



FAKULTI PERTANIAN

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 penstrukturan semula di Universiti Putra Malaysia juga melibatkan Fakulti Pertanian. Penstrukturan ini adalah berkonsepkan penyatuan atau integrasi elemen utama dalam sistem pertanian iaitu tanaman, haiwan, tanah, teknologi dan pengurusan. Berasas kepada konsep ini, Fakulti Pertanian kini mempunyai tujuh jabatan, iaitu Sains Tanaman, Perlindungan Tumbuhan, Pengurusan Tanah, Sains Haiwan, Perniagaantani dan Sistem Maklumat, Teknologi Pertanian dan Jabatan Akuakultur.

Sebagai fakulti pertanian terunggul di negara ini, maka Fakulti Pertanian mempunyai peranan utama untuk menangani secara langsung masalah pertanian semasa negara serta prospek pembangunan industri pertanian dalam jangka masa panjang terutama kepada program latihan sumber manusia dengan tenaga terlatih yang terdiri daripada graduan yang berpandangan jauh ke hadapan dan berupaya bersaing dalam arena industri.

Berlandaskan sistem pendidikan negara, Fakulti Pertanian berusaha mengeluarkan pakar pertanian terlatih, berciri keusahawan dan berupaya mengendalikan perundingan di mana saja, di samping menghasilkan teknologi pertanian baru dan tinggi, hasil dari program penyelidikan dan pengkomersilan.

FACULTY OF AGRICULTURE

General Information

The Faculty of Agriculture is one of three founding faculties of Universiti Pertanian Malaysia (now Universiti Putra Malaysia) in 1971. The faculty began with seven departments, several of which subsequently developed and evolved into separate individual faculties.

As at the end of 1998, the Faculty of Agriculture had three academic departments: the Department of Agronomy and Horticulture, Department of Plant Protection and Department of Soil Science.

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 i.e. plants, animals, soil, technology and management. Based on this concept, the Faculty of Agriculture now comprises seven departments, namely Crop Science, Plant Protection, Soil Management, Animal Science, , Agribusiness and Information Systems, Agriculture Technology and Aquaculture.

As the foremost agricultural faculty in the country, the Faculty of Agriculture at UPM has a key role in resolving current agricultural problems faced by the country and the enhancement of the long term development prospects of the national agricultural industry, especially in developing human resource training programs to produce trained graduates who are far sighted and competitive in the industrial arena.





Pengurusan Fakulti/ *Faculty Management*

Dekan/Dean

Prof. Dr. Abd Shukor Juraimi

Timbalan Dekan (Akademik, HalEhwal Pelajar & Alumni)

Deputy Dean (Academic, Student Affair and Alumni)

Prof. Madya Dr. Che Fauziah Ishak

Timbalan Dekan (Siswazah, Penyelidikan dan Antarabangsa)

Deputy Dean (Graduates Studies, Research and International)

Prof. Dr. Dzolkhifli Omar

Timbalan Dekan (Pembangunan, Jaringan Industri & Masyarakat)

Deputy Dean (Development, Networking and Community)

Prof. Madya Dr. Halimi Mohd Saud

Ketua Jabatan Sains Tanaman

Head, Department of Crop Science

Prof. Madya Dr. Adam Puteh

Ketua Jabatan Perlindungan Tumbuhan

Head, Department of Plant Protection

Prof. Madya Dr. Zainal Abidin Mior Ahmad

Ketua Jabatan Pengurusan Tanah

Head, Department of Land Management

Prof. Madya Dr. Radziah Othman

Ketua Jabatan Teknologi Pertanian

Head, Department of Agriculture Technology

Prof. Madya Dr. Norsida Man

Ketua Jabatan Sains Haiwan

Head, Department of Animal Science

Prof. Dr. Loh Teck Chwen

Ketua Jabatan Perniagaantani dan Sistem Maklumat

Head, Department of Agribusiness and Information Systems

Prof. Dr. Zainal Abidin Mohamed

Ketua Jabatan Akuakultur

Head, Department of Aquaculture

Prof. Dr. Mohd Salleh Kamarudin

Timbalan Pendaftar

Deputy Registrar

Encik Nazri Noh





Program Prasiswazah yang ditawarkan

Bachelor / Bachelor

1. Bacelor Sains Pertanian/ *Bachelor of Agricultural Science*
2. Bacelor Sains Hortikultur/ *Bachelor of Horticultural Science*
3. Bacelor Sains (Perniagaantani)/ *Bachelor of Science (Agribusiness)*
4. Bacelor Pertanian (Sains Ternakan)/ *Bachelor of Agriculture (Animal Science)*
5. Bacelor Pertanian (Akuakultur)/ *Bachelor of Agriculture (Aquaculture)*





STUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Sains Pertanian/ Bachelor of Agricultural Science**
Jumlah Kredit Bergraduat : **136 Jam Kredit/ Credit Hours**
Tempoh Pengajian : **8 Semester/ Semesters (4 Tahun/ Years)**

1. Kursus Universiti/ University Courses (23 kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2423	Academic Interaction and Presentation	3	2	1
BBI2424	Academic Writing	3	2	1
KOM3403	Pengucapan Awam/ Public Oration	3	3	0
ECN3100	Prinsip Ekonomi/ Principles of Economics	3	3	0
SKP2101	Kenegaraan Malaysia/ Malaysian Nationhood	3	3	0
SKP2203	Tamadun Islam dan Tamadun Asia/ Islamic Civilization and Asian Civilization	2	2	0
SKP2204	Hubungan Etnik/ Ethnic Relations	2	2	0
PRT2008	Pertanian dan Manusia/ Agriculture and Man	2	2	0
	Kokurikulum/ Co-curriculum	2	0	2

2. Kursus Teras/ Core Courses (80 kredit/credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR3001	Amalan ladang: Tanaman Makanan/ Farm Practice: Food Crops	1	0	1
AGR3002	Amalan ladang: Tanaman Perladangan/ Farm Practices: Plantation Crops	1	0	1
AGR3101	Botani Pertanian/ Agricultural Botany	3	2	1
AGR3102	Prinsip Sains Rumpai/ Principles of Weed Science	3	2	1
AGR3204	Pembiakbakaan Tumbuhan/ Plant Breeding	3	2	1
AGR3301	Fisiologi Tanaman/ Crop Physiology	3	2	1
AGR3501	Tanaman Perladangan/ Plantation Crops	2	2	0
AGR3502	Tanaman Makanan/ Food Crops	2	2	0
PRT3402	Biokimia Pertanian/ Agricultural Biochemistry	3	2	1
PRT3006	Prinsip Pertanian Lestari/ Principles of Sustainable Agriculture	2	2	0
PRT3201	Asas Statistik Bagi Sains Pertanian/ Elementary Statistics For Agricultural Science	2	2	0
PRT3202	Rekabentuk Dan Analisis Eksperimen/ Experimental Design And Analysis	3	2	1
EPT3102	Ekonomi Pertanian/ Agricultural Economics	3	3	0
PLP3104	Entomologi Asas/ Fundamentals of Entomology	3	2	1
PLP3204	Patologi Tumbuhan Asas/ Fundamentals of Plant Pathology	3	2	1



PPT3701	Keusahawanan Pertanian/ <i>Agricultural Entrepreneurship</i>	3	2	1
PRT3401	Kimia Pertanian/ <i>Agricultural Chemistry</i>	3	2	1
PRT4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
PRT4999	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	6	0	6
SHW3001	Prinsip Pengeluaran Ternakan/ <i>Principle of Livestock Product</i>	3	3	0
SHW3003	Amalan Ladang : Pengeluaran Ternakan/ <i>Farm Practice: Livestock Production</i>	1	0	1
SST3005	Sains Tanah Asas/ <i>Fundamentals of Soil Science</i>	3	2	1
SST3603	Pengurusan Kesuburan Tanah/ <i>Soil Fertility Management</i>	3	2	1
AKU3201	Prinsip Akuakultur/ <i>Principles of Aquaculture</i>	3	2	1
TKP3201	Pengembangan Pertanian/ <i>Agricultural Extension.</i>	3	2	1
TKP3501	Mekanisasi Pertanian/ <i>Agriculture Mechanization</i>	3	2	1

3. Kursus Elektif/ *Elective Courses* (27 kredit sahaja/ *credits only*)

i. Minor Sains Tanaman/ *Minor in Crops Science*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR4507	Pengeluaran Tanaman Perladangan- Kelapa Sawit/ <i>Plantation Crop Production: Oil Palm</i>	3	2	1
AGR4508	Pengeluaran Tanaman Perladangan- Getah/ <i>Plantation Crop Production : Rubber</i>	3	2	1
AGR4101	Botani Pertanian Lanjutan/ <i>Advanced Agricultural Botany</i>	3	2	1
AGR4102	Teknologi Biji Benih/ <i>Seed Technology</i>	3	2	1
AGR4104	Sains Racun Rumpai/ <i>Herbicide Science</i>	3	2	1
AGR4203	Genetik Kuantitatif/ <i>Quantitative Genetics</i>	3	2	1
AGR4301	Fisiologi Tanaman Lanjutan/ <i>Advanced Plant Physiology</i>	3	2	1
AGR4401	Pemakanan Tanaman/ <i>Crop Nutrition</i>	3	2	1
AGR4501	Pengurusan Pastura/ <i>Pasture Management</i>	3	2	1
AGR3609	Tanaman Industri II : Kelapa, Koko, Kopi, Teh Dan Tebu/ <i>Industrial Crops II: Coconut, Cocoa, Coffee, Tea And Sugar Cane</i>	3	3	0
AGR4503	Pengeluaran Tanaman Padi/ <i>Rice Crop Production</i>	3	2	1
HRT3000	Pengeluaran Tanaman Hortikultur/ <i>Horticultural Crop Production</i>	3	3	0
HRT3401	Fisiologi Lepas Tuai/ <i>Postharvest Physiology</i>	3	2	1
HRT3501	Pengenalan Rekabentuk Landskap/ <i>Introduction to Landscape Design</i>	3	2	1
HRT4301	Kultur Orkid/ <i>Orchid Culture</i>	3	2	1



