composition. Factors determining meat quality, meat storage and processing methods, and principle of Hazard Analysis Critical Control Point (HACCP) which is important for post-slaughtering and meat processing are also discussed.

**SHW3200 Anatomi dan Fisiologi Haiwan Domestik I/
Anatomy and Physiology of Domestic Animals I**

3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengajian tentang bentuk dan fungsi sel, tisu, organ, dan sistem haiwan domestik. Penekanan diberi ke atas perhubungan antara sistem endokrin, reproduksi, laktasi dan saraf. Perbezaan anatomi dan fisiologi pelbagai sistem antara spesies ternakan turut dibincangkan.

This course encompasses the study of form and function of cells, tissues, organs and systems of domestic animals. Emphasis is given to the relationship between the endocrine, reproduction, lactation and nervous systems. The differences in anatomy and physiology of various systems between animal species are also discussed.

SHW3201	Anatomi dan Fisiologi Haiwan Domestik II/ Anatomy and Physiology of Domestic Animals II	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi struktur anatomi dan fisiologi haiwan berkenaan sistem pencernaan, rangka otot, kardiovaskular dan urinar. Ia juga meliputi sistem pernafasan haiwan mamalia dan unggas. Termokawalatur dan kesan persekitaran terhadap fungsi fisiologi haiwan turut dibincangkan. <i>This course encompasses the anatomical structures and physiology in relation to the digestive, musculoskeletal, cardiovascular, and urinary systems. It also covers the respiratory system of the mammals and avian. Thermoregulation and environment's influence on the physiological function of animals are also discussed.</i>	
SHW3203	Reproduksi Haiwan/ Animal Reproduction	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi proses fisiologi reproduksi haiwan ladang termasuk faktor yang mempengaruhi fertiliti. Pendedahan kepada faktor kesuburan sel pembiakan dan kitaran estrus untuk memanipulasi kaedah pembiakan secara semulajadi dan tiruan. Ia merangkumi penggunaan bioteknologi untuk menambah baik prestasi reproduksi dan meningkatkan produksi ternakan. <i>This course covers the physiological processes of reproduction in farm animals, including factors influencing fertility. Exposure to factors that influencing the gonad cells and estrus cycle to manipulate the natural and human-assisted reproduction process. It encompasses the use of biotechnology to improve reproductive performance and increase the livestock production.</i>	
SHW3303	Genetik Haiwan/ Animal Genetics	3 (2+1)
Prasyarat : Tiada	Kursus ini memperkenalkan prinsip asas genetik haiwan. Pendedahan kepada prinsip Mendel dan perubahan yang berkaitan kepada hubungan antara alel dan lokus. Penekanan asas pemindahan gen serta ekspresi trait kualitatif. Variasi kromosom, kepelbagaiannya genetik dan asas molekular serta faktor yang mempengaruhi struktur genetik populasi juga dibincangkan. <i>This course introduces the basic principles of animal genetics, Mendelian and interaction between alleles and locus. It emphasises on the fundamental of gene transmission and expression of qualitative traits. Chromosomal variation, genetic diversity and basic molecular and factors influencing structure of population genetics are discussed.</i>	
SHW3304	Pembibitan Ternakan/ Livestock Breeding	3 (2+1)
Prasyarat : SHW3303	Kursus ini memperkenalkan prinsip asas genetik kuantitatif. Ia menumpukan kepada aplikasi prinsip genetik dalam peningkatan prestasi ternakan. Ia merangkumi kaedah penganggaran dan pemilihan ternakan dalam program pembibitan. Prinsip untuk mengenal pasti ternakan pembibik yang unggul dan meramal respons terhadap pemilihan ditekankan. <i>This course introduces the basic principles of quantitative genetics. It focuses on the application of genetic principles to improve livestock performance. It includes methods of estimation and selection for animal breeding program. Exposure to Principles to identify superior breeding animals and predict the response to selection are emphasised.</i>	
SHW3403	Pemakanan Haiwan Asas/ Basic Animal Nutrition	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi klasifikasi, ciri-ciri, fungsi, gejala kekurangan dan metabolisme nutrien. Ini termasuk proses pencernaan, penilaian bahan makanan, piawai pemberian makanan, pengambilan makanan, metabolism dan keperluan nutrien, pengelasan dan ciri bahan makanan ternakan dan perumusan rangsum haiwan ternakan. <i>This course covers the classification, characteristics, functions, deficiency symptoms and metabolism of nutrients. It includes digestive processes, feed evaluation, feeding standards, feed intake, metabolism and requirement of nutrients, classification and characteristics of feedstuffs and formulation of ration of farm animals.</i>	

SHW3405 Sains Pastura/ Pasture Science**3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi kepentingan tanaman pastura sebagai sumber makanan haiwan. Ia termasuk pembentukan tanah, sifat kimia, fizik dan biologi tanah, ciri spesies rumput dan kekacang, serta kaedah penubuhan dan pengurusan pastura. Kaedah penggunaan dan penyimpanan pastura turut dibincangkan.

This course encompasses the importance of pasture plants as animal feed source. It includes soil formation, physical, chemical and biological properties of soil, the characteristic of grasses and legumes species, methods of establishment and management of pasture. Methods of utilisation and conservation of pasture are also discussed.

SHW3405 Biokimia Haiwan/ Animal Biochemistry**3 (2+1)**

Prasyarat : Tiada

Kursus ini memberi pemahaman tentang prinsip biokimia asas dalam organisma hidup khususnya haiwan. Topik pembelajaran merangkumi peranan, fungsi, laluan metabolismik, dan kawalan tindak balas biokimia melibatkan biomolekul seperti karbohidrat, asid amino, protein, lipid dan asid nukleik dalam sistem biologi. Integrasi metabolisme di antara tisu haiwan turut dibincangkan.

This course provides an understanding on the principle of fundamental biochemistry in living organisms, especially animals. This encompasses the roles, functions, metabolic pathways, and control of the biochemical reactions involving biomolecules such as carbohydrates, amino acids, proteins, lipids and nucleic acids in biological system. Metabolic integrations between animal tissue are also discussed.

SHW3501 Sains Haiwan Pedaging/ Meat Animal Science**3 (2+1)**

Prasyarat : SHW3201

Kursus ini meliputi prinsip dan amalan pengurusan pengeluaran haiwan pedaging. Ia merangkumi aplikasi konsep fisiologi, pemakanan, pembiakan, kesihatan gerompok, ekonomi dan pengurusan di bawah sistem penternakan di kawasan tropika yang lembap.

This course covers the principles and management practices for meat animal production. It encompasses the application of concepts in physiology, nutrition, breeding, herd health, economics and management for production systems in humid tropics.

SHW3502 Sains Tenusu/ Dairy Science**3 (2+1)**

Prasyarat : SHW3201

Kursus ini meliputi pengurusan ternakan tenusu dari lahir hingga dewasa. Penekanan ke atas pengurusan reproduksi, pemakanan dan pemberian makanan, masalah penyakit metabolisme, pengurusan sistem pemerahian susu, pengendalian susu di ladang dan perkembangan industri tenusu.

This course covers management of dairy animals from birth until adulthood. Emphasis is given on reproductive management, feed and feeding, problems of metabolic diseases, management of milking systems, handling of milk on the farm and development of the dairy industry.

SHW3510 Sains Poltri/ Poultry Science**3 (2+1)**

Prasyarat : SHW3403

Kursus ini meliputi prinsip produksi daging dan telur poltri komersil. Ia menekankan aspek fisiologi reproduksi dan persekitaran, genetik dan pembiakbaaan, pemakanan, pengurusan am, pemprosesan produk, pengurusan sisa dan kebajikan poltri. Isu di dalam produksi poltri di iklim panas humid tropika turut dibincangkan.

This course covers principles of commercial poultry meat and egg production. It emphasizes aspects of reproductive and environmental physiology, genetics and breeding, nutrition, general management, product processing, waste management and welfare of poultry. Issues in poultry production in hot humid tropical climate are also discussed.

SHW3514 Sains Babi/ Swine Science**3 (2+1)**

Prasyarat : SHW3403

Kursus ini meliputi aspek utama pengeluaran babi secara moden. Ianya merangkumi sistem pengeluaran, pengurusan dan amalan umum ladang, pemakanan dan sistem pembiakbaaan. Isu dalam penternakan babi turut dibincangkan.

This course covers the main aspects of modern pig production. It encompasses the production systems, general farm management and practices, nutrition, and breeding systems. Issues on pig farming are discussed.

SHW3602 Statistik Sains Haiwan / Statistics for Animal Science **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi konsep asas dalam statistik, kebarangkalian, frekuensi taburan, statistik lokasi dan serakan. Ia juga meliputi pengumpulan, persembahan dan analisis data, ujian hipotesis dan pengulasan keputusan. Pemilihan kaedah analisis yang bersesuaian untuk data yang berbeza turut dibincangkan.

This course encompasses basic concepts in statistics, probability, frequency distribution, statistics of location and dispersion. It also covers data gathering, display and analysis, hypothesis testing and analysis of results. Selection of suitable analysis method for different data is also discussed.

SHW3700 Pengurusan Sisa Ternakan/ Livestock Waste Management **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi prinsip dan aplikasi pengurusan sisa peternakan dalam sistem intensif. Penekanan diberi kepada sistem dan teknologi di kawasan humid tropika. Kualiti alam sekitar, polisi dan perundungan terhadap pengurusan sisa peternakan dibincangkan.

This course encompasses the principles and application of livestock waste management in intensive system. Emphasis is given on systems and technologies in the humid tropics. Environmental quality, policy and legislation on livestock waste management is discussed.

**SHW4100 Hidupan Liar dan Haiwan Rekreasi/
Wildlife and Recreational Animals** **3 (2+1)**

Prasyarat : SHW3103

Kursus ini merangkumi pelbagai aspek pengurusan hidupan liar dan haiwan rekreasi domestik dalam peliharaan di institusi zoologi, pusat pemulihan dan taman rekreasi. Asas pengurusan spesies haiwan khusus, kaedah pembancian dan konservasi hidupan liar turut dibincangkan.

This course encompasses various aspects of managing wild and domestic recreational animals in captivity at zoological institutes, rehabilitation centres and recreational parks. Basic of species-specific animal management, wildlife survey, and conservation are also discussed.

SHW4201 Fisiologi Persekutaran/ Environmental Physiology **3 (3+0)**

Prasyarat : Tiada

Kursus ini meliputi pengajian respons fisiologi oleh haiwan dalam pelbagai iklim persekitaran termasuk cara haiwan menyesuaikan diri terhadap persekitaran mikro dan makro. Penekanan diberi kepada kesan perubahan persekitaran terhadap fungsi fisiologi haiwan seperti dalam sistem saraf, endokrin, pembiakan dan kardiovaskular. Kesan persekitaran terhadap kelakuan dan kesihatan haiwan turut dibincangkan.

This course covers the study of physiological responses by animals in various climatic environments including the ways animals adapt to its micro- and macro environment. Emphasis is given to the effects of the environmental changes on the animal physiological functions such as in nervous, endocrine, reproductive and cardiovascular systems. The environmental effect towards the animal behavior and health are also discussed.

**SHW4300 Genetik dan Pembibakan Ternakan Gunaan/
Applied Livestock Genetics and Breeding** **3 (2+1)**

Prasyarat : SHW3303

Kursus ini meliputi prinsip asas genomik haiwan dan pembibakan ternakan. Kursus ini menekankan aplikasi praktik prinsip-prinsip tersebut dalam analisis genetik populasi dan produksi ternakan. Ianya meliputi kaedah analisis menggunakan teknologi genetik molecular dan teknik pengiraan.

This course covers the basic principles of animal genomics and animal breeding. The course emphasises on the practical application of these principles in population genetic analysis and livestock production. It includes analytical method with the application of molecular genetics data and calculation methods.

SHW4301 Sitogenetik Haiwan/ Animal Cytogenetics **3 (2+1)**

Prasyarat : SHW3303

Kursus ini memberi penekanan ke atas morfologi kromosom, proses mitosis dan meiosis, kromosom jantina, penentuan jantina, dan keberanaan struktur dan bilangan kromosom. Kepentingan, kegunaan dan implikasi sitogenetik dalam bidang produksi dan pembibakan ternakan dibincangkan.

This course emphasises on chromosome morphology, mitotic and meiotic processes, sex chromosome, sex determination, and structural and numerical chromosomal aberrations. The importance, use and implication of cytogenetics in animal production and breeding are discussed.

**SHW4401 Teknologi Pemprosesan Makanan Haiwan/
Feed Processing Technology** 3 (3+0)

Prasyarat : SHW3403

Kursus ini meliputi kaedah pemprosesan bahan makanan untuk meningkatkan nilai pemakanan melalui proses fizikal, kimia dan biologi. Teknik pemprosesan dan kesannya terhadap nilai pemakanan dibincangkan. Ianya juga meliputi aspek nutraceutical.

This course covers methods of feed processing to enhance its nutritive value through physical, chemical, and biological processes. Processing techniques and its effects on the nutritive value are discussed. It also includes the nutraceutical aspect.

**SHW4402 Bioteknologi Dalam Makanan Haiwan/
Biotechnology in Animal Feed** 3 (3+0)

Prasyarat : SHW3403

Kursus ini meliputi aplikasi bioteknologi dalam makanan dan pemberian makanan haiwan. Penggunaan aditif makanan haiwan, tanaman transgenik, protein dan asid amino, enzim, antibakteria, prebiotik dan probiotik, dan pengawalan pencemaran melalui penggunaan aditif makanan diberi penekanan.