HRT4401	Pengawalatur Tumbesaran Tumbuhan/ <i>Plant Growth Regulators</i>	3	2	1
HRT4601	Pengurusan Rumput Turf/ <i>Turfgrass Management</i>	3	2	1
HRT4701	Pembiakan Mikro Tumbuhan / <i>Plant Micropropagation</i>	3	2	1

ii. Minor Teknologi Pertanian/ *Minor in Agriculture Technology*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
HRT4101	Kultur Tanpa Tanah/ <i>Soilless Culture</i>	3	2	1
HRT4102	Pertanian Persekitaran Terkawal/ <i>Controlled Environment Agriculture</i>	3	2	1
SST3802	Pengurusan Sisa Pertanian/ <i>Agricultural Waste Management</i>	3	2	1
PRT4002	Pertanian Persis/ <i>Precision Agriculture</i>	3	2	1
PRT4201	Penilaian Sumber Pertanian/ <i>Agricultural Resource Evaluation</i>	3	2	1
PRT4041	Sistem Pengeluaran Organik/ <i>Organic Production Systems</i>	3	2	1
PRT4301	Permodelan Dan Simulasi Komputer Dalam Pertanian/ <i>Modelling And Computer Simulation In Agriculture</i>	3	2	1
TKP3001	Teknologi Pertanian Moden/ <i>Modern Agricultural Technology</i>	3	2	1
TKP3104	Bioteknologi Pertanian/ <i>Agricultural Biotechnology</i>	3	2	1
TKP3301	Taman Pertanian Rekreasi / <i>Agriculture Recreational Park</i>	3	2	1
TKP3401	Teknologi Maklumat Dan Komunikasi Untuk Pertanian/ <i>Information and Communication Technology for Agriculture</i>	3	2	1

i. Minor Sains Tanah/ *Minor in Soil Science*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
SST3201	Tanah-Tanah di Malaysia/ <i>Soils of Malaysia</i>	3	2	1
SST3502	Ekologi Tanah/ <i>Soil Ecology</i>	3	2	1
SST4201	Pembentukan dan Pengelasan Tanah/ <i>Soil Formation And Classification</i>	3	2	1
SST4302	Fizik Tanah/ <i>Soil Physics</i>	3	2	1
SST4303	Pemuliharaan Tanah/ <i>Soil Conservation</i>	3	2	1
SST4304	Perubahan Iklim Dan Pertanian/ <i>Climate Change And Agriculture</i>	3	2	1
SST4402	Kimia Tanah/ <i>Soil Chemistry</i>	3	2	1
SST4501	Mikrobiologi Tanah Lanjutan/ <i>Advanced Soil Microbiology</i>	3	2	1
SST4601	Kesuburan Tanah II/ <i>Soil Fertility II</i>	3	2	1



SST4701	Mineralogi Tanah/ <i>Soil Mineralogy</i>	3	2	1
SST4801	Sains Tanah Persekitanan/ <i>Environmental Soil Science</i>	3	2	1

ii. Minor Perlindungan Tumbuhan/ *Minor in Plant Protection*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PLP4001	Pengawalan Perosak/ <i>Pest Control</i>	3	2	1
PLP4002	Teknik Penggunaan Racun Perosak/ <i>Pesticide Application Technique</i>	3	2	1
PLP4003	Kawalan Biologi Perosak Tanaman/ <i>Biological Control of Crop Pests</i>	3	2	1
PLP4101	Entomologi/ <i>Entomology</i>	3	2	1
PLP4102	Apikultur/ <i>Apiculture</i>	3	2	1
PLP4201	Patologi Tumbuhan/ <i>Plant Pathology</i>	3	2	1
PLP3105	Pengurusan Perosak Bandaran/ <i>Urban Pest Management</i>	3	2	1

iii. Minor Sains Haiwan/ *Minor in Animal Science*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
SHW3503	Produksi Ternakan Pedaging/ <i>Meat Livestock Production</i>	3	2	1
SHW3504	Produksi Tenuku/ <i>Dairy Production</i>	3	2	1
SHW3512	Produksi Poltri/ <i>Poultry Production</i>	3	2	1
SHW3513	Produksi Babi/ <i>Swine Production</i>	3	2	1
SHW3406	Prinsip Pemakanan Ternakan/ <i>Principles of Livestock Nutrition</i>	3	2	1
SHW4103	Produksi Ruminan Kecil/ <i>Small Ruminant Production</i>	2	2	0
SHW4105	Sains Daging/ <i>Meat Science</i>	3	2	1
SHW4201	Fisiologi Persekitanan/ <i>Environmental Physiology</i>	3	2	1

iv. Minor Ekonomi & Pengurusan Pertanian/ *Minor in Economic and Agricultural Management*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
EPT3201	Ekonomi Pengeluaran Pertanian/ <i>Agricultural Production Economics</i>	3	3	0
EPT3202	Pengurusan Ladang/ <i>Farm Management</i>	3	3	0
EPT4201	Analisis Keputusan Pertanian/ <i>Agricultural Decision Analysis</i>	3	3	0



PPT4202	Perancangan dan Pengurusan Projek Perniagaantani/ <i>Agribusiness Project Planning and Management</i>	3	3	0
EPT4301	Pemasaran Pertanian/ <i>Agricultural Marketing</i>	3	3	0
EPT4401	Kewangan Pertanian/ <i>Agricultural Finance</i>	3	3	0
EPT4501	Ekonomi dan Dasar Pembangunan Pertanian/ <i>Economics of Agricultural Development and Policy</i>	3	3	0
PPT3401	Perakaunan Perniagaantani/ <i>Agribusiness Accounting</i>	4	3	1
EPT3101	Ekonomi Sumber Asli/ <i>Economic of Natural Resources</i>	3	3	0
EPT4602	Kaedah Penyelidikan dalam Ekonomi Pertanian/ <i>Research Methods in Agricultural Economics</i>	3	2	1

v. Minor Akuakultur/ *Minor in Aquaculture*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AKU3101	Sains Perikanan/ <i>Fisheries Science</i>	3	3	0
AKU3103	Iktiologi/ <i>Ichthyology</i>	3	2	1
AKU3301	Genetik dan Pembiakbakaan Ikan/ <i>Fish Genetics And Breeding</i>	3	2	1
AKU3302	Teknologi Pembenihan Ikan dan Pengurusan Fri/ <i>Fish Seed Technology and Fry Management</i>	3	2	1
AKU3401	Pemakanan Akuakultur/ <i>Aquaculture Nutrition</i>	3	2	1

vi. Minor Pengembangan dan Pendidikan Pertanian/ *Minor in Extension And Agricultural Education*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
DCE3311	Pendidikan Dewasa/ <i>Adult Education</i>	3	3	0
DCE3304	Perencanaan Program Pendidikan Dewasa/ <i>Adult Education Program Development</i>	3	3	0
DCE3406	Kepimpinan dalam Pengembangan dan Pembangunan Masyarakat/ <i>Leadership in Extension and Community Development</i>	3	3	0
DCE3411	Pembangunan Sumber Masyarakat/ <i>Community Development</i>	3	3	0
TKP4201	Pemindahan Teknologi Pertanian/ <i>Transfer of Agricultural Technology</i>	3	2	1
TKP4202	Komunikasi Pertanian/ <i>Agricultural Communication</i>	3	2	1
TKP4203	Perencanaan Program Pengembangan Pertanian/ <i>Programme Planning in Agricultural Extension</i>	3	2	1



4. Elektif/ *Elective* (6 Kredit/ *Credits*)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
	Kursus Elektif Komponen <i>Liberal Arts/</i> Kemanusiaan/ <i>Elective course liberal arts/human</i> <i>component</i>	6	6	0

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

Nota/ Note:

1. Pelajar mesti memilih **27 kredit** daripada kursus tersenarai di mana **15 kredit** adalah menyokong projek ilmiah tahun akhir dan **6 kredit** kursus kemanusiaan untuk melengkapi 33 kredit jumlah kursus elektif dengan persetujuan jabatan/ *Students must choose 27 credits from courses listed in which the 15 credits is to support the final year project and the 6 credits humanities courses to complete 33 credits of elective courses with the consent of the department.*
2. 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*
3. Pelajar perlu melengkapkan pakej keperluan bahasa inggeris seperti jadual di bawah :
(Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat belakang buku panduan ini)
Students need to complete the english package as the table below : (For more details on CEL and LAX please refer to the back/last page of this book).

MUET Band	Graduation Requirements for 4-year programmes
1 & 2	3 BBI + 3 CEL + 24 LAX points
3 & 4	2 BBI + 2 CEL + 36 LAX points
5 & 6	3 CEL + 36 LAX points

SKEMA PENGAJIAN/ STUDY SCHEME

TAHUN 1/ 1st Year

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR3101	Botani Pertanian/ <i>Agricultural Botany</i>	3	2	1
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
ECN3100	Prinsip Ekonomi/ <i>Principles of Economics</i>	3	3	0
PRT3401	Kimia Pertanian/ <i>Agricultural Chemistry</i>	3	2	1
SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
PRT2008	Pertanian dan Manusia/ Pertanian dan Manusia/ <i>Agriculture and Man</i>	2	2	0
	Kokurikulum/ <i>Co-Curriculum</i>	1	0	1
	JUMLAH/ TOTAL	18	14	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR3102	Prinsip Sains Rumpail/ <i>Principles of Weed Science</i>	3	2	1
AGR3301	Fisiologi Tanaman/ <i>Crop Physiology</i>	3	2	1
BBI2424	<i>Academic Writing</i>	3	2	1
PRT3201	Asas Statistik Bagi Sains Pertanian/ <i>Elementary Statistics For Agricultural Science</i>	2	2	0
SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Islamic and Asian Civilization</i>	2	2	0
SST3005	Sains Tanah Asas/ <i>Fundamentals of Soil Science</i>	3	2	1
	Kokurikulum/ <i>Co-Curriculum</i>	1	0	1
	JUMLAH/ TOTAL	17	12	5

TAHUN 2/ 2ND YEARSEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR3002	Amalan ladang: Tanaman Perladangan/ <i>Farm Practices: Plantation Crops</i>	1	0	1
AGR3501	Tanaman Perladangan/ <i>Plantation Crops</i>	2	2	0
KOM3403	Pengucapan Awam/ <i>Public Oration</i>	3	2	1
PLP3104	Entomologi Asas/ <i>Fundamentals Of Entomology</i>	3	2	1
PRT3006	Prinsip Pertanian Lestari/ <i>Principles Of Sustainable Agriculture</i>	2	2	0
PRT3402	Biokimia Pertanian/ <i>Agricultural Biochemistry</i>	3	2	1
SST3603	Pengurusan Kesuburan Tanah/ <i>Soil Fertility Management</i>	3	2	1
	JUMLAH/ TOTAL	17	12	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR3001	Amalan ladang: Tanaman Makanan/ <i>Farm Practice: Food Crops</i>	1	0	1
AGR3204	Pembiakbakaan Tumbuhan/ <i>Plant Breeding</i>	3	2	1
AGR3502	Tanaman Makanan/ <i>Food Crops</i>	2	2	0
AKU3201	Prinsip Akuakultur/ <i>Principles of Aquaculture</i>	3	2	1
PLP3204	Patologi Tumbuhan Asas/ <i>Fundamentals of Plant Pathology</i>	3	2	1
SHW3001	Prinsip Pengeluaran Ternakan/ <i>Principle of Livestock Product</i>	3	3	0
SHW3003	Amalan Ladang : Pengeluaran Ternakan/ <i>Farm Practice: Livestock Production</i>	1	0	1



SKP2204	Hubungan Etnik/ <i>Ethnic Relations</i>	2	2	0
JUMLAH/ TOTAL		18	13	5

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PRT3202	Rekabentuk Dan Analisis Eksperimen/ <i>Experimental Design And Analysis</i>	3	2	1
EPT3102	Ekonomi Pertanian/ <i>Agricultural Economics</i>	3	3	0
TKP3201	Pengembangan Pertanian/ <i>Agricultural Extension</i>	3	2	1
	Elektif/ <i>Electives</i>	9		
JUMLAH/ TOTAL		18		

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PRT4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	3	0	3
TKP3501	Mekanisasi Pertanian/ <i>Agriculture Mechanization</i>	3	2	1
	Elektif/ <i>Electives</i>	12		
JUMLAH/ TOTAL		18		

TAHUN 4/ 4TH YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PRT4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	3	0	3
PPT3701	Keusahawanan Pertanian/ <i>Agricultural Entrepreneurship</i>	3	2	1
	Elektif/ <i>Elective</i>	12		
JUMLAH/ TOTAL		18		

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PRT4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12



STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Sains Hortikultur/ Bachelor of Horticultural Science**
Jumlah Kredit Bergraduat : **136 Jam Kredit/ Credits Hours**
Tempoh Pengajian : **8 Semester/ Semesters (4 Tahun/ Years)**

1. Kursus Universiti/ University Courses (23 Kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2423	Academic Interaction and Presentation	3	2	1
BBI2424	Academic Writing	3	2	1
ECN3100	Prinsip Ekonomi/ Principles of Economics	3	3	0
KOM3403	Pengucapan Awam/ Public Oration	3	3	0
PRT2008	Pertanian dan Manusia/ Pertanian dan Manusia/ Agriculture and Man	2	2	0
SKP2101	Kenegaraan Malaysia/ Malaysian Nationhood	3	3	0
SKP2203	Tamadun Islam dan Tamadun Asia/ Islamic and Asian Civilization	2	2	0
SKP2204	Hubungan Etnik/ Ethnic Relations	2	2	0
	Kokurikulum/ Co-curriculum	2	0	2

2. Kursus Teras/ Core Courses (80 kredit)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR3102	Prinsip Sains Rumpail/ Principles of Weed Science	3	2	1
AGR3204	Pembiakbakaan Tumbuhan/ Plant Breeding	3	2	1
PRT3402	Biokimia Pertanian/ Agricultural Biochemistry	3	2	1
PRT3201	Asas Statistik Bagi Sains Pertanian/ Elementary Statistics for Agricultural Science	2	2	0
PRT3202	Rekabentuk Dan Analisis Eksperimen/ Experimental Design And Analysis	3	2	1
PPT3301	Prinsip Pengurusan Dan Pemasaran Pertanian/ Principles of Agricultural Management and Marketing	3	3	0
HRT3001	Pembiakan Tumbuhan dan Pengurusan Semaian/ Plant Propagation and Nursery Management	3	2	1
HRT3002	Botani dan Fisiologi Tanaman Hortikultur/ Botany and Physiology of Horticultural Crops	4	3	1
HRT3004	Amalan Ladang : Pengeluaran Buah-buahan/ Farm Practice: Fruit Production	1	0	1
HRT3005	Amalan Ladang : Pengeluaran Sayur-sayuran/ Farm Practice: Vegetable Production	1	0	1



HRT3008	Amalan Ladang : Hortikultur Hiasan/ Landskap/ <i>Farm Practice: Ornamental /Landscape Horticulture</i>	1	0	1
HRT3009	Amalan Ladang :Turf/ <i>Farm Practice: Turf</i>	1	0	1
HRT3102	Pengeluaran Sayur- Sayuran/ <i>Vegetable Production</i>	2	2	0
HRT3201	Pomologi/ <i>Pomology</i>	2	2	0
HRT3302	Pengeluaran Tanaman Hiasan Dan Bunga/ <i>Ornamental and Flower Production</i>	2	2	0
HRT3401	Fisiologi Lepas Tuai/ <i>Postharvest Physiology</i>	3	2	1
HRT3501	Pengenalan Rekabentuk Landskap/ <i>Introduction to Landscape Design</i>	3	2	1
HRT3601	Sains Turf/ <i>Turf Science</i>	2	2	0
PLP3104	Entomologi Asas/ <i>Fundamentals of Entomology</i>	3	2	1
PLP3204	Patologi Tumbuhan Asas/ <i>Fundamentals of Plant Pathology</i>	3	2	1
PPT3701	Keusahawanan Pertanian/ <i>Agricultural Entrepreneurship</i>	3	2	1
PRT3006	Prinsip Pertanian Lestari/ <i>Principles of Sustainable Agriculture</i>	2	2	0
PRT4999	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	6	0	6
PRT4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
SST3005	Sains Tanah Asas/ <i>Fundamentals of Soil Science</i>	3	2	1
TKP3201	Pengembangan Pertanian/ <i>Agricultural Extension</i>	3	2	1
TKP3501	Mekanisasi Pertanian/ <i>Agriculture Mechanization</i>	3	2	1

3. Kursus Elektif/ *Elective Courses* (33 kredit)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AGR3502	Tanaman Makanan/ <i>Food Crops</i>	2	2	0
AGR4101	Botani Pertanian Lanjutan/ <i>Advanced Agricultural Botany</i>	3	2	1
AGR4102	Teknologi Biji Benih/ <i>Seed Technology</i>	3	2	1
AGR4203	Genetik Kuantitatif/ <i>Quantitative Genetics</i>	3	2	1
AGR4301	Fisiologi Tanaman Lanjutan/ <i>Advanced Plant Physiology</i>	3	2	1
AGR4401	Pemakanan Tanaman/ <i>Crop Nutrition</i>	3	2	1
AKU3101	Sains Perikanan/ <i>Fisheries Science</i>	3	3	0
EPT3201	Ekonomi Pengeluaran Pertanian/ <i>Agricultural Production Economics</i>	3	3	0
EPT3202	Pengurusan Ladang/ <i>Farm Management</i>	3	3	0
EPT4201	Analisis Keputusan Pertanian/ <i>Agricultural Decision Analysis</i>	3	3	0
EPT4204	Perancangan dan Pengurusan Projek Pertanian/ <i>Agriculture Project Planning and Management</i>	3	3	0
EPT4301	Pemasaran Pertanian/ <i>Agricultural Marketing</i>	3	3	0



EPT4501	Ekonomi dan Dasar Pembangunan Pertanian/ <i>Economics of Agricultural Development and Policy</i>	3	3	0
HRT4101	Kultur Tanpa Tanah/ <i>Soilless Culture</i>	3	2	1
HRT4102	Pertanian Persekitaran Terkawal/ <i>Controlled Environment Agriculture</i>	3	2	1
HRT4201	Pengeluaran Komersil Buah-buahan/ <i>Commercial Fruit Production</i>	3	2	1
HRT4301	Kultur Orkid/ <i>Orchid Culture</i>	3	2	1
HRT4302	Tanaman Hiasan Eksotik/ <i>Exotic Ornamental Plants</i>	3	2	1
HRT4401	Pengawalatur Tumbesaran Tumbuhan/ <i>Plant Growth Regulators</i>	3	2	1
HRT4601	Pengurusan Rumput Turf/ <i>Turfgrass Management</i>	3	2	1
HRT4701	Pembiakan Mikro Tumbuhan / <i>Plant Micropropagation</i>	3	2	1
PLP3002	Pengurusan Perosak Tanaman Hortikultur/ <i>Horticulture Crop Pest Management</i>	3	2	1
PLP4001	Pengawalan Perosak/ <i>Pest Control</i>	3	2	1
PLP4002	Teknik Penggunaan Racun Perosak/ <i>Pesticide Application Technique</i>	3	2	1
PLP4003	Kawalan Biologi Perosak Tanaman/ <i>Biological Control Of Crop Pests</i>	3	2	1
PLP4101	Entomologi/ <i>Entomology</i>	3	2	1
PLP4201	Patologi Tumbuhan/ <i>Plant Pathology</i>	3	2	1
PLP4601	Sains Racun Perosak/ <i>Pesticide Science</i>	3	2	1
PPT3401	Perakaunan Perniagaantani/ <i>Agribusiness Accounting</i>	4	3	1
PRT3501	Mikrobiologi Pertanian/ <i>Agricultural Microbiology</i>	3	2	1
PRT4002	Pertanian Presisi/ <i>Precision Agriculture</i>	3	2	1
PRT4041	Sistem Pengeluaran Organik/ <i>Organic Production Systems</i>	3	2	1
SHW3001	Prinsip Pengeluaran Ternakan/ <i>Principle of Livestock Product</i>	3	3	0
SST3602	Pengurusan Tanah Lestari/ <i>Sustainable Soil Management</i>	3	2	1
SST3603	Pengurusan Kesuburan Tanah/ <i>Soil Fertility Management</i>	3	2	1
SST3802	Pengurusan Sisa Pertanian/ <i>Agricultural Waste Management</i>	3	2	1
SST4201	Pembentukan dan Pengelasan Tanah/ <i>Soil Formation And Classification</i>	3	2	1
SST4302	Fizik Tanah/ <i>Soil Physics</i>	3	2	1
SST4303	Pemuliharaan Tanah/ <i>Soil Conservation</i>	3	2	1
SST4304	Perubahan Iklim Dan Pertanian/ <i>Climate Change And Agriculture</i>	3	2	1
SST4601	Kesuburan Tanah II/ <i>Soil Fertility II</i>	3	2	1
SST4701	Mineralogi Tanah/ <i>Soil Mineralogy</i>	3	2	1





SST4801	Sains Tanah Persekitaran/ <i>Environmental Soil Science</i>	3	2	1
TKP3104	Bioteknologi Pertanian/ <i>Agricultural Biotechnology</i>	3	2	1
TKP3301	Taman Pertanian Rekreasi / <i>Agriculture Recreational Park</i>	3	2	1
TKP3401	Teknologi Maklumat Dan Komunikasi Untuk Pertanian/ <i>Information and Communication Technology for Agriculture</i>	3	2	1
TKP4201	Pemindahan Teknologi Pertanian/ <i>Transfer of Agricultural Technology</i>	3	2	1
TKP4202	Komunikasi Pertanian/ <i>Agricultural Communication</i>	3	2	1
TKP4203	Perencanaan Program Pengembangan Pertanian/ <i>Programme Planning in Agricultural Extension</i>	3	2	1

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

Nota/ Note:

1. Pelajar mesti memilih minimum dua belas **(12) kredit kursus** berkod HRT, lima belas **(15) kredit** daripada kursus yang disenaraikan dan **6 kredit** adalah kursus kemanusiaan untuk melengkapkan keperluan **33 kredit** kursus elektif dengan persetujuan jabatan. *Students must select a minimum of twelve (12) HRT-coded course credits, fifteen (15) credits from the courses listed and 6 credits humanities courses to complete 33 credits elective course requirements with the consent of the department.*
2. 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*
3. Pelajar perlu melengkapkan pakej keperluan bahasa inggeris seperti jadual di bawah :
(Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat belakang buku panduan ini)
Students need to complete the english package as the table below : (For more details on CEL and LAX please refer to the back/last page of this book).