This course covers the application of biotechnology in animal feeds and feeding. The use of feed additives, transgenic plants, proteins and amino acids, enzymes, antibacterials, prebiotics and probiotics, and control of pollution through the use of feed additives are emphasised

SHW4403 Makanan dan Pemberian Makanan/ Feeds and Feeding 3 (3+0)

Prasyarat : SHW3403

Kursus ini merangkumi pengkelasan, kualiti, pemprosesan dan penilaian pemakanan bahan makanan, keperluan nutrien untuk saraan dan pengeluaran, dan kaedah perumusan makanan haiwan.

This course incorporates classification, quality, processing and nutritive evaluation of feedstuff, nutrient requirement for maintenance and production, and ration formulation for animals.

SHW4404 Pemakanan Haiwan Gunaan/ Applied Animal Nutrition 3 (2+1)

Prasyarat : SHW3403

Kursus ini meliputi aplikasi lanjutan pemakanan haiwan di dalam produksi ruminan dan bukan ruminan. Penekanan diberi kepada kaedah kajian pemakanan haiwan dan perumusan rangsum yang memenuhi keperluan nutrien haiwan. Konsep pemakanan haiwan persis turut dibincangkan.

This course covers the advanced application of nutrition in ruminant and non-ruminant production. Emphasis is given on the methods of animal nutrition research and ration formulation that meets the nutritional requirement of animals. The concept of precision animal nutrition is discussed.

**SHW4500 Rekabentuk dan Infrastruktur Ladang Ternakan/
Livestock Farm Design And Infrastructure** 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi prinsip pembangunan sebuah ladang ternakan moden dan efisien. Ia meliputi susunatur ladang, infrastruktur asas, perumahan, peralatan dan spesifikasi kejuruteraan dalam rekabentuk dan pembinaan untuk memenuhi keperluan haiwan dan perundangan.

This course encompasses the principles in the development of a modern and efficient livestock farm. It includes farm layout, basic infrastructures, housing, equipment and engineering specifications in the design and construction to meet animals' and regulatory requirements

SHW4501 Produksi Ruminan Kecil/ Small Ruminant Production 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi sistem peternakan kambing dan biri-biri termasuk aspek pengurusan, pemakanan, pembibakan, kawalan penyakit dan pemprosesan hasil.

This course encompasses farming systems of goats and sheep which include aspects of management, nutrition, breeding, disease control, and processing of products.

SHW4502	Produksi Tenusu/ Dairy Production	3 (2+1)
Prasyarat :	SHW3502	
Kursus ini merangkumi pengurusan lanjutan lembu tenusu, teknologi pemerahuan susu, penjagaan piawaian kualiti susu. Perbincangan masalah yang sering dihadapi oleh pengusaha turut ditekankan.		
<i>This course encompasses advanced dairy cow management, milking technology, maintaining milk quality standard. Discussion on problems commonly faced by entrepreneurs are also emphasised.</i>		
SHW4511	Sains Babi Lanjutan/ Advanced Swine Science	3 (2+1)
Prasyarat :	SHW3514	
Kursus ini meliputi aspek lanjutan dalam produksi babi termasuk reproduksi dan pengurusan dalam penyapihan awal. Kaedah penggunaan dan manipulasi, dan aplikasi bioteknologi ditekankan untuk meningkatkan produktiviti babi turut dibincangkan.		
<i>This course covers advanced aspects in pig production including reproduction, management in early weaning. Methods of feed utilization and manipulation, and application of biotechnology to enhance productivity of pigs are also discussed.</i>		
SHW4512	Produksi Ayam Penelur/ Layer Production	3 (2+1)
Prasyarat :	SHW3510	
Kursus ini meliputi pengurusan di ladang ayam penelur. Aspek penting sains poltri dan aplikasi praktikal untuk kejayaan pengurusan operasi diintegrasikan dalam produksi ayam penelur. Penekanan diberi ke atas status industri, baka, susun atur ladang, sistem pemeliharaan, dan kawalan penyakit ayam penelur. Kualiti, kaedah pemprosesan, dan pengurusan sisa telur dibincangkan.		
<i>This course covers the management of layer farms. Important aspects of poultry science and their practical application to successfully manage layer operations are integrated into the layer production. This course emphasises the industry status, breed, farm layout, management system, and disease control in layers. Quality, processing methods, and waste management of eggs are discussed.</i>		
SHW4513	Produksi Ayam Pedaging/ Broiler Production	3 (2+1)
Prasyarat :	SHW3510	
Kursus ini meliputi pengurusan dan penternakan ayam pedaging. Aspek penting sains poltri dan aplikasi praktikal untuk kejayaan pengurusan operasi diintegrasikan dalam produksi ayam pedaging. Penekanan diberi ke atas status industri, konsep pengeluaran bersepadu, baka, susun atur ladang, sistem pemeliharaan, kawalan penyakit, dan penuaian ayam pedaging. Pengeluaran, kaedah pemprosesan, dan kualiti daging ayam dibincangkan.		
<i>This course covers the management and husbandry of broiler chicken. Important aspects of poultry science and their practical application to successfully manage broiler operations are integrated into the broiler production. This course emphasises the industry status, the concept of integration, breed, farm layout, management system, disease control, and harvesting of broilers. Production, processing methods, and quality of broiler meat are discussed.</i>		
SHW4540	Pengurusan Ekuin/ Equine Management	3 (2+1)
Prasyarat :	Tiada	
Kursus ini meliputi aspek asas dalam penjagaan dan pengurusan ekuin. Ini termasuk makanan dan amalan pemberian pemakanan, penjagaan telapuk, kesihatan umum dan kelakuan kuda di stabel.		
<i>This course encompasses basic aspects in equine care and management. This includes feeds and feeding practices, hoof care, general health, and behaviour of horses in stable.</i>		
SHW4600	Metodologi Penyelidikan/ Research Methodology	3 (2+1)
Prasyarat :	SHW3602	
Kursus ini merangkumi konsep dan teknik asas dalam pengendalian penyelidikan, analisis dan pentafsiran data. Ini termasuk perancangan kajian saintifik, pemilihan kaedah, menganalisis data dan menafsirkan keputusan yang diperolehi serta mempersembahkan hasil kajian.		
<i>This course covers basic concepts and techniques in conducting research, methodology selection, data analysis and interpretation. It includes planning a scientific research, analysis and interpretation of the results generated and presentation of the findings.</i>		

SHW4703 Teknologi Pemprosesan Daging/ Meat Processing Technology **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi aspek teknologi dalam pengendalian dan pemprosesan daging. Ini termasuk penyembelihan, pengendalian, pemprosesan, pengawetan dan pembungkusan. Penilaian dan kawalan kualiti produk daging terproses dibincangkan.

This course encompasses technological aspect in meat handling and processing. This includes slaughtering, handling, processing, preservation and packaging. Evaluation and quality control of processed meat products are discussed.

SHW4801 Perancangan dan Penilaian Sumber/ Resource Planning and Evaluation **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi penilaian sumber untuk perancangan dan kemajuan projek haiwan. Kaedah pendekatan sistem yang digunakan melalui kombinasi komponen dalam sistem pengeluaran haiwan turut dibincangkan.

This course encompasses the evaluation of resources for the planning and development of project in animal production. Exposure towards system approach method is utilised through combination of components in animal production systems are discussed.

SHW4959 Disertasi Bacelor/ Final Year Project **6 (0+6)**

Prasyarat : Tiada

Kursus ini merangkumi pengendalian kajian yang melibatkan perancangan, penggunaan reka bentuk eksperimen dan kaedah yang bersesuaian, pengumpulan dan analisis data, pentafsiran keputusan, pembentangan seminar dan penulisan disertasi.

This course involves the conduct of research that includes planning, the use of appropriate experimental design and methods, data collection and analyses, interpretation of results, seminar presentation and dissertation writing.

SHW4901 Latihan Industri / Industrial Training **12 (0+12)**

Prasyarat : Tiada

Kursus ini melibatkan penempatan pelajar selama 24 minggu di sektor industri ruminan dan bukan ruminan. Pelajar memperolehi pengalaman mengurus serta berupaya melapor keberkesanan amalan kerja.

This course involves student's attachment for 24 weeks at ruminant and non-ruminant industrial sectors. Students can obtain management experience and to report the effectiveness of work practices.

Jabatan Sains Tanaman/ Department of Crop Science**AGR3001 Amalan Ladang: Tanaman Makanan/ Farm Practices: Food Crops** **1 (0+1)**

Prasyarat : Tiada

Kursus ini meliputi amalan pengeluaran dan pengurusan lepas tuai tanaman makanan termasuk bijirin, tanaman berubi dan sayuran.

This course covers practices in the production and postharvest management of food crops including cereals, tubers and vegetables.

AGR3002 Amalan Ladang: Tanaman Perladangan/ Farm Practices: Plantation Crops **1 (0+1)**

Prasyarat : Tiada

Kursus ini merangkumi amalan pengeluaran, pengurusan dan pemprosesan tanaman perladangan utama.

This course covers practices in production, management and processing of major plantation crops.

AGR3101 Botani Pertanian/ Agriculture Botany **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi taksonomi, morfologi dan anatomi tanaman pertanian. Asas reproduksi tumbuhan, ekologi tanaman serta prinsip pemeliharaan dan pemuliharaan tumbuhan turut dibincangkan.

This course covers taxonomy, morphology and anatomy of agricultural crops. The basics of plant reproduction, crop ecology as well as principles of plant conservation and preservation are also discussed.

AGR3102 Prinsip Sains Rumpai/ Principles Of Weed Science **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi prinsip, konsep serta ekologi rumpai yang merangkumi klasifikasi, pertapanan dan kesesuaian habitat serta strategi mengawal dan mengurus rumpai di kawasan pertanian dan bukan pertanian.

This course covers principles, concepts and ecology of weed which includes identification, classification, establishment and habitat requirement, and control and management strategies of weeds in agricultural and non-agricultural areas.

AGR3204 Pembiakbakaan Tumbuhan/ Plant Breeding **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi sistem pembiakan tumbuhan, pewarisan sifat kuantitatif dan kualitatif, heritabiliti, kaedah pemilihan tanaman terdebunga sendiri dan kacuk, kaedah pembiakbakaan melalui kacukan, mutasi, kacukan antara individu berpertalian genetik jauh, dan kaedah pembaikbakaan yang lain.

The course covers plant reproduction system, inheritance of qualitative and quantitative characters, heritability, selection methods for self- and cross-pollinated crops, breeding through hybridization, mutation, wide hybridization, and other breeding methods.

AGR3301 Fisiologi Tanaman/ Crop Physiology **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi fisiologi tumbesaran, perkembangan dan pembiakan, percambahan biji benih, hubungan antara air dengan tanaman, fotosintesis, translokasi asimilat, pemakanan mineral dan perkembangan buah.

This course encompasses growth, development and reproductive physiology, seed germination, plant-water relationship, photosynthesis, assimilate translocation, mineral nutrition and fruit development.

AGR3302 Fisiologi Tanaman Saka/ Perennial Crop Physiology **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi metabolisma tumbuhan dengan memberi penekanan terhadap pemakanan tumbuhan, fotosintesis, respirasi dan fisiologi reproduktif tumbuhan. Kinetik pertumbuhan, pengawalatur tumbesaran, komuniti tanaman dan perubahan iklim yang mempengaruhi fisiologi tanaman saka dibincangkan.

This course covers plant metabolism which emphasises on plant nutrition, photosynthesis, respiration and plant reproductive physiology. Growth kinetics, plant growth regulators, plant community and climate change that influence perennial crop physiology are discussed.

AGR3501 Tanaman Perladangan/ Plantation Crops **2 (2+0)**

Prasyarat : Tiada

Kursus ini meliputi prinsip pengeluaran, pengurusan, pemasaran dan ekonomi perladangan. Perbandingan sistem pengurusan tanaman perladangan secara lestari dibincangkan.

This course encompasses principles of production, management, marketing and economics of plantation. Comparisons of sustainable plantation crop management systems are discussed.

AGR3502 Tanaman Makanan/ Food Crops **2 (2+0)**

Prasyarat : Tiada

Kursus ini meliputi perbezaan teknik penanaman dan penyelenggaraan tanaman makanan. Penguraian teknologi tanaman makanan yang lestari serta kaedah penuaan dan pengendalian hasil yang sesuai dibincangkan.

This course encompasses the comparison of cultivation techniques and maintenance of food crops. Elaborations on the sustainable food crop technology as well as suitable harvesting techniques and handling of produce are discussed.

AGR3503 Tanaman Perladangan Industri Minor/ Minor Industrial Plantation Crops **3 (1+2)**

Prasyarat : Tiada

Kursus ini meliputi prinsip pengeluaran, pengurusan, pemprosesan, trend dan perkembangan industri tanaman perladangan minor.

This course covers the principles of production, management, processing, trends and development of minor plantation crops industries.

AGR3504 Tanaman Industri Minor/ Minor Industrial Crops **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi prinsip pengeluaran, pengurusan, pemprosesan, trend dan perkembangan industri tanaman perladangan minor.

This course covers the principles of production, management, processing, trends and development of minor plantation crop industry.