MUET Band	Graduation Requirements for 4-year programmes
1 & 2	3 BBI + 3 CEL + 24 LAX points
3 & 4	2 BBI + 2 CEL + 36 LAX points
5 & 6	3 CEL + 36 LAX points





SKEMA PENGAJIAN/ STUDY SCHEME

TAHUN 1/ 1ST YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
ECN3100	<i>Prinsip Ekonomi/ Principles of Economics</i>	3	3	0
HRT3001	<i>Pembiakan Tumbuhan dan Pengurusan Semaian/ Plant Propagation and Nursery Management</i>	3	2	1
PRT2008	<i>Pertanian dan Manusia/ Agriculture and Man</i>	2	2	0
PRT3402	<i>Biokimia Pertanian/ Agricultural Biochemistry</i>	3	2	1
SKP2101	<i>Kenegaraan Malaysia/ Malaysian Nationhood</i>	3	3	0
	<i>Kokurikulum/ Co-Curriculum</i>	1	0	1
JUMLAH/ TOTAL		18	14	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2424	<i>Academic Writing</i>	3	2	1
SKP2204	<i>Hubungan Etnik/ Ethnic Relations</i>	2	2	0
AGR3102	<i>Prinsip Sains Rumpai/ Principles of Weed Science</i>	3	2	1
SKP2203	<i>Tamadun Islam dan Tamadun Asia/ Islamic and Asian Civilization</i>	2	2	0
SST3005	<i>Sains Tanah Asas/ Fundamentals of Soil Science</i>	3	2	1
HRT3002	<i>Botani dan Fisiologi Tanaman Hortikultur/ Botany and Physiology of Horticultural Crops</i>	4	3	1
	<i>Kokurikulum/ Co-Curriculum</i>	1	0	1
JUMLAH/ TOTAL		18	14	4

TAHUN 2/ 2ND YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
KOM3403	<i>Pengucapan Awam/ Public Oration</i>	3	3	0
AGR3204	<i>Pembiakbakaan Tumbuhan/ Plant Breeding</i>	3	2	1
HRT3102	<i>Pengeluaran Sayur- Sayuran/ Vegetable Production</i>	2	2	0
HRT3202	<i>Pomologi/ Pomology</i>	2	2	0
HRT3005	<i>Amalan Ladang : Pengeluaran Sayur-sayuran/ Farm Practice: Vegetable Production</i>	1	0	1





HRT3004	Amalan Ladang : Pengeluaran Buah-buahan/ <i>Farm Practice: Fruit Production</i>	1	0	1
PLP3104	Entomologi Asas/ <i>Fundamentals of Entomology</i>	3	2	1
PRT3201	Asas Statistik Bagi Sains Pertanian/ <i>Elementary Statistics for Agricultural Science</i>	2	2	0
JUMLAH/ TOTAL		17	12	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
HRT3008	Amalan Ladang : Hortikultur Hiasan/ Landskap/ <i>Farm Practice: Ornamental/ Landscape Horticulture</i>	1	0	1
HRT3009	Amalan Ladang :Turf/ <i>Farm Practice: Turf</i>	1	0	1
HRT3302	Pengeluaran Tanaman Hiasan Dan Bunga/ <i>Ornamental and Flower Production</i>	2	2	0
HRT3601	Sains Turf/ <i>Turf Science</i>	2	2	0
PLP3204	Patologi Tumbuhan Asas/ <i>Fundamentals of Plant Pathology</i>	3	2	1
PPT3301	Prinsip Pengurusan Dan Pemasaran Pertanian/ <i>Principles of Agricultural Management and Marketing</i>	3	2	1
HRT3401	Fisiologi Lepas Tuai/ <i>Postharvest Physiology</i>	3	2	1
	Elektif/ <i>Electives</i>	3		
JUMLAH/ TOTAL		18	13	5

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
TKP3501	Mekanisasi Pertanian/ <i>Agriculture Mechanization</i>	3	2	1
TKP3201	Pengembangan Pertanian/ <i>Agricultural Extension</i>	3	2	1
PRT3006	Prinsip Pertanian Lestari/ <i>Principles of Sustainable Agriculture</i>	2	2	0
	Elektif/ <i>Electives</i>	9		
JUMLAH/ TOTAL		17		

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
HRT3501	Pengenalan Rekabentuk Landskap/ <i>Introduction to Landscape Design</i>	3	2	1
PPT3701	Keusahawanan Pertanian/ <i>Agricultural Entrepreneurship</i>	3	2	1





PRT3202	Rekabentuk Dan Analisis Eksperimen/ <i>Experimental Design And Analysis</i>	3	2	1
PRT4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	3	0	3
	Elektif/ <i>Electives</i>	6		
	JUMLAH/ TOTAL	18		

TAHUN 4/ 4TH YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PRT4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	3	0	3
	Elektif/ <i>Electives</i>	15		
	JUMLAH/ TOTAL	18		

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PRT4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
	JUMLAH/ TOTAL	12	0	12

STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Sains (Perniagaantani)/ Bachelor of Science (Agribusiness)**
Jumlah Kredit Bergraduat : **132 kredit/ Credit Hours**
Tempoh Pengajian : **8 Semester/ Semester (4 Tahun/ Years)**

1. Kursus Universiti/ University courses (23 kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
BBI2424	<i>Academic Writing</i>	3	2	1
MTH3004	Pengenalan kepada Matematik Ekonomi dan Perniagaan/ <i>Introduction to Economics And Business Mathematics</i>	4	3	1
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0
PRT2008	Pertanian dan Manusia/ Pertanian dan Manusia/ <i>Agriculture and Man</i>	2	2	0
SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Islamic and Asian Civilization</i>	2	2	0
SKP2204	Hubungan Etnik/ <i>Ethnic Relations</i>	2	2	0
	Kokurikulum/ <i>Co-curriculum</i>	2	0	2

2. Kursus Teras/ Core Courses (76 kredit/ credit)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
ACT2112	Perakaunan Pengenalan/ <i>Introductory Accounting</i>	4	3	1
ACT2131	Perakaunan Kos dan Pengurusan/ <i>Cost And Management Accounting</i>	3	3	0
PPT4402	Pengurusan Kewangan Perniagaantani/ <i>Agribusiness Financial Management</i>	3	3	0
AGR3001	Amalan ladang: Tanaman Makanan/ <i>Farm Practice: Food Crops</i>	1	0	1
PRT3401	Kimia Pertanian/ <i>Agricultural Chemistry</i>	3	2	1
ECN3100	Prinsip Ekonomi/ <i>Principles of Economics</i>	3	3	0
PPT3201	Prinsip Pengurusan Perniagaantani/ <i>Principles of Agribusiness Management</i>	3	3	0
PPT3302	Prinsip Pemasaran Perniagaantani/ <i>Principle of Agribusiness Marketing</i>	3	3	0
PPT3801	Statistik dalam Perniagaantani/ <i>Statistics In Agribusiness</i>	3	2	1
PPT4602	Kaedah Penyelidikan Perniagaantani/ <i>Agribusiness Research Methods</i>	3	2	1



PPT4202	Perancangan dan Pengurusan Projek Perniagaantani/ <i>Agribusiness Project Planning and Management</i>	3	3	0
PPT4701	Keusahawanan Perniagaantani/ <i>Agribusiness Entrepreneurship</i>	3	2	1
PRT2001	Pertanian Asas/ <i>Basic Agriculture</i>	3	2	1
MGM3351	Undang-undang Komersial/ <i>Commercial Laws</i>	3	3	0
PPT3001	Pengenalan kepada Sistem Perniagaantani Malaysia/ <i>Introduction to Malaysia Agribusiness System</i>	3	3	0
PRT3003	Pertanian, Persekitaran dan Sistem Makanan/ <i>Agriculture, Environment And Food System</i>	3	3	0
PRT3004	Sistem Pengeluaran Ternakan dan Akuakultur/ <i>Livestock And Aquaculture Production Systems</i>	3	3	0
PRT3005	Sistem Pengeluaran Tanaman/ <i>Crop Production System</i>	3	3	0
SHW3003	Amalan Ladang: Pengeluaran Ternakan/ <i>Farm Practice : Livestock Production</i>	1	0	1
TKP3002	Amalan Ladang: Akuakultur/ <i>Farm Practices : Aquaculture</i>	1	0	1
FST3003	Pengenalan Kepada Sains Makanan/ <i>Introduction to Food Science</i>	3	3	0
PPT4997 &	Kajian Kes I/ <i>Case Study I</i>	3	0	3
PPT4998	Kajian Kes II/ <i>Case Study II</i>	3	0	3
atau				
PPT4999 A & PPT4999 B	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	6	0	6

i. Kursus Teras Latihan/ *Training Core Courses*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PPT4901	Latihan Industri Perniagaantani/ <i>Agribusiness Industrial Training</i>	12	0	12

3. Kursus Elektif/ *Elective Courses* (33 kredit/credits)

i. Kursus Elektif Jabatan/ *Department Elective Course* (Pilih/ *Choose* 27 kredit/ *credit*)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
EPT3202	Pengurusan Ladang/ <i>Farm Management</i>	3	3	0
EPT4303	Perdagangan Serahan Hadapan dan Opsyen/ <i>Futures and Options Trading</i>	3	3	0
PPT4203	Pengurusan Strategik Perniagaantani/ <i>Agribusiness Strategic Management</i>	3	3	0





PPT4302	Pemasaran Perniagaantani Antarabangsa/ <i>International Agribusiness Marketing</i>	3	3	0
EPT4201	Analisis Keputusan Pertanian/ <i>Agricultural Decision Analysis</i>	3	3	0
PPT4206	Pengurusan Koperasi Pertanian/ <i>Management of Agricultural Cooperative</i>	3	3	0
PPT4209	Sistem Pengurusan Perladangan/ <i>Plantation Management Systems</i>	3	3	0
PPT4301	Pemasaran Perniagaantani/ <i>Agribusiness Marketing</i>	3	3	0
PPT4303	E-Perniagaantani/ <i>E-Agribusiness</i>	3	2	1
PPT4501	Polisi dan Peraturan Perniagaantani/ <i>Agribusiness Policy and Regulations</i>	3	3	0
PPT4503	Isu-isu Semasa Perniagaantani/ <i>Current Issues In Agribusiness</i>	3	3	0
PPT4801	Teknik Kuantitatif Perniagaantani/ <i>Quantitative Techniques In Agribusiness</i>	3	2	1

- ii. Kursus Elektif dari luar Jabatan/ Elective Courses from outside Department (Pilih/
Choose 6 kredit/credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2416	<i>Business English</i>	3	3	0
DCE3406	Kepimpinan dalam Pengembangan dan Pembangunan Masyarakat/ <i>Leadership in Extension & Community Development</i>	3	3	0
TKP4203	Perencanaan Program Pengembangan Pertanian/ <i>Programme Planning in Agricultural Extension</i>	3	2	1

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

Nota /Notes :

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 belakang buku panduan ini)
Students need to complete the english package as the table below : For more details on CEL and LAX please refer to the back/last page of this book.

MUET Band	Graduation Requirements for 4-year programmes
1 & 2	3 BBI + 3 CEL + 24 LAX points
3 & 4	2 BBI + 2 CEL + 36 LAX points
5 & 6	3 CEL + 36 LAX points





SKEMA PENGAJIAN/ STUDY SCHEME

TAHUN 1/ 1ST YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
AGR3001	Amalan ladang: Tanaman Makanan/ <i>Farm Practice: Food Crops</i>	1	0	1
FST3003	Pengenalan kepada Sains Makanan/ <i>Introduction to Food Science</i>	3	3	0
PRT2001	Pertanian Asas/ <i>Basic Agriculture</i>	3	2	1
MTH3004	Pengenalan kepada Matematik Ekonomi dan Perniagaan/ <i>Introduction to Economics and Business Mathematics</i>	4	3	1
PRT2008	Pertanian dan Manusia/ <i>Agriculture and Man</i>	2	2	0
SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Islamic and Asian Civilization</i>	2	2	0
	Kokurikulum/ <i>Co-Curriculum</i>	1	0	1
	JUMLAH/ TOTAL	19	14	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
ACT2112	Perakaunan Pengenalan/ <i>Introductory Accounting</i>	4	3	1
BBI2424	<i>Academic Writing</i>	3	2	1
PPT3001	Pengenalan kepada Sistem Perniagaantani Malaysia/ <i>Introduction to Malaysia Agribusiness System</i>	3	3	0
PRT3003	Pertanian, Persekitaran dan Sistem Makanan/ <i>Agriculture, Environment And Food System</i>	3	3	0
PRT3401	Kimia Pertanian/ <i>Agricultural Chemistry</i>	3	2	1
SKP2204	Hubungan Etnik/ <i>Ethnic Relations</i>	2	2	0
	Ko-Kurikulum/ <i>Co-Curriculum</i>	1	0	1
	JUMLAH/ TOTAL	19	15	4

TAHUN 2/ 2ND YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
ACT2131	Perakaunan Kos dan Pengurusan/ <i>Cost And Management Accounting</i>	3	3	0
ECN3100	Prinsip Ekonomi/ <i>Principles of Economics</i>	3	3	0





PPT3201	Prinsip Pengurusan Perniagaantani/ <i>Principles of Agribusiness Management</i>	3	3	0
PPT3302	Prinsip Pemasaran Perniagaantani/ <i>Principle of Agribusiness Marketing</i>	3	3	0
PPT3801	Statistik dalam Perniagaantani/ <i>Statistics in Agribusiness</i>	3	2	1
PRT3004	Sistem Pengeluaran Ternakan dan Akuakultur/ <i>Livestock and Aquaculture Production Systems</i>	3	3	0
JUMLAH/ TOTAL		18	17	1

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0
MGM3351	Undang-undang Komersial/ <i>Commercial Laws</i>	3	3	0
PPT4402	Pengurusan Kewangan Perniagaantani/ <i>Agribusiness Financial Management</i>	3	3	0
PRT3005	Sistem Pengeluaran Tanaman/ <i>Crop Production System</i>	3	3	0
SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
TKP3002	Amalan Ladang: Akuakultur/ <i>Farm Practice : Aquaculture</i>	1	0	1
	Elektif/ <i>Elective</i>	3	3	0
JUMLAH/ TOTAL		18	17	1

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PPT4202	Perancangan Dan Pengurusan Projek Perniagaantani/ <i>Agribusiness Project Planning And Management</i>	3	3	0
PPT4602	Kaedah Penyelidikan Perniagaantani/ <i>Agribusiness Research Methods</i>	3	2	1
SHW3003	Amalan Ladang : Pengeluaran Ternakan/ <i>Farm Practice: Livestock Production</i>	1	0	1
	Elektif/ <i>Elective</i>	3	3	0
	Elektif/ <i>Elective</i>	3	3	0
	Elektif/ <i>Elective</i>	3	3	0
JUMLAH/ TOTAL		16	14	2



SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PPT4901	Latihan Industri Perniagaantani/ <i>Agribusiness Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12

TAHUN 4/ 4TH YEARSEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
	Elektif/ <i>Elective</i>	3	3	0
	Elektif/ <i>Elective</i>	3	3	0
	Elektif/ <i>Elective</i>	3	3	0
PPT4701	Keusahawanan Perniagaantani/ <i>Agribusiness Entrepreneurship</i>	3	1	2
PPT4997	Kajian Kes I/ <i>Case Study I</i>	3	0	3
atau				
PPT4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	3	0	3
JUMLAH/ TOTAL		15	10	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
	Elektif/ <i>Elective</i>	3	3	0
	Elektif/ <i>Elective</i>	3	3	0
	Elektif/ <i>Elective</i>	3	3	0
	Elektif/ <i>Elective</i>	3	3	0
PPT4998	Kajian Kes I/ <i>Case Study I</i>	3	0	3
atau				
PPT4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Academic Project</i>	3	0	3
JUMLAH/ TOTAL		15	12	3





STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Pertanian (Akuakultur)/ Bachelor Of Agriculture (Aquaculture)**
Jumlah Kredit Bergraduat : **127 Jam Kredit/ Credit Hours**
Tempoh Pengajian : **8 Semester/ semesters (4 Tahun/ Years)**

1. Kursus Universiti/ University Courses (22 kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
KOM3403	Pengucapan Awam/ <i>Public Oration</i>	3	3	0
SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Islamic Civilization and Asian Civilization</i>	2	2	0
SKP2204	Hubungan Etnik/ <i>Ethnic Relations</i>	2	2	0
PRT2008	Pertanian dan Manusia/ <i>Agriculture and Man</i>	2	2	0
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
BBI2424	<i>Academic Writing</i>	3	2	1
QKS2112	Renang Asas/ <i>Basic Swimming</i>	1	0	1
QKSXXXX	Kokurikulum Berkredit	1	0	1

Pelajar diwajibkan mengambil satu kredit kursus Renang Asas (QKS2112) bagi memastikan pelajar mempunyai kemahiran renang dan keselamatan air sebagai nilai tambah / *Students are required to take one credit course Basic Swimming (QKS2112) to ensure that students have basic swimming skills and water safety as a value-added*

2. Kursus Teras/ Core Courses (72 kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
EPT3100	Prinsip Ekonomi Pertanian/ <i>Principles of Agricultural Economics</i>	3	3	0
PPT3301	Prinsip Pengurusan dan Pemasaran Pertanian/ <i>Principles of Agricultural Management and Marketing</i>	3	3	0
PRT3007	Sistem Pengeluaran Pertanian/ <i>Agriculture Production System</i>	3	3	0
AKU3105	Biologi Invertebrat Akuatik/ <i>Aquatic Invertebrate Biology</i>	3	2	1
AKU3104	Fisiologi Ikan/ <i>Fish Physiology</i>	3	2	1
AKU3106	Botani Akuatik/ <i>Aquatic Botany</i>	3	2	1
AKU3602	Ekologi Akuatik/ <i>Aquatic Ecology</i>	3	2	1
AKU3103	Ikhtologi/ <i>Ichthyology</i>	3	2	1
AKU3201	Prinsip Akuakultur/ <i>Principles of Aquaculture</i>	3	2	1





AKU3301	Genetik dan Pembiakbakaan Ikan/ <i>Fish Genetics and Breeding</i>	3	2	1
AKU3302	Teknologi Pembenihan Ikan dan Pengurusan Fri/ <i>Fish Seed Technology and Fry Management</i>	3	2	1
AKU3401	Pemakanan Akuakultur/ <i>Aquaculture Nutrition</i>	3	2	1
AKU3501	Pengurusan Kesihatan Ikan/ <i>Fish Health Management</i>	3	2	1
AKU3601	Kualiti Air dan Tanah dalam Akuakultur/ <i>Water and Soil Quality in Aquaculture</i>	3	2	1
AKU4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
AKU4999	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	6	0	6
PPT3701	Keusahawanan Pertanian/ <i>Agricultural Entrepreneurship</i>	3	2	1
PRT3402	Biokimia Pertanian/ <i>Agricultural Biochemistry</i>	3	2	1
SHW3602	Statistik Sains Haiwan/ <i>Statistics for Animal Science</i>	3	2	1
SHW4600	Methodologi Penyelidikan/ <i>Research Methodology</i>	3	2	1

3. Kursus Elektif/ *Elective Courses* (33 Kredit/credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
ACT2111	Pengantar Perancangan dan Penggunaan Maklumat Perakaunan/ <i>Introduction to Planning and Use of Financial Information</i>	3	3	0
AKU4102	Limnologi/ <i>Limnology</i>	3	2	1
AKU4201	Sistem Akuakultur/ <i>Aquaculture Systems</i>	3	2	1
AKU4202	Kultur Ikan dan Tumbuhan Akuatik Hiasan/ <i>Culture of Ornamental Fish and Aquatic Plants</i>	3	2	1
AKU4221	Kultur Krustasea/ <i>Crustacean Culture</i>	3	2	1
AKU4401	Teknologi Makanan Akuakultur/ <i>Aquafeed Technology</i>	3	1	2
AKU4402	Pengeluaran Makanan Hidup dalam Akuakultur/ <i>Live Food Production in Aquaculture</i>	3	2	1
AKU4601	Ekologi dan Pengurusan Tanah Basah/ <i>Ecology and Management of Wetlands</i>	3	2	1
AKU4701	Teknologi Maklumat dan Komunikasi dalam Akuakultur/ <i>Information and Communications Technology in Aquaculture</i>	3	1	2
AKU4801	Perikanan Rekreasi dalam Ekopelancongan Perairan Darat/ <i>Recreational Fisheries in Inland Waters Ecotourism</i>	3	2	1
AKU4101	Penilaian Dan Pengurusan Sumber Perikanan/ <i>Fisheries Resource Assessment and Management</i>	3	2	1
AKU4231	Kultur Molusk/ <i>Mollusc Culture</i>	3	2	1
AKU4802	Biologi Molekul Dalam Akuakultur/ <i>Molecular Biology in Aquaculture</i>	3	2	1





AKU4501	Mikrobiologi Akuatik/ <i>Aquatic Microbiology</i>	3	2	1
AKU4502	Imunologi Ikan/ <i>Fish Immunology</i>	3	2	1
AKU4242	Kultur Flora Akuatik/ <i>Culture of Aquatic Flora</i>	3	2	1
TKP3201	Pengembangan Pertanian/ <i>Agricultural Extension</i>	3	2	1
TKP 3501	Mekanisasi Pertanian/ <i>Agriculture Mechanisation</i>	3	2	1
TKP 4802	Kejuruteraan Akuakultur/ <i>Aquaculture Engineering</i>	3	2	1
BBx24xx	Bahasa Asing/ <i>Foreign Language</i>	3	3	0
BBx24xx	Bahasa Asing/ <i>Foreign Language</i>	3	3	0
KOC3301	Pengenalan Komunikasi Korporat/ <i>Introduction to Corporate Communication</i>	3	3	0

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

Nota/Notes :

1. Pelajar mestilah memilih **33 kredit** daripada kursus elektif termasuk **6 kredit** kursus luar Fakulti (sains sosial dan kemasyarakatan) dengan persetujuan Ketua Jabatan. Pembentukan kursus baharu Jabatan akan digubal dari semasa ke semasa mengikut keperluan terkini dan pelajar yang sedang mengikuti program ini boleh mengambil kursus tersebut sebagai kursus elektif bagi memenuhi keperluan bergraduat dengan persetujuan Ketua Jabatan
2. 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*
3. Pelajar perlu melengkapkan pakej keperluan bahasa inggeris seperti jadual di bawah :
(Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat belakang buku panduan ini)
Students need to complete the english package as the table below : For more details on CEL and LAX please refer to the back/last page of this book.