AGR3701 Eksperimentasi dan Biometri Pertanian/ Experimentation and Agriculture Biometry **4 (3+1)**

Prasyarat : Tiada

Kursus ini merangkumi kaedah pemilihan rekabentuk eksperimen secara sistematik dalam melaksanakan eksperimen. Analisis data dan kaedah membuat interpretasi keputusan eksperimen dalam bidang pertanian ditekankan.

This course covers systematic selection of experimental designs in conducting experiments. Data analyses and techniques of interpreting experimental results in agriculture is emphasized.

AGR4100 Agrobiodiversiti/ Agrobiodiversity **3 (3+0)**

Prasyarat : Tiada

Kursus ini merangkumi aspek biodiversiti, pengurusan dan pengeluaran tanaman baharu dan berpotensi untuk aktiviti pertanian. Kaedah manipulasi persekitaran untuk pengeluaran dan potensi komersil tanaman baharu dibincangkan.

This course covers the aspects of biodiversity, management and production of emerging and potential plants for agriculture activities. Methods of environmental manipulation for production and the commercial potential of new crops are discussed.

AGR4101 Botani Pertanian Lanjutan/ Advanced Agricultural Botany **3 (2+1)**

Prasyarat : AGR3101

Kursus ini merangkumi mikrostruktur tumbuhan dengan menggunakan teknik biologi molekul, pembiakan mikro dan mikroskopi.

This course covers plant microstructure and applying techniques in molecular biology, micro-propagation and microscopy.

AGR4102 Teknologi Biji Benih/ Seed Technology **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi pembentukan, perkembangan, percambahan, kedormanan, ujian dan penyimpanan biji benih. Pengeluaran dan pemprosesan biji benih turut dibincangkan.

This course covers the formation, development, germination, dormancy, testing and storage of seeds. Seed production and processing are also discussed.

AGR4103 Pengurusan Rumpai Perladangan/ Plantation Weed Management **3 (1+2)**

Prasyarat : Tiada

Kursus ini merangkumi klasifikasi, taburan dan kaedah pengurusan rumpai di kawasan perladangan. Penilaian keberkesanan setiap kaedah pengurusan dan impaknya ke atas agro-ekosistem turut dibincangkan.

This course covers classification, distribution and management of weeds in plantations. Evaluation on the effectiveness of the management techniques and their impact on the agro-ecosystem is also discussed.

AGR4104 Sains Racun Herba/ Herbicide Science **3 (2+1)**

Prasyarat : AGR3102

Kursus ini merangkumi ciri fiziko-kimia, degradasi dan kesan sisa racun herba dan tindak balas tumbuhan terhadap racun herba. Faktor yang mempengaruhi keberkesanan racun herba juga dibincangkan.

This course covers physico-chemical characteristics, degradation and residual effects of herbicide and plant response to herbicide. Factors affecting efficacy of herbicide are discussed.

AGR4203	Genetik Kuantitatif/ Quantitative Genetics	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi genetic populasi dan kuantitatif yang melibatkan perubahan frekuensi gen dan genotip dalam populasi besar dan kecil, heritabiliti, pemilihan dan kemajuan genetik, analisis keupayaan bergabung, rekabentuk pengawanan dan pemilihan berulang serta konsep Quantitative Trait Loci (QTL) dan pemetaannya. <i>This course covers population and quantitative genetic involving changes in gene and genotype frequencies in large and small populations, heritability, selection and genetic advance, analysis of combining ability, mating designs, recurring selection, concept and mapping of Quantitative Trait Loci (QTL).</i>	
AGR4301	Fisiologi Tanaman Lanjutan/ Advanced Crop Physiology	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi kesan tegasan persekitaran terhadap proses fisiologi, respirasi dan translokasi. Metabolisma pemakanan tanaman meliputi penyerapan dan pengangkutan serta fisiologi tanaman komoditi terpilih dibincangkan. <i>This course covers effects of environmental stresses on photosynthesis respiration and translocation. Mineral nutrition metabolism including absorption and translocation and the physiology of selected commodity are discussed.</i>	
AGR4401	Pemakanan Tanaman/ Crop Nutrition	3 (2+1)
Prasyarat : AGR3301 atau HRT3002	Kursus ini merangkumi peranan dan fungsi unsur pemakanan utama, metabolism, penyerapan, translokasi dan keupayaan media untuk membekal nutrien. Kesan kekurangan dan keterlebihan nutrien kepada tumbesaran, penghasilan tanaman dan alam sekitar dibincangkan. <i>This course encompasses the role and function of major nutrient elements, metabolism, absorption, translocation and the capacity of media to supply nutrients. Effect of nutrient deficieny and excess on growth, yield and the environment are discussed.</i>	
AGR4503	Pengeluaran Tanaman Padi/ Rice Crop Production	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi kitaran hidup tanaman padi, fisiologi hasil, faktor persekitaran dan teknik penanaman. Teknologi moden penghasilan padi, pemprosesan dan penyimpanan ditekankan. <i>This course encompasses rice plant life cycle, yield physiology, environmental factors and planting procedures. The modern rice production technology, grain processing and grain storage are emphasized.</i>	
AGR4507	Pengeluaran Tanaman Perladangan- Kelapa Sawit/ Production of Plantation Crop : Oil Palm	3(2+1)
Prasyarat : Tiada	Kursus ini meliputi pengeluaran, pengurusan dan pemprosesan hasil industri tanaman kelapa sawit. Faktor yang mempengaruhi keberkesaan pengeluaran perladangan kelapa sawit dibincangkan. <i>This course covers the production, management and processing of oil palm. Factors affecting the efficiency of production and management of oil palm plantation are discussed.</i>	
AGR4508	Pengeluaran Tanaman Perladangan- Getah/ Production of Plantation Crop : Rubber	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi pengeluaran, pengurusan dan pemprosesan getah. Faktor yang mempengaruhi keberkesaan pengeluaran dan pergurusan perladangan getah dibincangkan. <i>This course covers production, management and processing in rubber industry. Factors affecting the efficiency of production and management of estates are discussed.</i>	
AGR4509	Pengeluaran Tanaman Makanan/ Production Of Food Crops	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi kepentingan, amalan pengeluaran dan pengurusan lepas tuai tanaman bijirin dan berubi. Interaksi di antara faktor persekitaran, pengurusan dan fisiologi tanaman terhadap hasil juga dibincangkan. <i>This course covers the importance, production practices and postharvest management of cereal and tuber crops. The interaction between the environment, management and crop physiologoy on yield is discussed.</i>	

AGR4510	Pengurusan Perladangan Kelapa Sawit/ Oil Palm Plantation Management	3 (1+2)
Prasyarat : Tiada		
Kursus ini meliputi industri tanaman kelapa sawit termasuk pengeluaran, pengurusan dan pemprosesan hasil. Faktor yang mempengaruhi keberkesanan pengeluaran perladangan kelapa sawit juga dibincangkan.		
<i>This course covers the oil palm industry including production, management and processing. Factors affecting the efficiency of oil palm plantation production are also discussed.</i>		
AGR4511	Pengurusan Perladangan Getah/Rubber Plantation Management	3 (1+2)
Prasyarat : Tiada		
Kursus ini meliputi industri getah termasuk pengeluaran, pengurusan dan pemprosesan hasil. Faktor yang mempengaruhi keberkesanan pengeluaran perladangan getah juga dibincangkan.		
<i>This course covers the rubber industry including production, management and processing. Factors affecting the efficiency of rubber plantation production are also discussed.</i>		
AGR4801	Pertanian Lestari/ Sustainable Agriculture	2 (2+0)
Prasyarat : Tiada		
Kursus ini merangkumi pendekatan secara holistik untuk membangunkan projek pertanian secara lestari berdasarkan faktor fungsian agro-ekosistem. Kaedah penilaian kelestarian sesuatu sistem pembangunan pertanian dibincangkan.		
<i>This course covers holistic approaches to develop a sustainable agricultural project based on the functional factors of agro-ecosystem. Methods to evaluate the sustainability of agricultural systems are discussed.</i>		
AGR4802	Teknologi Biji Benih/ Seed Technology	3 (2+1)
Prasyarat : AGR3301 atau HRT3002		
Kursus ini merangkumi aspek pembentukan, pemprosesan dan kualiti biji benih. Faktor yang mempengaruhi kualiti biji benih dan persekitaran penyimpanan bagi pengeluaran biji benih komersil dibincangkan.		
<i>This course encompasses the aspect of seed formation, processing and quality of seeds. Factors influencing seed quality and storage environment for commercial seed production are discussed.</i>		
HRT3402	Pembibakan Tumbuhan dan Pengurusan Semaian/ Plant Propagation and Nursery Management	3 (2+1)
Prasyarat : Tiada		
Kursus ini meliputi prinsip dan teknik pembibakan seks dan aseks tanaman hortikultur serta perancangan dan pengurusan tapak semaian. Pemasaran hasil semaian juga dibincangkan.		
<i>This course covers principles and techniques of sexual and asexual propagation of horticultural crops as well as nursery planning and management. Marketing of nursery products is also discussed.</i>		
HRT3002	Botani dan Fisiologi Tanaman Hortikultur/ Botany and Physiology of Horticultural	4 (3+1)
Prasyarat : Tiada		
Kursus ini meliputi sistematik dan struktur tumbuhan, proses fisiologi, tumbesaran dan perkembangan tanaman hortikultur.		
<i>This course covers plant systematics and structures, physiological processes, growth and development of horticultural crops.</i>		
HRT3301	Hortikultur Hiasan/ Ornamental Horticulture	3 (2+1)
Prasyarat : Tiada		
Kursus ini meliputi klasifikasi, prinsip dan teknik dalam pengeluaran tanaman hiasan yang merangkumi pengecaman, penanaman, penyelenggaraan dan pengurusan.		
<i>This course covers classifications, principles and techniques of ornamental plant production which include identification, planting, maintenance and management.</i>		

**HRT3420 Amalan Ladang : Pengeluaran Buah-buahan/
Farm Practice: Fruit Production** **1 (0+1)**

Prasyarat : Tiada

Kursus ini meliputi amalan pengeluaran buah-buahan lapangan dan persekitaran terkawal merangkumi pengeluaran anak benih, pengurusan tanaman, penuaian, pengendalian lepas tuai dan pemasaran.

This course covers field and protected environmental fruit production practices including seedling production, crop management, harvesting, postharvest handling and marketing.

**HRT3410 Amalan Ladang : Pengeluaran Sayur-sayuran/
Farm Practice: Vegetable Production** **1 (0+1)**

Prasyarat : Tiada

Kursus ini meliputi amalan pengeluaran lestari sayur-sayuran merangkumi pengeluaran anak benih, pengkomposan, sistem penanaman dan pengurusan di lapangan dan persekitaran terkawal. Penuaian, pengendalian lepas tuai dan pemasaran dibincangkan.

This course covers practices on sustainable vegetable production involving seedling production, composting, cultivation systems and management in the field and protected environmental. Harvesting, postharvest handling and marketing are discussed.

**HRT3430 Amalan Ladang : Hortikultur Hiasan/ Landskap/
Farm Practice: Ornamental and Landscape Horticulture** **1 (0+1)**

Prasyarat : Tiada

Kursus ini merangkumi amalan pengeluaran dan pengurusan tanaman hiasan/ landskap meliputi pencaman, pembiakan, teknik menanam, pengurusan dan pengendalian pasca tuai.

This course involves production and management practices of ornamental/landscape plants, which includes identification, propagation, planting techniques, management and postharvest handling.

HRT3440 Amalan Ladang :Turf/ Farm Practice: Turf **1 (0+1)**

Prasyarat : Tiada

Kursus ini meliputi fungsi dan kegunaan berbagai spesies rumput turf. Pembinaan dan penyelenggaraan kawasan turf, penanaman dan pengurusan rumput turf ditekankan.

This course covers functions and uses of various turf grass species. Construction and maintainance of turf area/site, planting techniques and management of turf grass are emphasized.

HRT3411 Pengeluaran Sayur- Sayuran/ Vegetable Production **2 (2+0)**

Prasyarat : Tiada

Kursus ini meliputi klasifikasi, prinsip, teknik pengeluaran lapangan dan persekitaran terkawal dengan tumpuan kepada faktor pengeluaran, pembiakan, penanaman, pengurusan dan pengendalian pasca tuai tanaman sayur- sayuran.

This course covers classification, principles, field and controlled environmental production techniques with emphasis on production factors, propagation, planting, management and postharvest handling of vegetable crops.

HRT3421 Pomologi/ Pomology **2 (2+0)**

Prasyarat : Tiada

Kursus ini meliputi pengelasan, prinsip, teknik pengeluaran lapangan dan struktur lindungan dengan memberi tumpuan kepada pembiakan, faktor pengeluaran, pengurusan dan pengendalian lepas tuai tanaman buah-buahan.

This course covers classification, principles, field and protected environmental production techniques with emphasis on production factors, propagation, planting, management and postharvest handling of fruit crops.

HRT3431	Pengeluaran Tanaman Hiasan dan Bunga/ Ornamental and Flower Production	2 (2+0)
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Prasyarat : Tiada

Kursus ini meliputi pelbagai jenis tanaman hiasan dan bunga serta keperluan penanaman dan prosedur penyelenggaraan. Amalan pengeluaran tanaman hiasan dan bunga dibincangkan.

This course covers classification, principles and techniques of ornamental plant production which includes identification, planting and management.