MUET Band	Graduation Requirements for 4-year programmes
1 & 2	3 BBI + 3 CEL + 24 LAX points
3 & 4	2 BBI + 2 CEL + 36 LAX points
5 & 6	3 CEL + 36 LAX points

SKEMA PENGAJIAN/ STUDY SCHEME

TAHUN 1/ 1ST YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AKU4103	Ikhtologi/ <i>Ichthyology</i>	3	2	1
BBI 2423	<i>Academic Interaction and Presentation</i>	3	2	1
PRT 2008	Pertanian dan Manusia/ <i>Agriculture and Man</i>	2	2	0
AKU3602	Ekologi Akuatik/ <i>Aquatic Ecology</i>	3	2	1





SKP 2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
SKP 2203	Tamadun Islam dan Tamadun Asia/ <i>Islamic Civilization and Asian Civilization</i>	2	2	0
QKS2112	Renang Asas/ <i>Basic Swimming</i>	1	0	1
JUMLAH/ TOTAL		17	13	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AKU3105	Biologi Invertebrat Akuatik/ <i>Agriculture Production System</i>	3	2	1
AKU3106	Botani Akuatik/ <i>Aquatic Botany</i>	3	2	1
PRT3007	Sistem Pengeluaran Pertanian/ <i>Agriculture Production System</i>	3	3	0
BBI 2424	<i>Academic Writing</i>	3	2	1
PRT 3402	Biokimia Pertanian/ <i>Agricultural Biochemistry</i>	3	2	1
SKP 2204	Hubungan Etnik/ <i>Ethnic Relations</i>	2	2	0
	Ko-Kurikulum/ <i>Co-Curriculum</i>	1	0	1
JUMLAH/ TOTAL		18	13	5

TAHUN 2/ 2ND YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
KOM3403	Pengucapan Awam/ <i>Public Oration</i>	3	3	0
AKU3201	Prinsip Akuakultur/ <i>Principles of Aquaculture</i>	3	2	1
AKU3104	Fisiologi Ikan/ <i>Fish Physiology</i>	3	2	1
AKU3601	Kualiti Air dan Tanah dalam Akuakultur/ <i>Water and Soil Quality in Aquaculture</i>	3	2	1
EPT3100	Prinsip Ekonomi Pertanian/ <i>Principles of Agricultural Economics</i>	3	3	0
SHW3602	Statistik Sains Haiwan/ <i>Statistics for Animal Science</i>	3	2	1
JUMLAH/ TOTAL		18	14	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AKU 3501	Pengurusan Kesihatan Ikan/ <i>Fish Health Management</i>	3	2	1
AKU 3301	Genetik dan Pembiakbakaan Ikan/ <i>Fish Genetics and Breeding</i>	3	2	1
AKU 3302	Teknologi Pembenihan Ikan dan Pengurusan Fri/ <i>Fish Seed Technology and Fry Management</i>	3	2	1
AKU 3401	Pemakanan Akuakultur/ <i>Aquaculture Nutrition</i>	3	2	1



PPT 3301	Prinsip Pengurusan dan Pemasaran Pertanian/ <i>Principles of Agricultural Management and Marketing</i>	3	3	0
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0
JUMLAH/ TOTAL		17	13	4

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PPT3701	Keusahawanan Pertanian/ <i>Agricultural Entrepreneurship</i>	3	2	1
SHW4600	Methodologi Penyelidikan/ <i>Research Methodology</i>	3	2	1
	Elektif/ <i>Electives</i>	9	6	3
JUMLAH/ TOTAL		15	10	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AKU4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
	Elektif/ <i>Electives</i>	12	8	4
JUMLAH/ TOTAL		15	8	7

TAHUN 4/ 4TH YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AKU4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
	Elektif/ <i>Electives</i>	12	8	4
JUMLAH/ TOTAL		15	8	7

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
AKU 4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12



STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Pertanian (Sains Ternakan)/ Bachelor of Agricultural (Animal Science)**
Jumlah Kredit Bergraduat : **133 Jam Kredit/ Credits Hours**
Tempoh Pengajian : **8 Semester/ Semesters (4 Tahun/ Years)**

1. Kursus Universiti/ University Courses (22 kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
BBI2424	<i>Academic Writing</i>	3	2	1
PRT2008	<i>Pertanian dan Manusia/ Agriculture and Man</i>	2	2	0
SKP2101	<i>Kenegaraan Malaysia/ Malaysian Nationhood</i>	3	3	0
SKP2203	<i>Tamadun Islam dan Tamadun Asia/ Islamic Civilization and Asian Civilization</i>	2	2	0
SKP2204	<i>Hubungan Etnik/ Ethnic Relations</i>	2	2	0
KOM3403	<i>Pengucapan Awam/ Public Oration</i>	3	3	0
FCE3204	<i>Kemahiran Berfikir/ Thinking Skills</i>	2	2	0
	<i>Kokutikulum/ Co-curriculum</i>	2	0	2

Pelajar yang mendapat MUET band 1 atau 2 perlu mengambil kursus BBI2422 Reading for Academic Purposes sebagai pra-syarat untuk mengambil kursus BBI2423 pada semester pertama. Pelajar yang mendapat MUET band 5 atau 6 adalah dikecualikan mengambil kursus BBI2423 dan BBI2424.

1. Kursus Teras/ Core Courses (78 kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
EPT3100	<i>Prinsip Ekonomi Pertanian/ Principles of Agricultural Economics</i>	3	3	0
PRT3007	<i>Sistem Pengeluaran Pertanian/ Agriculture Production System</i>	3	3	0
PPT3301	<i>Prinsip Pengurusan dan Pemasaran Pertanian/ Principles of Agricultural Management and Marketing</i>	3	3	0
PPT3701	<i>Keusahawanan Pertanian/ Agricultural Entrepreneurship</i>	3	2	1
PRT3402	<i>Biokimia Pertanian/ Agricultural Biochemistry</i>	3	2	1
SHW3103	<i>Kelakuan dan Kebajikan Haiwan/ Animal Behaviour and Welfare</i>	3	3	0
SHW3104	<i>Pengurusan Kesihatan Haiwan/ Animal Health Management</i>	3	2	1
SHW3200	<i>Anatomi dan Fisiologi Haiwan Domestik I/ Anatomy and Physiology of Domestic Animals I</i>	3	2	1



SHW3201	Anatomi dan Fisiologi Haiwan Domestik II/ <i>Anatomy and Physiology of Domestic Animals II</i>	3	2	1
SHW3203	Reproduksi Haiwan/ <i>Animal Reproduction</i>	3	2	1
SHW3303	Genetik Haiwan/ <i>Animal Genetics</i>	3	2	1
SHW3304	Pembiakbakaan Ternakan/ <i>Livestock Breeding</i>	3	2	1
SHW3403	Pemakanan Haiwan Asas/ <i>Basic Animal Nutrition</i>	3	2	1
SHW3405	Sains Pastura/ <i>Pasture Science</i>	3	2	1
SHW3501	Sains Haiwan Pedaging/ <i>Meat Animal Science</i>	3	2	1
SHW3502	Sains Tenusu/ <i>Dairy Science</i>	3	2	1
SHW3510	Sains Poltri/ <i>Poultry Science</i>	3	2	1
SHW3511	Sains Babi/ <i>Swine Science</i>	3	3	0
SHW3602	Statistik Sains Haiwan/ <i>Statistics for Animal Science</i>	3	2	1
SHW3700	Pengurusan Sisa Ternakan/ <i>Livestock Waste Management</i>	3	2	1
SHW 4999	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	6	0	6
PRT4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12

2. Kursus Elektif/ *Elective Courses* (33 kredit/ *credits*)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
SHW4100	Hidupan Liar dan Haiwan Rekreasi/ <i>Wildlife and Recreational Animals</i>	3	2	1
SHW4105	Sains Daging/ <i>Meat Science</i>	3	2	1
SHW4201	Fisiologi Persekitaran/ <i>Environmental Physiology</i>	3	3	0
SHW4300	Genetik dan Pembiakbakaan Ternakan Gunaan/ <i>Applied Livestock Genetics and Breeding</i>	3	2	1
SHW4301	Sitogenetik Haiwan/ <i>Animal Cytogenetics</i>	3	2	1
SHW4401	Teknologi Pemprosesan Makanan Haiwan/ <i>Feed Processing Technology</i>	3	3	0
SHW4402	Bioteknologi dalam Makanan Haiwan/ <i>Biotechnology in Animal Feed</i>	3	3	0
SHW4403	Makanan dan Pemberian Makanan/ <i>Feeds and Feeding</i>	3	3	0
SHW4404	Pemakanan Haiwan Gunaan/ <i>Applied Animal Nutrition</i>	3	2	1
SHW4500	Rekabentuk dan Infrastruktur Ladang Ternakan/ <i>Livestock Farm Design and Infrastructure</i>	3	2	1
SHW4501	Produksi Ruminan Kecil/ <i>Small Ruminant Production</i>	3	2	1
SHW4502	Produksi Tenusu/ <i>Dairy Production</i>	3	2	1
SHW4511	Sains Babi Lanjutan/ <i>Advanced Swine Science</i>	3	2	1
SHW4512	Produksi Ayam Penelur/ <i>Layer Production</i>	3	2	1
SHW4513	Produksi Ayam Pedaging/ <i>Broiler Production</i>	3	2	1
SHW4540	Pengurusan Ekuin/ <i>Equine Management</i>	3	2	1
SHW4600	Metodologi Penyelidikan/ <i>Research Methodology</i>	3	2	1



SHW4703	Teknologi Pemprosesan Daging/ <i>Meat Processing Technology</i>	3	2	1
SHW4801	Perancangan Dan Penilaian Sumber/ <i>Resource Planning and Evaluation</i>	3	2	1
KOC3301	Pengenalan Komunikasi Korporat/ <i>Introduction to Corporate Communication</i>	3	3	0
RSB4630	Metodologi Inovasi/ <i>Innovation Methodology</i>	3	1	2
BBI2414	Interactive Speaking/ <i>Lisan Interaktif</i>	3	3	0
BBI2415	Report Writing/ <i>Penulisan Laporan</i>	3	3	0
BBI2417	Public Speaking/ <i>Pengucapan Awam</i>	3	2	1
BBx2xxx	Bahasa Asing I/ <i>Foreign Language I</i>	3	3	0
BBx2xxx	Bahasa Asing II/ <i>Foreign Language II</i>	3	3	0

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

Nota/ Note :

1. Pelajar mesti memilih **26 kredit kursus elektif** kursus jabatan yang tersenarai dan **6 kredit** dipilih daripada kursus luar Fakulti (sains sosial dan sains kemasyarakatan) dengan persetujuan Ketua Jabatan. Pembentukan kursus baharu Jabatan akan digubal dari semasa ke semasa mengikut keperluan terkini dan pelajar yang sedang mengikuti program ini boleh mengambil kursus tersebut sebagai kursus elektif bagi memenuhi keperluan bergraduasi dengan persetujuan Ketua Jabatan.
2. 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*
3. Pelajar perlu melengkapkan pakej keperluan bahasa inggeris seperti jadual di bawah :
(Butiran lanjut mengenai CEL dan LAX sila rujuk di muka surat belakang buku panduan ini)
Students need to complete the english package as the table below : (For more details on CEL and LAX please refer to the back/last page of this book).

MUET Band	Graduation Requirements for 4-year programmes
1 & 2	3 BBI + 3 CEL + 24 LAX points
3 & 4	2 BBI + 2 CEL + 36 LAX points
5 & 6	3 CEL + 36 LAX points

SKEMA PENGAJIAN/ STUDY SCHEME

TAHUN 1/ 1ST YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
PRT2008	<i>Pertanian dan Manusia/ Agriculture and Man</i>	2	2	0
SKP2101	<i>Kenegaraan Malaysia/ Malaysian Nationhood</i>	3	3	0





SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Islamic Civilization and Asian Civilization</i>	2	2	0
PRT3007	Sistem Pengeluaran Pertanian/ <i>Agriculture Production System</i>	3	3	0
SHW 3200	Anatomi dan Fisiologi Haiwan Domestik I/ <i>Anatomy and Physiology of Domestic Animals I</i>	3	2	1
	Kokurikulum/ <i>Co-Curriculum</i>	1	0	1
JUMLAH/ TOTAL		17	14	3

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
BBI2424	<i>Academic Writing</i>	3	2	1
EPT3100	Prinsip Ekonomi Pertanian/ <i>Principles of Agricultural Economics</i>	3	3	0
PRT3402	Biokimia Pertanian/ <i>Agricultural Biochemistry</i>	3	2	1
SKP 2204	Hubungan Etnik/ <i>Ethnic Relations</i>	2	2	0
SHW3602	Statistik Sains Haiwan/ <i>Statistics for Animal Science</i>	3	2	1
SHW3201	Anatomi dan Fisiologi Haiwan Domestik II/ <i>Anatomy and Physiology of Domestic Animals II</i>	3	2	1
	Kokurikulum/ <i>Co-Curriculum</i>	1	0	1
JUMLAH/ TOTAL		18	13	5

TAHUN 2/ 2ND YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0
SHW 3403	Pemakanan Haiwan Asas/ <i>Basic Animal Nutrition</i>	3	2	1
SHW3103	Kelakuan dan Kebajikan Haiwan/ <i>Animal Behaviour and Welfare</i>	3	3	0
SHW3203	Reproduksi Haiwan/ <i>Animal Reproduction</i>	3	2	1
SHW3303	Genetik Haiwan/ <i>Animal Genetics</i>	3	2	1
SHW3405	Sains Pastura/ <i>Pasture Science</i>	3	2	1
JUMLAH/ TOTAL		17	13	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PPT3301	Prinsip Pengurusan dan Pemasaran Pertanian/ <i>Principles of Agricultural Management and Marketing</i>	3	3	0
SHW3304	Pembiakbakaan Ternakan/ <i>Livestock Breeding</i>	3	2	1





SHW3501	Sains Haiwan Pedaging/ <i>Meat Animal Science</i>	3	2	1
SHW3502	Sains Tenuku/ <i>Dairy Science</i>	3	2	1
SHW3510	Sains Poltri/ <i>Poultry Science</i>	3	2	1
SHW3511	Sains Babi/ <i>Swine Science</i>	3	3	0
JUMLAH/ TOTAL		18	14	4

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PPT3701	Keusahawanan Pertanian/ <i>Agricultural Entrepreneurship</i>	3	2	1
SHW3104	Pengurusan Kesihatan Haiwan/ <i>Animal Health Management</i>	3	2	1
KOM3403	Pengucapan Awam/ <i>Public Oration</i>	3	3	0
	Elektif/ <i>Elective</i>	9	6	3
JUMLAH/ TOTAL		18	13	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
SHW3700	Pengurusan Sisa Ternakan/ <i>Livestock Waste Management</i>	3	2	1
SHW4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
	Elektif/ <i>Elective</i>	12	11	1
JUMLAH/ TOTAL		18	13	5

TAHUN 4/ 4TH YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
SHW4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
	Elektif/ <i>Elective</i>	12	9	3
JUMLAH/ TOTAL		15	9	6

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A
PRT 4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12





SINOPSIS KURSUS/ COURSE SYNOPSIS

Jabatan Akuakultur/ Department of Aquaculture

AKU 3101 Sains Perikanan/ *Fisheries Science* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi sejarah, status masakini dan masalah dalam sektor perikanan Malaysia. Pengkelasan perikanan dan pengurusan sumber, teknologi perikanan, akuakultur, ekologi, perikanan rekreasi dan hiasan, peranan sosioekonomi dan potensi dibincangkan.

This course covers history, current status and problems within the fisheries sector of Malaysia. Classification of fisheries and resource management, fishing technology, aquaculture, ecology, recreational and ornamental fisheries, socioeconomic role and potentials are emphasized.

AKU 3102 Limnologi/ *Limnology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi komponen biotik dan produktiviti biologi dalam sistem air tawar serta proses fiziko-kimia yang mempengaruhinya. Kepentingan dan aplikasi limnologi dalam pengurusan akuakultur air tawar ditekankan.

This course covers the biotic components and biological productivity of freshwater systems, and the physico-chemical processes affecting it. The importance and application of limnology in fisheries management of freshwater aquaculture are emphasized.

AKU 3103 Iktiologi/ *Ichthyology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep evolusi, pengelasan, skala tempoh geologi, morfologi, anatomi dan fisiologi ikan. Kepelbagaian struktur, tabiat dan penyesuaian hidup ikan, taburan geografi dan ekologi ikan dibincangkan.

This course covers concepts of evolution, classification, geologic time scale, morphology, anatomy and physiology of fishes. Diversities of structure, behaviour and adaptation of fishes, geographical distribution, and ecology of fishes are discussed.

AKU 3201 Prinsip Akuakultur/ *Principles Of Aquaculture* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi kepentingan, sejarah dan status akuakultur terkini, pemilihan spesies, tapak dan sistem kultur, pengurusan pengeluaran, pengeluaran benih ikan dan kelestarian akuakultur.

This course covers the importance, history and current status of aquaculture, selection of species, site and culture system, production management, seed production and sustainability of aquaculture.

AKU 3301 Genetik dan Pemiakbakaan Ikan/ *Fish Genetics And Breeding* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep genetik dan pembiakbakaan ikan, pewarisan kualitatif dan kuantitatif, genetik populasi, penghibridan, kejuruteraan genetik dan manipulasi gen.

This course covers concepts of fish genetics and breeding, qualitative and quantitative inheritance, population genetics, hybridization, genetic engineering and gene manipulation.





AKU 3302 Teknologi Pembenihan Ikan dan Pengurusan Frl/ Fish 3 (2+1)
Seed Technology And Fry Management

Prasyarat : Tiada

Kursus ini merangkumi biologi pembiakan ikan, teknik pembenihan ikan, larvikultur, penyediaan kolam pendederan, pengurusan, pembungkusan dan pengangkutan fri.

This course covers fish reproductive biology, fish seed production techniques, larviculture, nursery pond preparation, management, packaging and transportation of fry.

AKU 3401 Pemakanan Akuakultur/ Aquaculture Nutrition 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi keperluan nutrien dalam makanan ikan, penghadaman dan metabolisme serta jenis, pemprosesan, penyimpanan, penilaian dan piawaian diet. Amalan pemberian makanan yang betul ditekankan.

This course covers nutrient requirements in fish feed, digestion and metabolism, and types, processing, storage, evaluation as well as standardization of diets. Good feeding practices are emphasized.

AKU 3501 Pengurusan Kesihatan Ikan/ Fish Health Management 3 (2+1)

Prasyarat : Tiada

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

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

AKU 3601 Kualiti Air dan Tanah dalam Akuakultur/ Water and Soil 3 (2+1)
Quality in Aquaculture

Prasyarat : Tiada

Kursus ini meliputi analisis dan tafsir kualiti kimia dan fizik air tanah untuk akuakultur. Teori asas dalam kaedah analisis diberi penekanan.

This course encompasses analysis and interpretation of chemical and physical qualities of water and soil for aquaculture. Fundamental theory in analytical methodology is emphasized.

AKU 4201 Sistem Akuakultur/ Aquaculture Systems 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi rekabentuk dan pembinaan pelbagai sistem akuakultur. Pengurusan dan kecekapan sistem juga dibincangkan.

This course covers design and construction of various aquaculture systems. The management and efficiency of the systems are discussed.

AKU 4202 Kultur Ikan dan Tumbuhan Akuatik Hiasan/ Culture of 3 (2+1)
Ornamental Fish and Aquatic Plants

Prasyarat : Tiada

Kursus ini merangkumi diversiti, pembiakan, pengkulturan, kepentingan perdagangan dan pembangunan industri ikan dan tumbuhan hiasan akuatik. Kaedah pengangkutan ikan dan tumbuhan akuatik serta pengurusan akuarium turut dibincangkan.





This course covers the diversity, reproduction, culture, commercial importance and industrial development of ornamental fishes and aquatic plants. Transportation methods of ornamental fish and aquatic plants, and aquarium management are discussed.

AKU 4221 Kultur Krustasea/ *Crustacean Culture* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi biologi, taburan pengeluaran benih dan aspek pengkulturan krustasea komersial terpilih. Pemilihan tapak, sitem ternakan, pengurusan, kesihatan, ekonomi dan pemakanan dibincangkan.

This course encompasses the biology, distribution, seed production and aspects of culture on selected commercial crustaceans. Site selection, culture system, management, health, economics and nutrition are discussed.

AKU 4241 Biologi dan Kultur Flora Akuatik/ *Biology and Culture of Aquatic Flora* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi aspek biologi flora akuatik yang meliputi morfologi, anatomi, fisiologi, ekologi, sistematik dan evolusi. Kepentingan flora akuatik dari segi ekonomi dan ekologi serta teknik kultur beberapa spesies komersial dibincangkan.

This course covers biological aspects of aquatic flora which include morphology, anatomy, physiology, ecology, systematics, and evolution. The economic and ecological importance of aquatic flora, and culture techniques of some commercial species are discussed.

AKU 4301 Endokrinologi Ikan/ *Fish Endocrinology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi morfologi dan embriologi tisu endokrin ikan, biosintesis kimia, metabolisme, perkumuhan hormon dan metabolitnya. Tindakan dan peranan feromon terhadap tekanan fizikal dan kimia dalam persekitaran akuatik dibincangkan.

This course covers the morphology, embryology of endocrine tissue, chemical biosynthesis, metabolism, excretion of hormones and their metabolites. The reaction and roles of pheromones on physical and chemical stresses in aquatic environment are discussed.