HRT3400	Pengeluaran Tanaman Hortikultur/ Horticultural Crop Production	3 (3+0)
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Prasyarat : Tiada

Kursus ini meliputi pengelasan, prinsip, teknik pengeluaran dan pengendalian lepas tuai dengan memberi tumpuan kepada pembiakan, faktor pengeluaran, penyelenggaraan dan pengurusan tanaman hortikultur.

This course covers classification, principles, techniques of production and postharvest handling with emphasis on plant propagation, production factors, maintenance and management of horticultural crops.

HRT3600	Fisiologi Lepas Tuai/ Postharvest Physiology	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi prinsip dan teknik pengendalian, penyimpanan, penilaian kualiti dan keselamatan komoditi hortikultur. Mekanisme fisiologi kematangan, kemasakan dan senesens dibincangkan.

This course covers the principles and techniques of handling, storage, quality evaluation and safety of horticultural commodities. Physiological mechanisms related to maturation, ripening and senescence are discussed.

HRT3800	Pengenalan Rekabentuk Lanskap/ Introduction to Landscape Design	3 (2+1)
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Prasyarat : HRT3302 atau HRT3431

Kursus ini meliputi pelbagai elemen rekabentuk, prinsip dan proses merekabentuk pelan lanskap dengan menggunakan bahan lembut dan kejur. Isu semasa berkaitan pengurusan dan penyelenggaraan dibincangkan.

This course covers various aspects of design elements, principles and landscape designing processes using soft and hardscape materials. Current issues in landscape management and maintenance are discussed.

HRT3441	Sains Turf/ Turf Science	2 (2+0)
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Prasyarat : Tiada

Kursus ini meliputi pengelasan dan pencaman spesies rumput turf serta kegunaannya. Keperluan pertumbuhan, pembiakan, penanaman dan pengurusan rumput turf dibincangkan.

This course covers classification and identification of turfgrass species and their uses. Growth requirements, propagation, establishment and management of turfgrass are discussed.

HRT4102	Pertanian Persekutaran Terkawal/ Controlled Environment Agriculture	3 (2+1)
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Prasyarat : HRT3000 atau HRT3002

Kursus ini merangkumi konsep pengawalan dan manipulasi faktor persekitaran, peralatan, keperluan dan pengurusan tanaman untuk pelbagai sistem tanaman persekitaran terkawal.

This course covers concept of control and manipulation of environmental factors, instrumentation, crop requirements and management of various cropping systems under controlled environment.

HRT4422	Pengeluaran Komersial Buah-buahan/ Commercial Fruit Production	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi kriteria, isu dan aspek teknologi pengeluaran buah-buahan bernilai tinggi yang mempunyai impak ekonomi. Prosedur operasi piawaian dan aspek kewangan dalam pengeluaran dan pengurusan dibincangkan.

This course covers criterias, issues and aspects of production technology for high economic value fruits. Standard operation procedure and financial aspect in production and management are discussed

HRT4432 Kultur Orkid/ *Orchid Culture* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi klasifikasi dan pencaman genera, penghibridan dan pewarisan, sistem pembiakan, faktor mempengaruhi tumbesaran dan perkembangan, sistem penanaman, pengurusan dan pengendalian pasca tuai dan pemasaran orkid.

This course covers classification and identification of genera, hybridization and inheritance, propagation systems, factors affecting growth and development, planting systems, management and postharvest handling and marketing of orchids.

HRT4302 Tanaman Hiasan Eksotik/ *Exotic Ornamental Plants* **3 (2+1)**

Prasyarat : HRT3301

Kursus ini merangkumi aspek biologi, pengurusan dan pengeluaran tanaman hiasan eksotik dan asli untuk industri bunga keratan, pasuan dan perlandskapan.

This course covers aspects of biological diversity, management and production of exotic and indigenous ornamental plants for cut flowers, container plants and landscape industry.

HRT4300 Pengawalatur Tumbesaran Tumbuhan/ *Plant Growth Regulators* **3(2+1)**

Prasyarat : AGR3301 atau HRT3002

Kursus ini meliputi sintesis, mekanisme dan peranan pengawalatur dalam tumbesaran tanaman. Manupulasi dan kesan pengawalatur tumbesaran terhadap inisiasi bunga, kejadian dan keguguran buah, pasca tuai dan alam sekitar dibincangkan.

This course covers classification, synthesis, mechanism and roles of growth regulators in plant growth. Manipulation and effects of growth regulator on flower initiation, fruit set and abscission, postharvest and environment are discussed.

HRT4400 Tanaman Eksotika/ *Exotic Crop* **2 (2+0)**

Prasyarat : Tiada

Kursus ini merangkumi aspek biodiversiti, pengurusan dan pengeluaran tanaman eksotik. Pemeliharaan, pemuliharaan dan potensi industri tanaman eksotik dibincangkan.

This course covers aspects of biodiversity, management and production of exotic plants. Preservation, conservation and industrial potential of exotic plants are discussed.

HRT4402 Pertanian Bandar/ *Urban Agriculture* **2 (2+0)**

Prasyarat : Tiada

Kursus ini merangkumi aspek perkembangan pertanian bandar serta sumbangannya terhadap sosio-ekonomi dan persekitaran bandar. Pelbagai sistem pengeluaran, pengurusan dan teknologi yang boleh menyumbang kepada amalan pertanian bandar lestari dibincangkan.

This course covers aspects of urban agriculture and its contribution to socio-economic and urban environment. Various production systems, management and technology that will contribute to a sustainable production practices are discussed.

HRT4441 Pengurusan Rumput Turf/ *Turfgrass Management* **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi isu semasa industri rumput turf, pengaruh alam sekitar ke atas tumbesaran, pembiakan, perancangan, penubuhan dan pengurusan rumput turf untuk pelbagai kegunaan.

This course encompasses current issues of turfgrass industry, influence of environment on growth, propagation, planning, establishment and management of turfgrass for various uses.

HRT4800 Kultur Tanpa Tanah/ *Soilless Culture* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi prinsip, teknik dan pengurusan sistem kultur tanpa tanah. Formulasi nutrien, keperluan fizikal dan kultura penanaman pelbagai sistem pengeluaran komersial bagi tanaman hortikultur dibincangkan. This course covers principles, techniques and management of soilless culture system. Nutrient formulation, physical and cultural requirements of various commercial production systems for horticultural crops are discussed.

HRT4802	Hortikultur Persekutaran Terkawal/ <i>Controlled Environment Horticulture</i>	3 (2+1)
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Prasyarat : HRT3000 atau HRT3400 atau AGR3301

Kursus ini merangkumi konsep pengawalan dan manipulasi faktor persekitaran, peralatan, keperluan dan pengurusan tanaman untuk pelbagai sistem tanaman persekitaran terkawal. Potensi pengkomersilan pengeluaran tanaman persekitaran terkawal dibincangkan.

This course covers concept of control and manipulation of environmental factors, instrumentation, crop requirements and management of various cropping systems under controlled environment. Commercialization of potential crop production under controlled environment is discussed.

HRT4803	Pembibakan Mikro Tumbuhan / Plant Micropropagation	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi prinsip, pemilihan eksplan, proses teknik pembibakan, pengurusan dan aplikasi tanaman secara in vitro. Aspek fisiologi pertumbuhan dan ekonomi pengeluaran anak pokok secara komersial dibincangkan.

This course encompasses systems, techniques, management and application of in vitro propagation of crop. Growth physiology and economic aspects in commercial production of seedlings are discussed.

HRT4804	Tumbuhan Ubatan Dan Herba/ Medicinal Plants and Herbs	2 (2+0)
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Prasyarat : Tiada

Kursus ini meliputi klasifikasi, prinsip, teknik pengeluaran lapangan dan persekitaran terkawal dengan tumpuan kepada faktor pengeluaran, pembibakan, penanaman, pengurusan dan pengendalian, pasca tuai tanaman ubatan dan herba.

This course covers classifications, principles, field and protected environmental production techniques with emphasis on production factors, propagation, planting, management and postharvest handling of medicinal plants and herbs.

Jabatan Perlindungan Tumbuhan/ Department of Plant Protection

PLP3002	Pengurusan Perosak Tanaman Hortikultur/ <i>Pest Management of Horticultural Crops</i>	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi pengesanan, pengenalpastian dan pemantauan perosak tanaman hortikultur dan turf serta strategi pengurusannya.

This course covers detection, identification and monitoring pests of horticultural crops and turf as well as strategies for their management.

PLP3003	Perlindungan Tumbuhan Asas/ <i>Fundamentals of Plant Protection</i>	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi teknik penyediaan specimen, pengelasan dan pengecaman perosak (serangga, pathogen dan rumput) serta amalan kawalan dan pengurusan perosak.

This course covers detection, identification and monitoring pests of horticultural crops and turf as well as strategies for their management

PLP3104	Entomologi Asas/ <i>Fundamentals Of Entomology</i>	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi taksonomi, biologi, kaedah kawalan, pengenalpastian perosak utama tanaman dan pelaksanaan dalam konteks pengurusan tanaman bersepadu.

This course covers taxonomy, biology, methods of control, identification of important crop pests and implementation in the context of integrated crop management.

PLP3105 Pengurusan Perosak Bandaran/ *Urban Pest Management* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi masalah perosak vertebrat dan invertebrat bandaran. Aspek biologi, ekologi, pengesanan, pengenalpastian, kawalan biorasional dan keberkesanannya dibincangkan.

This course covers the problem of vertebrate and invertebrate urban pests. Aspects of biology, ecology, detection, identification, bio-rational control and effectiveness are discussed.

PLP3106 Entomologi Tanaman Hortikultur/ *Horticultural Plant Entomology* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi pembezaan simptom kerosakan oleh serangga perosak hortikultur dan hubungkait maklumat kerosakan dengan spesies serangga perosak. Pengurusan serangga perosak secara mesra alam dibincangkan

This course covers differentiation of damage symptoms by various horticultural insect pests. Environmental friendly insect pest management is discussed

PLP3204 Patologi Tumbuhan Asas/ *Fundamentals Of Plant Pathology* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi jenis patogen tumbuhan dan penyakit yang disebabkannya. Diagnosis dan epidemiologi penyakit serta kaedah kawalan yang lestari dibincangkan.

This course encompasses types of plant pathogens and the diseases caused. Disease diagnosis and epidemiology as well as sustainable control techniques are discussed.

PLP3205 Patologi Tanaman Hortikultur/ *Horticultural Plant Pathology* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi prinsip asas patologi tumbuhan dan pengurusan penyakit tanaman hortikultur. Pencaman penyakit utama tanaman hortikultur serta kaedah amalan kawalan penyakit dibincangkan.

This course covers the basic principles of plant pathology and disease management of horticultural crops. Identification of important diseases and their control practices are discussed

PLP4001 Pengawalan Perosak/ *Pest Control* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi penilaian dan pengukuran kerosakan dan kerugian infestasi perosak. Pengurusan kawalan yang mesra alam dibincangkan.

This course covers evaluation and measurement on damages and losses of pest infestation. Environmental friendly control management is discussed.

PLP4002 Teknik Penggunaan Racun Perosak/Pesticide Application Technique **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi prinsip utama aplikasi racun perosak, rekabentuk, pemilihan dan penyelenggaraan alatan pemyembur, cara aplikasi racun perosak dan keselamatan.

This course encompasses major principles in pesticide application, design, selection and maintenance of equipment, pesticide application methods and safety.

PLP4003 Kawalan Biologi Perosak Tanama/ *Biological Control Of Crop Pests* **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi teknik pengawalan perosak tanaman menggunakan musuh semulajadi termasuk pembentukan dan penyampaian produk dan agen kawalan biologi.

This course covers techniques of controlling crop pests utilizing natural enemies including the development and delivery of products and bio-control agents.

PLP4004	Pengurusan Perosak Tanaman Perladangan/ <i>Pest Management of Plantation Crops</i>	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi aspek biologi, ekologi dan epidemiologi perosak dan penyakit utama tanaman perladangan penting di Malaysia dan negara Asia Tenggara yang lain. Penilaian kritis tentang pengurusan penyakit dan perosak berkenaan menggunakan kaedah perundangan, kultur, keresistenan perumah, biologi dan kimia adalah ditekankan.

The course covers aspects of biology, ecology and epidemiology of the major pests and diseases of important plantation crops in Malaysia and other Southeast Asian countries. Critical evaluation of the management of these pests and diseases using regulatory, cultural, host resistance, biological and chemical methods is emphasized.

PLP4005	Pengurusan Perosak Rumput Turf Dan Tanaman Hortikultur/ Pest <i>Management of Turfgrass and Horticultural Crops</i>	3 (2+1)
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Prasyarat : PLP3204

Kursus ini meliputi pengesanan, pengenalpastian dan pemantauan perosak tanaman hortikultur dan turf serta strategi pengurusannya

This course covers detection, identification and monitoring pests of horticultural crops and turf as well as strategies for their management

PLP4101	Entomologi/ Entomology	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi peranan serangga sebagai perosak dan agen kawalan biologi. Strategi bersistematis dalam implementasi pengurusan perosak bersepadu dan pengawalaturan populasi serangga dibincangkan.

This course covers the role of insects as pests and biological control agents. Systematic strategies in integrated pest management implementation and insect population regulation are discussed.

PLP4102	Apikultur/ Apiculture	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi arah-aliran evolusi lebah, biologi, ekologi, prinsip dan teknik pengurusan perlebahan di tropika, hasil sampingan perlebahan dan kegunaannya dalam perkembangan perlebahan di rantau ini.

This course encompasses the evolutionary trends of honey bees, biology, ecology, principles and techniques in beekeeping management in the tropics, by-products of beekeeping and their uses on the development of beekeeping in the region.

PLP4201	Patologi Tumbuhan/ Plant Pathology	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi proses jangkitan, epidemiologi penyakit dan mekanisma kerintangan. Pengenalpastian patogen penyakit tanaman dan kaedah kawalan penyakit secara lestari dibincangkan.

This course encompasses infection processes, epidemiology and mechanisms of resistance. Identification of pathogens and sustainable control methods are discussed.

PLP4601	Sains Racun Perosak/ Pesticide Science	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi ciri utama racun perosak, mod tindakan, keresistenan, penggunaan agen biologi, formulasi dan nasib racun dalam alam sekitar. Teknologi aplikasi racun perosak, kaedah mengkaji dan mengukur tindak balas perosak terhadap racun perosak dibincangkan.

This course covers the main characteristics of pesticide mode of action, resistance, use of biological agents, formulations and fate of poison in the environment. Pesticide application technology, methods of studying and measuring pest response to pesticide are discussed

**Jabatan Perniagaantani dan Ekonomi Biosumber/
Department of Agribusiness and Bioresource Economics**

PPT3001	Pengenalan kepada Sistem Perniagaantani Malaysia/ Introduction To Malaysia Agribusiness System	3 (3+0)
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Prasyarat : Tiada

Kursus ini merangkumi komprehensif mengenai perniagaantani, kepentingan dan hubungannya dengan sektor ekonomi secara am dan peluang pekerjaan di dalam bidang perniagaantani di Malaysia. Perbincangan merangkumi pengeluaran, pemprosesan dan pemasaran produk perniagaantani, pengguna, kredit dan kewangan, peranan kerajaan, dan masa depan perniagaantani.

This course encompasses a comprehensive understanding of agribusiness, its importance and relationship to the general economy and employment opportunities in the field of agribusiness in Malaysia. Discussion include agribusiness production, processing and marketing, the consumer, credit and finance, roles of government, and future of agribusiness

PPT3201	Prinsip Pengurusan Perniagaantani/ Principles of Agribusiness Management	3 (3+0)
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Prasyarat : Tiada

Kursus ini merangkumi prinsip asas pengurusan perniagaantani, fungsi pengurusan, pengurusan strategik, pengurusan inventori, pengurusan kewangan, pengurusan sumber manusia, pengurusan pengeluaran, pemprosesan dan pemasaran dalam perniagaantani.

This course encompasses the basic principles of agribusiness management, management functions, strategic management, inventory management, financial management, human resource management, production, processing and marketing management in agribusiness.

PPT3301	Prinsip Pengurusan dan Pemasaran Pertanian/ Principles of Agricultural Management and Marketing	3 (3+0)
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Prasyarat : Tiada

Kursus ini merangkumi konsep asas pengurusan dan pemasaran pertanian, persekitaran pasaran serta kesan dasar kerajaan terhadap perniagaantani.

This course encompasses basic concepts of agricultural marketing and management, marketing environment and influence of government policies on agribusiness.

PPT3302	Prinsip Pemasaran Perniagaantani/ Principle Of Agribusiness Marketing	3 (3+0)
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Prasyarat : Tiada

Kursus ini merangkumi prinsip asas pemasaran perniagaantani yang meliputi konsep dan proses pemasaran, pendekatan pemasaran serta pembentukan utiliti. Analisis pemasaran dan membuat keputusan terhadap peletakan produk, penjenamaan, penentuan harga, promosi dan saluran pengagihan diberi penekanan.

This course encompasses the basic principles of agribusiness marketing, which include the marketing concepts and processes, marketing approach as well as utility creation. Analysis of marketing and marketing decision-making in product positioning, branding, pricing, promotion and channel of distribution are emphasized.

PPT3401	Perakaunan Perniagaantani/ Agribusiness Accounting	4 (3+1)
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Prasyarat : Tiada

Kursus ini merangkumi proses mengenalpasti, merekod dan meringkaskan data dan maklumat untuk menyediakan penyata kewangan seperti kunci kira-kira dan penyata pendapatan dan juga penggunaan. Menggunakan maklumat kewangan dan perakaunan di dalam proses membuat keputusan perniagaantani.

This course covers the process of identifying, recording and summarizing data and information for the preparation of financial statements such as balance sheet and income statement and also the use of financial and accounting information in agribusiness decision making process.

PPT3402	Perakaunan Kos Dan Pengurusan Perniagaantani/ Agribusiness Cost and Management Accounting	3 (2+1)
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Prasyarat : PPT3401

Kursus ini memberi penekanan terhadap aspek perancangan, kawalan, penilaian prestasi dan pembuatan keputusan di dalam sesebuah syarikat perniagaantani dengan menggunakan maklumat perakaunan.

This course emphasizes on planning, controlling, performance appraisal and decision making in an agribusiness firm by using accounting information

PPT3701	Keusahawanan Pertanian/ Agricultural Entrepreneurship	3 (1+2)
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Prasyarat : Tiada

Kursus ini merangkumi konsep keusahawanan, ciri usahawan, penyediaan pelan perniagaan, pelaksanaan projek, pemasaran, kredit, strategi dan pengurusan sumber serta isu semasa mengenai keusahawanan dalam pertanian

This course covers the concepts of entrepreneurship, the characteristics of an entrepreneur, preparation of a business plan, implementation of project marketing, credit, business strategies, management of resources and current issues of entrepreneurship in agriculture.

PPT3801	Statistik dalam Perniagaantani/ Statistics In Agribusiness	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi kaedah, prinsip dan penggunaan statistik di dalam bidang pengurusan perniagaantani. Topik meliputi statistik pemerihalan, kebarangkalian, pensampelan, taburan pensampelan, penganggaran, pengujian hipotesis, ujian Khi-kuasa dua, analisis varian, statistik tak berparameter, regresi linear mudah, korelasi, regresi berganda dan analisis siri masa.

This course encompasses methods, principles and applications of statistics in agribusiness management. Topics include descriptive statistics, probability, sampling, sampling distribution, estimation, hypothesis testing, Chi-square test, analysis of variance, nonparametric statistics, simple linear regression, correlation, multiple regression and time series analysis.

PPT4202	Perancangan Dan Pengurusan Projek Perniagaantani/ Agribusiness Project Planning And Management	3 (2+1)
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Prasyarat : ECN3100/EPT3100 /EPT3102

Kursus ini merangkumi teori dan teknik dalam merancang dan menilai projek perniagaantani. Nilai kini bersih, kadar pulangan dalaman, tempoh bayar balik, dan nisbah faedah kos sebagai indikator daya saing projek juga dibincangkan.

This course encompasses the theory and techniques in planning and evaluating agribusiness project. Net present value, internal rate of return, pay-back period, and benefit-cost ratio as project viability indicators will also be discussed.

PPT4203	Pengurusan Strategik Perniagaantani/ Agribusiness Strategic Management	3 (2+1)
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Prasyarat : PPT3201

Kursus ini merangkumi strategi jangka panjang sesuatu organisasi perniagaan yang merangkumi pengenalpastian strategi, rekabentuk organisasi, analisis industri dan persaingan, pengurusan rantai penawaran, pilihan strategi serta kaedah mengurus sesuatu strategi

This course encompasses the long-term strategic of a business organization which includes identifying strategy, organizational design, industry analysis and competition, supply chain management, strategy options, and methods of managing a strategy

PPT4204	Ekonomi Perniagaantani/ Agribusiness Economics	3 (3+0)
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Prasyarat : EPT3100/EPT3102/ECN3100

Kursus ini meliputi aplikasi konsep ekonomi perniagaantani melalui kaedah analisis permintaan dan penawaran, struktur pasaran, serta membuat keputusan dalam perniagaantani.

This course covers the applications of agribusiness economic concepts through the demand and supply analyses, market structure, and decision making in agribusiness.

**PPT4206 Pengurusan Koperasi Pertanian/
Management Of Agricultural Cooperative** **3 (3+0)**

Prasyarat : PPT3201

Kursus ini merangkumi sejarah perkembangan, teori, konsep dan akta serta bentuk koperasi pertanian di Malaysia. Kursus ini juga membincangkan fungsi, peranan, strategi pengurusan dan kepentingannya kepada industri pertanian. Perbincangan juga diperluaskan kepada persamaan dan perbezaan antara organisasi pertubuhan pertanian di negara lain.

This course encompasses the historical development, theories, concept, Acts and types of the agricultural cooperatives in Malaysia. This course also discusses the function, role, management strategies and their importance to the agriculture industry. Discussions also extend to similarities and differences vis-a-vis other country's agricultural organizations.

PPT4209 Sistem Pengurusan Perladangan/ Plantation Management Systems **3 (3+0)**

Prasyarat : Tiada

Kursus ini merangkumi prinsip pengurusan perladangan dan cara membuat keputusan dalam organisasi dan operasi sektor perladangan. Isu dan cabaran dalam sektor perladangan juga akan dibincangkan.

This course covers the principle of estate management and decision-making process in organisational and farm operations. Issues and challenges in the plantation sector are also discussed.

**PPT4210 Pembangunan Sumber Manusia Dalam Sektor Pertanian/
Human Resource Development in Agricultural Sector** **3 (3+0)**

Prasyarat : Tiada

Kursus ini merangkumi teori pembangunan sumber manusia, asas keperluan kerja, program latihan, proses penilaian, dan pengurusan sumber manusia dalam organisasi sektor pertanian.

This course covers the theory of human resource development, basic job requirement, training program, evaluation process, and management of human resource in agricultural organizations.

PPT4301 Pemasaran Perniagaantani/ Agribusiness Marketing **3 (2+1)**

Prasyarat : PPT3302/ PPT3301

Kursus ini merangkumi aplikasi konsep pemasaran firma dan sistem perniagaantani, penilaian prestasi sistem pemasaran dan kefahaman persekitaran pemasaran. Ia juga meneliti pembentukan pelan pemasaran dan pengurusan campuran pemasaran.

This course encompasses the application of marketing concept in the agribusiness firm and system, evaluation of performance of marketing systems and understanding of marketing environment. It further examines the development of a marketing plan and management of the marketing mix.

**PPT4302 Pemasaran Perniagaantani Antarabangsa/
International Agribusiness Marketing** **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada pemasaran antarabangsa termasuk analisis persekitaran yang meliputi dimensi ekonomi, budaya, politik dan peraturan antarabangsa. Pengurusan dan pengawal-seliaan pemasaran antarabangsa juga ditekankan.

This course encompasses an overview of international marketing including its environment, economic, cultural, political and legal dimensions. The management and coordination of international marketing are also emphasized.

PPT4303 E-Perniagaantani/ E-Agribusiness **3 (2+1)**

Prasyarat : PPT3302

Kursus ini merangkumi proses dan pelaksanaan perniagaan atas talian dalam sektor perniagaantani. Kaedah membangunkan laman sesawang perniagaan, analisis strategi pemasaran serta undang-undang siber juga ditekankan.

This course encompasses the process and implementation of online business in agribusiness sector. Methods of developing business websites, marketing strategy analysis and cyber laws will also be emphasized.

**PPT4304 Pengurusan Rantaian Bekalan Produk Makanan/
Food Product Supply Chain Management** **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi konsep pengurusan rantaian bekalan dalam pengeluaran, pemprosesan dan pemasaran produk makanan. Isu dan cabaran pengurusan rantaian bekalan juga diberi penekanan.

This course covers the concept of supply chain management in production, processing and marketing of food products. Issues and challenges on supply chain management are also emphasized

**PPT4350 Pengurusan Perniagaantani Kecil Dan Sederhana/
Small and Medium Agribusiness Management** **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi konsep dan strategi pengurusan perniagaantani kecil dan sederhana yang berdaya saing. Kaedah penilaian daya maju perniagaan, penerokaan modal, teknik mitigasi risiko dan strategi pertumbuhan perniagaan juga akan dibincangkan

This course encompasses the management concepts strategies of competitive small and medium agribusiness enterprises. Methods to evaluate the feasibility of business, capital procurement, risk mitigation techniques, and business growth strategies will also be discussed

**PPT4402 Pengurusan Kewangan Perniagaantani/
Agribusiness Financial Management** **3 (3+0)**

Prasyarat : ACT2112 /PPT3401

Kursus ini meliputi penggunaan prinsip pengurusan kewangan untuk mencapai penggunaan sumber modal yang optimum dalam operasi perniagaantani. Aspek pengurusan kredit yang meliputi pembiayaan secara pinjaman, pajakan dan sewa beli juga dibincangkan untuk meningkatkan pengetahuan pelajar dalam menganalisis masalah pengurusan kewangan perniagaantani.

This course covers the application of financial management principles in achieving optimum use of capital resources for agribusiness operations. Credit management aspects include financing by loans, leasing and hire purchase will be discussed in order to increase students' knowledge in analyzing problems in agribusiness financial management.

**PPT4501 Polisi dan Peraturan Perniagaantani/
Agribusiness Policy And Regulations** **3 (3+0)**

Prasyarat : ECN3100 atau EPT3102

Kursus ini merangkumi polisi pertanian Negara seperti Dasar Agromakanan Negara (DAN), Dasar Komoditi Negara (DKN), dan Bidang Ekonomi Utama Negara(NKEA) pertanian. Polisi perdagangan antarabangsa, Organisasi Perdagangan Dunia (WTO) serta kawasan perdagangan bebas juga dibincang. Peraturan berkaitan pengeluaran dan pemasaran produk perniagaantani turut ditekankan.

This course encompasses national agricultural policies such as National Agro-Food Policy (DAN), National Commodity Policy (DKN), and National Key Economy Area (NKEA) Agriculture. International trade policies, World Trade Organization (WTO), and free trade areas are also discussed. Regulations related to production and marketing of agribusiness products are emphasized.

PPT4701 Keusahawanan Perniagaantani/ Agribusiness Entrepreneurship **3 (1+2)**

Prasyarat : Tiada

Kursus ini merangkumi konsep keusahawanan, cirri usahawan, dan pembinaan pelan perniagaan. Pelaksanaan projek, strategi pemasaran, dan isu semasa keusahawanan juga ditekankan.

This course covers the concepts of entrepreneurship, the characteristics of an entrepreneur, and construction of a business plan. Implementation of project, marketing strategies and current issues of entrepreneurship in agribusiness are also emphasized.

PPT4801	Teknik Kuantitatif Perniagaantani/ Quantitative Techniques In Agribusiness	3 (2+1)
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Prasyarat : PPT3801

Kursus ini meliputi model kuantitatif sebagai alat untuk membuat keputusan yang melibatkan pembentukan model, konsep matrik dan vektor, pemrogramam linear, masalah pengangkutan, tugas dan pengagihan, model rangkaian, PERT/CPM dan analisis keputusan.

This course covers the quantitative models as tools for decision makings which include model formulation, matrix and vector concepts, linear programming, transportation, assignment and transshipment problems, network model, PERT/CPM and decision analysis.

PPT4901	Latihan Industri Perniagaantani/ Agribusiness Industrial Training	12 (0+12)
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Prasyarat : Tiada

Kursus ini merangkumi penempatan pelajar di syarikat berdasarkan perniagaantani selama satu semester untuk mengikuti latihan dalam semua aspek pengurusan. Pelajar akan diselia oleh pegawai firma dan staf akademik. Laporan yang komprehensif perlu disediakan oleh pelajar di akhir latihan.

This course encompasses placement of students in agribusiness firms for one semester to undergo training in all aspects of management. The students will be supervised by the firms and academic staff. A comprehensive report will have to be prepared by students at the end of the training.

PPT4999	Projek Ilmiah Tahun Akhir/ Final Year Academic Project	6 (0+6)
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Prasyarat : Tiada

Kursus ini merangkumi pengetahuan dan pengalaman praktik dalam mengendalikan dan melaporkan sesuatu projek penyelidikan. Pelajar dikehendaki mengenalpasti topik untuk diselidiki dalam bidang pengkhususan dengan bimbingan seorang penyelia. Pelajar akan merancang, melaksana dan melaporkan hasil kajiannya mengikut format yang diterima pakai.

This course encompasses knowledge and practical experience in conducting and reporting of a research project. Students are required to identify a researchable topic in their specialization area with the guidance of a supervisor. Students will also plan, implement and report the findings of the research in accordance to an acceptable format.

EPT3100	Prinsip Ekonomi Pertanian/ Principles of Agricultural Economics	3 (3+0)
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Prasyarat : Tiada

Kursus ini meliputi prinsip teori ekonomi serta kesan dasar kerajaan dalam sektor pertanian Malaysia.

This course covers the principles of economic theory and the impact of government policies on the Malaysian agricultural sector.

EPT3101	Ekonomi Sumber Asli/ Economic Of Natural Resources	3 (3+0)
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Prasyarat : ECN3100/EPT3100/EPT3102

Kursus ini meliputi perbincangan tentang teori ekonomi dan kaedah yang digunakan untuk menganalisis isu berkaitan pengurusan sumber asli.

This course covers discussion on the economic theories and methods used to analyze issues related to the management of natural resources.

EPT3102	Ekonomi Pertanian/ Agricultural Economics	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi aplikasi konsep asas teori ekonomi dalam bidang pertanian serta kaitannya dengan struktur pasaran, penawaran dan permintaan, dasar kerajaan, dan perdangaan antarabangsa.

This course covers the application of basic concept of economic theory in the field of agriculture and its relation to market structure, supply and demand, government policies, and international trade.

EPT3201	Ekonomi Pengeluaran Pertanian/ Agricultural Production Economics	3 (3+0)
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Prasyarat : ECN3100 atau EPT3100 atau EPT3110

Kursus ini meliputi penganggaran pelbagai bentuk fungsi pengeluaran, pentafsiran dan pengaplikasian di dalam pengeluaran pertanian.

This course covers the practical aspects in estimation of different functional forms, interpretation and applications in agricultural production.

EPT3202 Pengurusan Ladang/ Farm Management **3 (2+1)**

Prasyarat : ECN3100/EPT3100/EPT3102

Kursus ini meliputi konsep dan teknik pengurusan ladang menggunakan prinsip ekonomi. Tindakan penyelesaian dalam pengurusan bagi ladang yang bermasalah dan penilaian daya saing projek perladangan dibincangkan.

This course encompasses concept and farm management techniques using economic principles. Solutions to management of problematic farms and evaluation of farming project competitiveness are discussed.

EPT4201 Analisis Keputusan Pertanian/ Agricultural Decision Analysis **3 (3+0)**

Prasyarat : ECN3100/EPT3102

Kursus ini meliputi konsep dan penggunaan model dalam proses membuat keputusan pertanian. Kursus ini juga member tumpuan kepada penstrukturkan masalah dengan mengambilkira empat elemen masalah keputusan.

This course covers the concepts and application of model in agricultural decision making process. This course also focuses on problem structuring using the four elements of a decision problem.

EPT4204 Perancangan dan Pengurusan Projek Pertanian/ Agriculture Project Planning and Management **3 (3+0)**

Prasyarat : EPT3100/EPT3110/EPT3102/ECN3100 dan PPT3701

Kursus ini merangkumi teori dan teknik penilaian projek dan langkah penting dalam merancang projek pertanian.

This course covers the theory and techniques of project evaluation and essential steps in planning an agricultural project.

EPT4301 Pemasaran Pertanian/ Agricultural Marketing **3 (3+0)**

Prasyarat : EPT3100 atau ECN3100

Kursus ini merangkumi aplikasi prinsip pemasaran pertanian dalam sektor pertanian dan makanan serta penyediaan rancangan pemasaran pertanian.

This course covers the applications of principles of marketing in agricultural and food sector and the preparations of agricultural marketing plan.

EPT4303 Perdagangan Serahan Hadapan dan Opsyen/ Futures And Options Trading **3 (3+0)**

Prasyarat : Tiada

Kursus ini merangkumi konsep perdagangan serahan hadapan, basis harga tunai dan serahan hadapan, analisis asas dan teknikal, opsyen ke atas serahan hadapan komoditi, strategi utama urusniaga opsyen, strategiharga dan pengurusan risiko dalam membuat keputusan pelaburan.

This course encompasses the basics of commodity futures trading, cash-futures basis fundamental and technical analyses of futures trading, options on commodity futures and major strategies in option application, pricing strategies and the management of risk.

EPT4401 Kewangan Pertanian/ Agricultural Finance **3 (3+0)**

Prasyarat : PPT3401

Kursus ini merangkumi prinsip pengurusan kewangan dan aplikasinya dalam mencapai penggunaan optimum sumber modal dalam operasi pertanian.

The course covers principles of financial management and its application in achieving optimum use of capital resources for agriculture operations

EPT4501 Ekonomi dan Dasar Pembangunan Pertanian/ Economics of Agricultural Development and Policy **3 (3+0)**

Prasyarat : ECN3100

Kursus ini merangkumi pelbagai teori pembangunan, polisi dan isu semasa pertanian di negara maju, negara membangun dan negara kurang maju.

This course encompasses various agricultural development theories, policies and current issues in developed, developing and less developed countries.

EPT4602	Kaedah Penyelidikan Dalam Ekonomi Pertanian/ Research Methods In Agricultural Economics	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi perbincangan tentang konsep, tujuan dan kepentingan penyelidikan dalam bidang ekonomi pertanian serta kaedah menulis laporan penyelidikan.

This course covers discussion on the concept, purpose and importance of research in agricultural economics and writing technique of research report.

**Jabatan Teknologi Pertanian/
Department of Agriculture Technology**

TKP3001	Teknologi Pertanian Moden/ Modern Agricultural Technology	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi penggunaan teknologi pertanian moden didalam mempertingkatkan hasil dan kualiti produk pertanian. Aspek sosial dalam konteks teknologi pertanian moden turut dibincangkan.

This course encompasses the use of agricultural technology to increase yield and quality of agricultural produce. Social aspects in the context of agricultural technology are discussed

TKP3002	Amalan Ladang: Akuakultur/ Farm Practices : Aquaculture	1 (0+1)
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Prasyarat : Tiada

Kursus ini merangkumi amalan penyeliaan kolam, pengendalian unit penetasan, pembiakan, larvikultur, pengurusan kolam dan tangki, pengeluaran, pemakanan dan pemanenan ikan dan udang.

This course covers practices in pond preparation managing hatchery unit, breeding, larviculture, pond and tank management, production, feeding and harvesting of fish and prawn.

TKP3104	Bioteknologi Pertanian/ Agricultural Biotechnology	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi bioteknologi pertanian, teknik dan aplikasinya pada tumbuhan dan haiwan. Teknologi terkini dalam bioteknologi dibincangkan.

This course encompasses agricultural biotechnology, its technique and applications on plants and animals. Current technology in biotechnology will be discussed.

TKP3201	Pengembangan Pertanian/ Agricultural Extension	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi kaedah pengembangan dan perencanaan mengikut program pertanian. Kaedah pengembangan bersama komuniti dibincangkan.

This course encompasses methods and extention planning according to agricultural programme. Execution of extention program is discussed.

TKP3205	Komunikasi Pengembangan Dan Demonstrasi Kaedah Pertanian/ Agriculture Extension Communication and Method Demonstration)	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi hubungkait pembangunan model komunikasi pengembangan dengan demonstrasi kaedah. Pelaksanaan demonstrasi kaedah dan keberkesanan aktiviti pengembangan pertanian dan kerja lapangan dibincangkan.

This course encompasses relationship between development of extension communication model and method demonstration. Implementation of method demonstration and effectiveness of agriculture extension activities and field work are discussed.

TKP3206	Pengembangan Akuakultur/ Aquaculture Extension	2 (1+1)
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Prasyarat : Tiada

Kursus ini merangkumi kemahiran dan pengetahuan untuk membangunkan program dan latihan yang berkesan dalam khidmat pengembangan akuakultur kepada komuniti. Projek pengembangan dalam akuakultur dilaksana berdasarkan pembangunan ekonomi dan komuniti

This course covers the skills and knowledge to develop effective programs and training in aquaculture extension services to community. Extension projects in aquaculture are conducted based on economics and community development

TKP3301	Taman Rekreasi Pertanian/ Agriculture Recreational Park	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi konsep, pembangunan, khidmat sokongan serta perancangan aktiviti taman rekreasi pertanian untuk penambah nilai ladang pertanian. Proses pembangunan taman rekreasi pertanian dari sebuah ladang yang sedia ada serta menggunakan kemudahan di ladang untuk perancangan aktiviti rekreasi pertanian. Kepentingan penyelerenggaraan bagi kepuasan pengunjung juga akan di bincangkan.

This course covers the concept, development, support services also recreational activities of agriculture park to adding value to farm. The process of developing agriculture recreational park from an established farm and use the available facilities to plan agriculture recreational activities. The importance of maintenance for visitor satisfaction will also be discussed.

TKP3401	Teknologi Maklumat Dan Komunikasi Untuk Pertanian/ Information and Communication Technology for Agriculture	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi ICT dan pemprosesan, pengaliran maklumat dan aplikasi ICT dalam pertanian.

This course encompasses ICT and processing, information flows and ICT applications in agriculture.

TKP3501	Mekanisasi Pertanian Dan Pengairan/ Agricultural Mechanisation and Irrigation	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi rekabentuk, kesesuaian, pengendalian dan pengoperasian jentera utama yang digunakan dalam pengeluaran pertanian.

This course encompasses designs, suitability, handling and operation of major machineries used for agricultural production.

TKP3503	Pemprosesan Tanaman Perladangan/ Plantation Crop Processing	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi pengenalan kepada pemprosesan tanaman perladangan. Pengajaran akan memfokuskan kepada pemahaman terhadap operasi yang terlibat dalam pemprosesan tanaman perladangan. Pelajar juga akan didekah kepada pengenalpastian dan pemilihan operasi pemprosesan yang sesuai untuk hasil pemprosesan yang optimum.

This course covers the introduction of plantation crop processing. The teaching will focus on the understanding of the operations involved in the processing of plantation crop. Students will also be exposed to the identification and selection of appropriate processing operations for optimum processing results

TKP4201	Pemindahan Teknologi Pertanian/ Transfer Of Agricultural Technology	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi konsep, pembangunan, penilaian, perlindungan, serta isu dan cabaran semasa pemindahan teknologi pertanian.

This course encompasses concepts, development, evaluation, protection, current issues and challenges in agricultural technology transfer.

TKP4202	Komunikasi Pertanian/ Agricultural Communication	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi teori dan kaedah komunikasi pertanian, isu etika dan perundangan, strategi dan cabaran.

This course encompasses theories and methods in agricultural communication, legal and ethical issues, strategies and challenges.

TKP4203	Perencanaan Program Pengembangan Pertanian/ Programme Planning In Agricultural Extension	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi perencanaan pembentukan program pengembangan pertanian untuk meningkatkan produktiviti komuniti di kawasan terpilih. Pelaksanaan dan penilaian keberkesaanan program oleh komuniti setempat juga diberi penekanan.

This course covers agricultural extension programme development planning to increase community productivity in selected areas. Implementation and assessment of programme effectiveness by the local community is also emphasized.

TKP4802	Kejuruteraan Akuakultur/ Aquaculture Engineering	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi sistem akuakultur, pam pengudaraan, kolam dan tangki, sumber air, kualiti air, kadar alir, pengukuran aras dan rawatan air. Penekanan diberikan kepada unit penetasan, pemanenan, pemungutan dan pengangkutan tangkapan.

This course encompasses aquaculture systems, pump, aeration, ponds and tank, water supply, water quality, water flow, water level measurements and treatments. Emphasis is given to hatchery unit, harvesting, collection and transportation of catch.

**Pejabat Dekan/
Dean's Office**

PRT2008	Pertanian dan Manusia/ Pertanian dan Manusia/ Agriculture and Man	2 (2+0)
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Prasyarat : Tiada

Kursus ini merangkumi evolusi pertanian daripada permulaan kepada masa kini sebagai aktiviti terancang untuk sekuriti makanan dan penjanaan kekayaan, didorong oleh kemajuan ekonomi serta teknologi secara lestari. Pertanian moden dipaparkan sebagai sains, seni dan bisnes yang meliputi peranan dan impaknya terhadap penggunaan sumber dan pembangunan manusia.

This course encompasses the evolution of agriculture from the beginning to the present as a planned activity for food security and wealth creation driven by economic development and technology in a sustainable manner. Modern agriculture is presented as a science, an art and a business encompassing its role and impact on resource utilization and human development.

PRT3003	Pertanian, Persekutaran dan Sistem Makanan/ Agriculture, Environment And Food System	3 (3+0)
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Prasyarat : Tiada

Kursus ini meliputi aktiviti pertanian yang mempengaruhi kualiti alam sekitar dan pengeluaran produk komoditi pertanian yang baik melalui sistem pengurusan persekitaran untuk mengekalkan kualiti tanah, air dan udara bersih. Isu semasa tentang kepelbagaiannya produk, kualiti makanan, keselamatan dan kesihatan makanan, etika serta cabaran dalam era globalisasi dibincangkan.

This course covers agricultural activities influencing environmental quality and production of good agricultural product commodities through environmental management system to maintain soil and water quality, and clean air. Environmental issues on product diversity, food quality, food security and safety, ethics and challenges in the era of globalization are discussed.

PRT3005	Sistem Pengeluaran Tanaman/ Crop Production System	3 (3+0)
Prasyarat : Tiada	Kursus ini merangkumi jenis tanaman perladangan, makanan, hortikultur, tumbuhan herba dan ubatan, faktor yang mempengaruhi penentuan jenis dan lokasi dalam sistema pengeluarannya, penanaman dan teknik pengurusan tanaman.	
	<i>This course encompasses different crop types such as plantation, food and horticulture, herbal and medicinal plants, factors that influence the choice of types and locations in the production systems, planting and crop management techniques.</i>	
PRT3006	Prinsip Pertanian Lestari/ Principles Of Sustainable Agriculture	2 (2+0)
Prasyarat : Tiada	Kursus ini merangkumi keperluan dan perkembangan pertanian lestari. Amalan pertanian yang mengambil kira elemen pembangunan sosial, pertumbuhan ekonomi dan pemuliharaan alam sekitar dibincangkan.	
	<i>The course encompasses the need and development of sustainable agriculture. Agricultural practices that consider the elements of social development, economic growth and environmental conservation are discussed.</i>	
PRT3007	Sistem Pengeluaran Pertanian/ Agriculture Production System	3 (3+0)
Prasyarat : Tiada	Kursus ini memperkenalkan konsep pengeluaran pertanian lestari yang menghubungkait antara faktor pengeluaran, pengurusan dan aktiviti lepastuai. Sistem pengeluaran tanaman, penternakan dan akuakultur akan dibincangkan dengan contoh yang berkenaan.	
	<i>This course introduces the concept of sustainable agricultural production system which relates interaction of the production factors, management and post-harvest activities. Systems for crop, livestock and aquaculture production will be discussed with relevant examples.</i>	
PRT3008	Keselamatan Dan Kesejahteraan Perladangan/ Plantation Safety and Security	3 (1+2)
Prasyarat : Tiada	Kursus ini merangkumi prinsip keselamatan dan kesejahteraan pekerja, penilaian risiko, perancangan keselamatan dan pengurusan insiden dalam industri perladangan.	
	<i>This course covers principles of occupational safety and security, risk assessment, security planning and incident management in the plantation industry.</i>	
PRT3201	Asas Statistik Bagi Sains Pertanian/ Elementary Statistics For Agricultural Science	2 (2+0)
Prasyarat : Tiada	Kursus ini merangkumi kaedah statistik asas. Tajuk-tajuk termasuk statistik keperihalan, kebarangkalian, pensampelan rawak, ujian hipotesis, jangkaan, regresi linear dan korelasi.	
	<i>The course encompasses basic statistical methods. Topics include descriptive statistics, probability, random sampling, tests of hypothesis, estimation, simple linear regression and correlation.</i>	
PRT3202	Rekabentuk Dan Analisis Eksperimen/ Experimental Design And Analysis	3 (2+1)

This course covers the methods of conducting experiments including experimental design, sampling, data analysis and interpretation, and formulating conclusions.

PRT3204 Biometri/ Biometri **4 (3+1)**

Prasyarat : Tiada

Kursus ini merangkumi kaedah statistik untuk merekabentuk eksperimen, menganalisis data dan membuat kesimpulan daripada keputusan eksperimen

This course encompasses statistical methods to design an experiment, to analyze the data and to make conclusions from the experimental results

PRT3401 Kimia Pertanian/ Agricultural Chemistry **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi prinsip asas kimia yang penting dalam bidang pertanian termasuk proses kimia dalam pertanian, prinsip analisis bahan pertanian dan pengenalan kepada bahan kimia organik asli dan sintetik dalam pertanian.

This course encompasses the important basic chemical principles in agriculture which includes chemical processes in agriculture, analytical principles of agricultural materials, and introduction to natural and synthetic organic chemicals in agriculture.

PRT3402 Biokimia Pertanian/ Agricultural Biochemistry **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi proses biokimia dalam sistem eukariot, struktur dan peranan biomolekul, pemangkinan dan kawalan tindakbalas biokimia.

This course encompasses biochemical processes in eukaryotic system, structure and roles of biomolecules, catalysis and control of biochemical reactions

PRT3403 Kimia Dan Biokimia Pertanian/ Agricultural Chemistry and Biochemistry **4 (3+1)**

Prasyarat : Tiada

Kursus ini merangkumi prinsip kimia dan biokimia yang utama dalam bidang pertanian. Struktur dan peranan biomolekul, enzim dan hormon serta pengurusan maklumat kimia dan biokimia dalam bidang pertanian ditekankan.

This course encompasses the main chemical and biochemical principles in agriculture. The structure and roles of biomolecules, enzymes and hormones, and management of chemical and biochemical information in agriculture are emphasized.

PRT3501 Mikrobiologi Pertanian/ Agricultural Microbiology **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi prinsip mikrobiologi serta aplikasi dan peranan mikrob di dalam alam sekitar dan industri.

This course covers principles of microbiology as well as the application and role of microbes in the environment and industry.

PRT4002 Pertanian Persis/ Precision Agriculture **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi konsep dan amalan lestari dalam pertanian persis yang lestari. Pengukuran variabiliti menerusi berbagai prosedur pensampelan, pemetaan nutrien, hasil dan perosak, interpolasi corak ruang, sistem maklumat geografi, permodelan dan simulasi pertumbuhan tanaman, dan penggunaan data penderiaan jarak jauh.

This course encompasses concepts and sustainable practices in precision agriculture. Variability measurements using various sampling procedures, nutrient, yield and pest mapping, interpolation of spatial patterns, geographical information system, modelling and simulation of crop growth, and use of remote sensing data.

PRT4041 Sistem Pengeluaran Organik/ Organic Production Systems **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi prinsip dan amalan dalam pengeluaran makanan organik dengan menitikberatkan sistem perladangan lestari, sistem tanaman, kawalan perosak dan penyakit, piawaian organik dan pensijilan, sosioekonomi dan pemasaran.

This course covers the principles and practices of organic food production with emphasis on sustainable farming systems, pest and disease control, organic standard and certification, socioeconomics and marketing.

PRT4201 Penilaian Sumber Pertanian/ Agricultural Resource Evaluation **3 (2+1)**

Prasyarat : Tiada

Kursus ini merangkumi penilaian sumber pertanian termasuk sumber tanah, air, genetik, tenaga dan sumber manusia, dan ramalan hasil pertanian.

This course encompasses evaluation of various resources for agriculture which include soil, water, genetic, energy and human resources, and yield forecasting.

PRT4301 Permodelan Dan Simulasi Komputer Dalam Pertanian/ Modelling And Computer Simulation In Agriculture **3 (2+1)**

Prasyarat : Tiada

Kursus ini meliputi pemerihalan proses biofizikal dan proses mikrometeorologi tanaman dalam bentuk persamaan matematik.

This course covers the description of biophysical and crop micrometeorological processes in the form of mathematical equations.

PRT4302 Agroiklim/ Agroclimatology **3 (3+0)**

Prasyarat : Tiada

Kursus ini merangkumi komponen cuaca, kaedah pengukuran dan kesan perubahan iklim terhadap produktiviti pertanian. Impak kegiatan manusia terhadap perubahan iklim serta cadangan beberapa amalan pertanian untuk menangani impak perubahan iklim dibincangkan.

This course covers weather components, measurement methods and the effects of climate change on agriculture productivity. Impacts of human activities on climate change and suggestions of several agriculture practices to mitigate the impacts of climate change are discussed.

PRT4901 Projek Ilmiah Tahun Akhir/ Final Year Academic Project **12 (0+12)**

Prasyarat : Tiada

Melalui kursus ini, pelajar didedahkan kepada persekitaran kerja yang sebenar di industri/organisasi. Latihan merangkumi aplikasi aspek teori dan praktikal yang telah dipelajari dengan amalan semasa di tempat kerja. Kemahiran menyelesaikan masalah dan komunikasi ditekankan.

In this course, students are exposed to real working environment in industries/organizations. Training includes application of the theoretical and practical aspects that have been studied with current practices in the workplace. Problem solving and communication skills are emphasized.

PRT4999 Projek Ilmiah Tahun Akhir/ Final Year Academic Project **8 (0+8)**

Prasyarat : Tiada

Kursus ini merangkumi perancangan, pelaksanaan, analisis dan penterjemahan data, menyedia dan membentangkan laporan saintifik.

This course encompasses planning, implementation, data analysis and interpretation, preparation and presentation of scientific report.

PRT4959 Disertasi Bacelor/ Bachelor Dissertation **6 (0+6)**

Prasyarat : Tiada

Kursus ini merangkumi penyediaan cadangan, pelaksanaan dan penulisan saintifik untuk sesuatu projek penyelidikan. Pendekatan saintifik bagi menjana data secara sistematik melalui rekabentuk, pengumpulan dan analisis data yang sesuai diberi penekanan.

This course covers the preparation of proposal, implementation and scientific writing of research project. Scientific approach to generate data systematically through appropriate design, data collection and analysis are emphasized.

Jabatan Pengurusan Tanah/ ***Department of Land Management***

SST3005	Sains Tanah Asas/ Fundamentals Of Soil Scince	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi pembentukan tanah, sifat kimia, fizik dan biologi tanah, pemakanan tumbuhan dan baja, pengelasan, survei dan penilaian tanah. <i>This course encompasses soil formation, physical, chemical and biological properties, plant nutrition and fertilizers, soil classification, survey and evaluation.</i>	
SST3201	Tanah-Tanah Di Malaysia/ Soils Of Malaysia	3 (2+1)
Prasyarat : Tiada	Kursus ini merangkumi prinsip survei tanah, pemerihalan profil tanah, pengelasan tanah di Malaysia mengikut siri dan pengurusan am kumpulan tanah utama. <i>This course encompasses the principles of soil survey, description of soil profile, classification of soils in Malaysia according to series and the general management of major soil group.</i>	
SST3502	Ekologi Tanah/ Soil Ecology	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi prinsip ekologi tanah, interaksi antara organisma tanah dan persekitarannya, peranan tanah dalam ekosistem, proses biologi dan faktor mempengaruhi aktiviti organisma, kesan pencemaran terhadap organisma tanah, kawalan biologi dan bioremediasi tanah tercemar. <i>This course covers the principles of soil ecology, interactions between soil organisms and their environments, role of soils in ecosystem, biological processes and factors influencing the activities of soil organisms, the impact of pollution on soil organisms, biological control and bioremediation of polluted soils.</i>	
SST3602	Pengurusan Tanah Lestari/ Sustainable Soil Management	3 (2+1)
Prasyarat : SST3005 atau setara	Kursus ini merangkumi konsep pertanian secara lestari, cara menilai kesuburan tanah dan keperluan baja, peningkatan dan penyelenggaraan kualiti tanah, kesan dan kawalan degradasi tanah, tanah sebagai sinki untuk bahan cemar dan cara mengurusnya. <i>This course encompasses the concept of sustainable agriculture, methods of assessing soil fertility and fertilizer requirement, improvement and maintenance of soil quality, impacts and control of soil degradation, soil as a sink for pollutants and its management.</i>	
SST3603	Pengurusan Kesuburan Tanah/ Soil Fertility Management	3 (2+1)
Prasyarat : Tiada	Kursus ini meliputi prinsip, kepentingan dan amalan pengurusan kesuburan tanah, nutrien dan air untuk penghasilan tanaman. Kesan amalan ladang terhadap kesuburan tanah untuk pengeluaran tanaman dibincangkan. <i>This course covers the principles, importance and practices in managing soil fertility, nutrient and water for crop production. Effects of field management on soil fertility for crop production are discussed.</i>	

SST3604	Kesuburan Tanah Tanaman Perladangan/ Soil Fertility for Plantation Crops	3 (1+2)
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Prasyarat : Tiada

Kursus ini meliputi prinsip, kepentingan dan amalan pengurusan kesuburan tanah, nutrien dan air untuk penghasilan tanaman perladangan, kesan amalan ladang terhadap kesuburan tanah dalam mengoptimumkan pengeluaran tanaman perladangan dengan menggunakan Amalan Pertanian Baik (GAP).

This course covers the principles, importance and practices in managing soil fertility, nutrient and water for plantation crop production, effects of field management on soil fertility for optimum plantation crop production using Good Agricultural Practices (GAP).

SST3802	Pengurusan Sisa Pertanian/ Agricultural Waste Management	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi pengenalan kepada jenis sisa pertanian, masalah pencemaran alam sekitar dan pengurusan secara mesra alam untuk pelupusan dan/atau kitaran semula, dan aspek peraturan alam sekitar.

This course covers introduction to the different types of agricultural wastes, environmental problems and environmental friendly waste management for disposal and/or recycling, and environmental regulatory aspects.

SST4201	Pembentukan dan Pengelasan Tanah/ Soil Formation And Classification	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi morfologi tanah, luluhawa dan pembentukan tanah, indeks kestabilan, sintesis mineral dalam tanah dan prinsip pengkelasan tanah mengikut sistem pengkelasan tanah yang berlainan.

This course covers soil morphology, weathering and soil formation, stability indices, mineral synthesis in soil and the principles of soil classification according to different soil classification systems.

SST4202	Survei Tanah Dan Pengelasan Kesesuaian Guna Tanah/ Soil Survey and Land Use Suitability Classification	3 (2+1)
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Prasyarat : Tiada

Kursus ini meliputi teknik survei tanah, *Legend Map* tanah dan pengelasan kesesuaian guna tanah untuk pertanian. Pelajar didedahkan kepada pelaksanaan survei tanah di agensi perladangan.

This course covers techniques of soil survey, soil Legend Map and land use suitability classification for agriculture. Students are exposed to soil survey activity in plantation agencies.

SST4302	Fizik Tanah/ Soil Physics	3 (2+1)
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Prasyarat : SST3005 atau setara

Kursus ini merangkumi ciri fizik dan proses fizikal tanah seperti air tanah, hakisan tanah dan struktur tanah.

This course encompasses the soil physical characteristics and processes such as soil water, soil erosion, and soil structure.

SST4303	Pemuliharaan Tanah/ Soil Conservation	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi proses, faktor, kaedah pengawalan, ramalan hakisan dan kepentingan pemuliharaan tanah tropika. Kesan pemuliharaan tanah ke atas tanaman dan persekitaran dibincangkan.

This course encompasses the processes, factors, control measures, prediction of soil erosion and importance of tropical soil conservation. The impact of soil conservation on crop and the environment are discussed.

SST4304	Perubahan Iklim Dan Pertanian/ Climatic Change And Agriculture	3 (2+1)
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Prasyarat : SST3005

Kursus ini merangkumi sains perubahan iklim, penyebab ianya berlaku serta kesannya terhadap pertanian pengeluaran makanan. Cara mitigasi dan permodelan perubahan iklim dibincang.

This course encompasses the science of climatic change, its causes as well as its effects on agriculture food production. Mitigation efforts and modeling of climatic change are discussed.

SST4402 Kimia Tanah/ *Soil Chemistry*

3 (2+1)

Prasyarat : SST3005 atau setara

Kursus ini meliputi proses utama kimia dalam persekitaran tanah termasuk mineralogi lempung silikat dan proses luluhawa, kimia koloid, keasidan dan kemasinan tanah, dan tindakbalas redoks dalam tanah.

This course covers the main chemical processes in the soil environment which include mineralogy of silicate clays and weathering process, colloidal chemistry soil acidity and salinity, and redox reactions in soil.

SST4501 Mikrobiologi Tanah Lanjutan/ *Advanced Soil Microbiology*

3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi ekologi tanah, faktor yang mempengaruhi aktiviti mikroorganisma tanah, kaedah pengiraan populasi dan pengasingan mikrob, interaksi tanah-tumbuhan-mikrob, transformasi mineral, kesan ekologi racun perosak, kawalan biologi, dan bioremediasi tanah.

This course covers soil ecology, soil factors affecting activities of soil microorganisms, methods of microbial population count and isolation, soil-plant-microbe interactions, mineral transformations, ecological effects of pesticides, biological control, and soil bioremediation.

SST4601 Kesuburan Tanah Lanjutan/ *Advanced Soil Fertility*

3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi kitar biokimia unsur nutrien, mekanisma pengangkutan nutrien dalam fasa pepejal dan cecair, pengambilan nutrien daripada tanah, kekurangan dan keracunan nutrien, penilaian kesuburan tanah, pembajaan terutama tanah bermasalah, tafsiran data analitik dan syor praktikal berkaitan dengan pengendalian dan pembajakan kesuburan tanah.

This course covers biochemical cycling of nutrient elements, mechanisms of nutrient transport in solid and liquid phases, uptake of nutrients from soil, nutrient deficiencies and toxicities, evaluation of soil fertility, fertilization especially of problem soils, interpretation of analytical data and practical recommendation regarding maintenance and improvement of soil fertility.

SST4602 Kelestarian Perladangan Dan Pengurusan Kualiti/ *Plantation Sustainability and Quality Management*

3 (2+1)

Prasyarat : Tiada

Kursus ini menumpukan kepada amalan pertanian baik merangkumi amalan pemuliharaan tanah, air dan biodiversiti serta kualiti udara bagi mengurangkan impak kepada alam sekitar. Pengurusan kualiti merangkumi peningkatan sosial dan polisi kelestarian juga diberi penekanan.

This course focuses on good agriculture practices emphasizing on soil, water and biodiversity conservation and air quality to reduce environmental impact. Quality management which includes social enhancement and sustainability policies are emphasized

SST4701 Mineralogi Tanah/ *Soil Mineralogy*

3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi jenis, pembentukan dan sifat mineral tanah serta pelbagai kaedah mengenalpasti mineral.

This course covers the types, formation and properties of soil minerals and various methods to identify minerals.

SST4801 Sains Tanah Kesekitaran/ *Environmental Soil Science*

3 (2+1)

Prasyarat : SST3005

Kursus ini merangkumi degradasi tanah, pelepasan gas rumah hijau dari tanah, pencemaran air dan udara, hujan asid dan kesan perubahan iklim. Remediasi dan pengurusan tanah untuk pertanian lestari ditekankan.

This course encompasses soil degradation, greenhouse gas emission, groundwater and air pollution, acid rain and impact of climate change. Soil remediation and management for sustainable agriculture are emphasized.

SPP4902	Perancangan Dan Pengurusan Penanaman/ Planning and Management of Planting	14 (0+14)
Prasyarat : AGR3002 dan AGR3501	Kursus ini merangkumi aspek survei dan penilaian tanah untuk pembukaan dan pembangunan ladang, pemilihan bahan tanaman dan mengurus tanaman. Aspek perancangan dan analisis kewangan yang melibatkan pembukaan ladang juga ditekankan.	
	<i>This course encompasses the aspects of land survey and evaluation to set up and develop a plantation, selection of planting materials and management of plants. Aspects of financial planning and analysis involving setting up a plantation is also emphasized</i>	
SPP4903	Pengurusan Perladangan/ Plantation Management	14 (0+14)
Prasyarat : AGR3503 dan PPT3401	Kursus ini merangkumi aspek pengurusan pembajaan, perosak dan penyakit serta rumpai, mekanisasi dan automasi, pemuliharaan tanah serta penuaian dan pemprosesan hasil. Cadangan penyelesaian masalah pengurusan ladang melalui kajian saintifik dari segi reka bentuk, pengumpulan dan analisis data juga dijalankan	
	<i>This course encompasses the aspects of fertilizer, pest and diseases, and weed management, mechanization and automation, soil conservation, harvesting and processing. Proposed problem solving of plantation management through scientific study in terms of appropriate design, data collection and analyses is also conducted</i>	
SPP4904	Pengurusan Sumber Manusia/ Human Resource Management	14 (0+14)
Prasyarat : MGM3113 dan TKP3205	Kursus ini merangkumi pengurusan sumber manusia yang menyeluruh di sektor perladangan bermula daripada pengambilan sehingga latihan dan kebajikan mereka. Masalah sosial pekerja juga dibincangkan. Cadangan penyelesaian kepada masalah sumber manusia juga dilaksanakan melalui kajian saintifik dari segi reka bentuk, pengumpulan dan analisis data	
	<i>This course encompasses a comprehensive management of the human resources in the estate starting from recruitment right up to training and their welfare. The workers' social problems are discussed. Proposed solution to human resource problem is also conducted through scientific study in terms of appropriate design, data collection and analyses</i>	
SST4999	Projek Ilmiah Tahun Akhir/ Final Year Project	6 (0+6)
Prasyarat : Tiada	Kursus ini merangkumi sorotan bahan rujukan, perancangan, rekabentuk dan pelaksanaan kajian berkaitan dengan pengurusan dan teknologi dalam perladangan, analisis dan interpretasi data, dan penyediaan dan pembentangan laporan kajian	
	<i>This course encompasses review of literature, planning, design and implementation of a study related to management and technology in plantations, analysis and interpretation of data, preparation and presentation of a study report</i>	

KURSUS TAWARAN FAKULTI LAIN

[Sila rujuk sinopsis pada fakulti berkenaan]

1. FAKULTI BAHASA MODEN DAN KOMUNIKASI

1.1	KOM3403	Pengucapan Awam/Public Oration	3 (3+0)
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2. FAKULTI EKOLOGI MANUSIA

2.1	FEM2401	Politik Malaysia dan Masyarakat / Malaysia Politics and Society	2 (2+0)
2.2	SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3 (3+0)
2.3	SKP3112	Falsafah dan Isu Semasa / <i>Philosophy and Current Issues</i>	2 (2+0)
2.4	SKP3113	Falsafah dan Isu Semasa Masyarakat / <i>Philosophy and Current Issues in Society</i>	2 (2+0)
2.5	SKP3123	Penghayatan Etika dan Peradaban Malaysia / Internalization of Ethics and Civilization in Malaysia	3 (3+0)

3. FAKULTI SAINS DAN TEKNOLOGI MAKANAN

3.1	FST3003	Pengenalan Kepada Sains Makanan/ <i>Introduction to Food Science</i>	3 (3+0)
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4. FAKULTI EKONOMI DAN PENGURUSAN

4.1	ECN3100	Prinsip Ekonomi/ <i>Principles of Economics</i>	3 (3+0)
4.2	MGM3351	Undang-undang Perniagaan/ <i>Business Law</i>	3 (3+0)
4.3	ACT2111	Pengantar Perancangan dan Penggunaan Maklumat Perakaunan/ <i>Introduction To Planning And Use Of Financial Information</i>	3 (3+0)

5. FAKULTI PENGAJIAN PENDIDIKAN

5.1	FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2 (2+0)
5.2	DCE3406	Kepimpinan dalam Pengembangan dan Pembangunan Masyarakat/ <i>Leadership in Extension & Community Development</i>	3 (3+0)
5.3	DCE3304	Perencanaan Program Pendidikan Dewasa/ <i>Adult Education Program Development</i>	3 (3+0)
5.4	DCE3311	Pendidikan Dewasa/ <i>Adult Education</i>	3 (3+0)
5.5	DCE3411	Pembangunan Sumber Masyarakat/ <i>Community Development</i>	3 (3+0)

6. PUSAT PEMAJUAN KOMPETENSI BAHASA (CALC)

6.1	LPE2301	<i>Academic Interaction and Presentation</i>	3 (2+1)
6.2	LPE2501	<i>Academic Writing</i>	3 (2+1)
6.3	BBC2401	Mandarin I/ <i>Mandarin I</i>	3 (2+1)
6.4	BBC2402	Mandarin II/ <i>Mandarin II</i>	3 (2+1)
6.5	BBA2401	Bahasa Arab I/ <i>Arabic I</i>	3 (2+1)
6.6	BBA2402	Bahasa Arab II/ <i>Arabic II</i>	3 (2+1)
6.7	BBI2416	Business English	3 (3+0)
6.8	BBI2414	Interactive Speaking	3 (3+0)
6.9	BBI2415	Report Writing	3 (3+0)



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