AKU 4401 Teknologi Makanan Akuakultur/ *Aquafeed Technology* 3 (1+2)

Prasyarat : Tiada

Kursus ini meliputi proses pembuatan makanan akuakultur, pemilihan bahan, perumusan, pemprosesan dan kawalan mutu. Faktor yang mempengaruhi setiap proses tersebut ditekankan.

This course covers processes in the making of aquafeed, selection of feed ingredients, formulation, processing and quality control that affect each of these processes are emphasized.

AKU 4402 Pengeluaran Makanan Hidup dalam Akuakultur/ *Live Food Production in Aquaculture* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi kepentingan makanan hidup dalam industri akuakultur, jenis makanan hidup, teknik pengeluaran serta pembungkusan produk.

This course covers the importance of live food in aquaculture industry, types of live food, production techniques and product packaging.





AKU 4601 Ekologi dan Pengurusan Tanah Basah/ *Ecology and Management of Wetlands* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengkelasan dan jenis ekosistem tanah basah. Pengurusan, kepentingan ekologi dan sosioekonomi tanah basah dibincangkan.

This course covers the classification and types of ecosystems of wetlands. Management, ecological and socioeconomic importance of wetlands are discussed.

AKU 4701 Teknologi Maklumat dan Komunikasi Dalam Akuakultur/
Information and Communications Technology in Aquaculture 3 (1+2)

Prasyarat : Tiada

Kursus ini merangkumi kegunaan teknologi maklumat dan komunikasi dalam pemilihan tapak, pengurusan kolam atau tangki, memantau kualiti air, jaringan kerja dan pemasaran hasilan akuakultur.

This course encompasses on the use of information and communications technology for site selection, pond or tank management, water quality monitoring, networking and marketing of aquaculture produce.

AKU 4801 Perikanan Rekreasi Dalam Ekopelancongan Perairan
Darat/ Recreational Fisheries in Inland Waters Ecotourism 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi hubungkait antara ekopelancongandan perikanan rekreasi perairan darat serta pengurusannya sebagai alternatif dalam pengurusan sumber. Penekanan diberi kepada pendekatan pelbagai dimensi dalam pengurusannya.

This course covers the relationship between ecotourism and inland recreational fisheries and its management as an alternative in resource management. It emphasizes multidimensional approach in recreational fisheries management.

AKU 4901 Latihan Industri/ *Industrial Training* 12 (0+12)

Prasyarat : Persetujuan Penyelaras

Kursus ini melibatkan penempatan belajar di ladang akuakultur, dan/atau unit penetasan swasta atau kerajaan. Pendedahan praktik kepada keadaan pekerjaan dan amalan pengurusan sebenar yang dijalankan dan/atau unit penetasan itu diberikan.

This course involves student attachment at a private or government aquaculture farm and/or hatchery. A practical exposure to the actual working conditions and management practices carried out in the farm and/or hatchery is emphasized.

AKU 4999 Projek Ilmiah Tahun Akhir/ *Final Year Project* 6 (0+6)

Prasyarat : Tiada

Kursus ini merangkumi sorotan bahan rujukan, penggunaan teknik penyelidikan yang sesuai, pengumpulan dan analisis data, penafsiran keputusan, perbincangan dan kesimpulan kajian saintifik dalam projek penyelidikan

This course covers literature review, use of appropriate research techniques, data collection and analyses, interpretation of results, discussion and conclusion of scientific studies in research.





Jabatan Sains Haiwan/ Department of Animal Science

SHW 3001 Prinsip Pengeluaran Ternakan/ *Principle Of Livestock Product* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi prinsip pengeluaran ternakan, pengurusan pastura, bahan sampingan pertanian sebagai makanan ternakan, faktor yang mempengaruhi pemakanan, reproduksi, pengurusan ternakan ruminan dan bukan ruminan serta hasil dan hasil sampingan ternakan.

This course encompasses the principles of livestock production, pasture management, agricultural by-products as feed, factors that influence feeding, reproduction, management of ruminant and non-ruminant livestock, and livestock product and by-products.

SHW 3003 Amalan Ladang : Pengeluaran Ternakan/ *Farm Practice: Livestock Production* 1 (0+1)

Prasyarat : Tiada

Kursus ini merangkumi amalan pengurusan asas ternakan ruminan dan poltri. Aspek pemakanan, sumber makanan dan infrastruktur lading ditekankan.

This course encompasses basic management practices of ruminant and poultry. Aspects of nutrition, feed resources and farm infrastructures are emphasized.

SHW 3103 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.

SHW 3104 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 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.





SHW 3200 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. Ia memperkenalkan pelajar kepada anatomi normal dan prinsip asas fungsi badan haiwan, sistem endokrin, reproduksi, laktasi dan saraf.

This course encompasses the study of form and functions of cells, tissues, organs and systems of the domestic animals. It introduces students to normal anatomy and basic principles of animal body functions, the endocrine, reproduction, lactation and nervous systems.

SHW 3201 Anatomi dan Fisiologi Haiwan Domestik II/ *Anatomy and Physiology of Domestic Animals II* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi struktur anatomi normal dan prinsip asas fungsi badan haiwan berhubung sistem pencernaan, otot, pernafasan, kardiovesel, imun dan urinari, dan fisiologi persekitaran.

This course encompasses the normal anatomical structures and basic principles of animal body functions in relation to digestive, muscular, respiratory, cardiovascular, immune and urinary systems, and environmental physiology.

SHW 3203 Reproduksi Haiwan/ *Animal Reproduction* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi proses fisiologi reproduksi haiwan ladang termasuk faktor yang mempengaruhi fertiliti dan infertiliti. Ia merangkumi penggunaan bioteknologi untuk meningkatkan prestasi reproduktif dan meningkatkan produksi ternakan secara menyeluruh.

This course covers the physiological processes of reproduction in farm animals, including factors influencing fertility and infertility. It encompasses the use of biotechnology to improve reproductive performance and to increase livestock production as a whole.

SHW 3303 Genetik Haiwan/ *Animal Genetics* 3 (2+1)

Prasyarat : Tiada

Kursus ini memperkenalkan prinsip asas genetik yang berkaitan dengan haiwan. Kursus ini menekankan asas pemindahan dan ekspresi gen, terutamanya merujuk kepada sifat kualitatif. Topik yang dibincangkan akan juga merujuk asas pembiakbakaan ternakan dan variasi kromosom dan molekul dan faktor-faktor yang mempengaruhi struktur genetik populasi.

This course introduces the basic principles of genetics as applied to animals. The course emphasises the fundamentals of gene transmission and expression, especially with reference to qualitative traits. The topics discussed will also address chromosomal and molecular basis of variation and the factors influencing genetic structure of populations

SHW 3304 Pembiakbakaan Ternakan/ *Livestock Breeding* 3 (2+1)

Prasyarat : SHW 3303

Kursus ini memperkenalkan prinsip asas genetik kuantitatif. Ia tertumpu kepada aplikasi prinsip genetik dalam peningkatan prestasi ternakan. Prinsip untuk meramal respons terhadap pemilihan dan mengenalpasti ternakan pembiak yang unggul ditekankan.

This course introduces the basic principles of quantitative genetics. It focuses on the application of genetic principles to improve livestock performance. Principles to predict the response to selection and to identify superior breeding animals are emphasised





SHW 3403 Pemakanan Haiwan Asas/ *Basic Animal Nutrition* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi topik mengenai ciri-ciri kepentingan pelbagai nutrien dan bahan aditif dalam pemakanan haiwan. Ia merangkumi pengambilan makanan voluntari, penggunaan nutrien dan keperluan nutrien haiwan ternakan, bahan makanan ternakan, pemprosesan dan kaedah formulasi rangsum.

This course covers topics on the characteristics and importance of various nutrients and feed additives in the nutrition of animals. It encompasses voluntary intake, nutrient utilization, nutrient requirements of farm animals, feedstuffs, processing and methods of ration formulation.

SHW 3405 Sains Pastura/ *Pasture Science* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi kepentingan tanaman pastura sebagai sumber makanan ruminan. 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 diliputi.

This course encompasses the importance of pasture plants as a ruminant 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 utilization and conservation of pasture are covered.

SHW 3406 Prinsip Pemakanan Ternakan/ *Principles Of Livestock Nutrition* 3 (2+1)

Prasyarat : SHW 3001

Kursus ini merangkumi pengkelasan, fungsi, penggunaan, dan keperluan nutrien untuk saraan, pertumbuhan dan pengeluaran haiwan dan perumusan rangsum.

This course encompasses classification, functions, nutrient utilization and requirement for maintenance, growth and production, and ration formulation.

SHW 3501 Sains Haiwan Pedaging/ *Meat Animal Science* 3 (2+1)

Prasyarat : SHW 3200, SHW 3201, SHW 3403

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 peternakan di humid tropika.

(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.)

SHW 3502 Sains Tenusu/ *Dairy Science* 3 (2+1)

Prasyarat : SHW 3200, SHW3201, SHW 3400

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

This course covers management of dairy animals from birth until adulthood. Emphasis 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





SHW 3503 Produksi Ternakan Pedaging/ *Meat Livestock Production* 3 (2+1)

Prasyarat : SHW 3001

Kursus ini merangkumi pengurusan pengeluaran ternakan pedaging. Aspek pengurusan, penyembelihan, pengendalian, pemprosesan, kualiti dan pemasaran daging dan produk daging ditekankan.

This course encompasses meat livestock production management. Aspects of slaughter management, handling, processing, quality and marketing of meat and meat products are emphasized.

SHW 3504 Produksi Tenusu/ *Dairy Production* 3 (2+1)

Prasyarat : SHW 3001

Kursus ini merangkumi pengurusan ternakan tenusu, pengurusan sistem pemerahan susu, pengendalian susu di ladang, dan perkembangan industri.

This course encompasses dairy livestock husbandry, management of milking systems, handling of milk on the farm and development of the industry.

SHW 3510 Sains Poltri/ *Poultry Science* 3 (2+1)

Prasyarat : SHW 3200, SHW 3201, SHW 3403

Kursus ini meliputi prinsip produksi daging dan telur poltri komersial. Ia menekankan aspek fisiologi reproduksi dan persekitaran, genetik dan pembiakbakaan, pemakanan, pengurusan am, pemprosesan produk, pengurusan sisa dan kebijakan poltri. Masalah di dalam produksi poltri di iklim panas lembab tropika dibincangkan.

This course covers principles of commercial poultry meat and egg production. It emphasizes on aspects of reproductive and environmental physiology, genetic and breeding, nutrition, general management, product processing, waste management and welfare of poultry. This course will also discuss problems in poultry production in hot humid tropical climate.

SHW 3511 Sains Babi/ *Swine Science* 3 (3+0)

Prasyarat : SHW 3200, SHW 3201, SHW 3403

Kursus ini meliputi aspek utama pengeluaran babi secara moden termasuk sistem pengeluaran, pengurusan dan amalan umum ladang, pemakanan dan sistem pembiakbakaan. Isu dalam peternakan babi dibincangkan.

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

SHW 3512 Produksi Poltri/ *Poultry Production* 3 (2+1)

Prasyarat : SHW 3001

Kursus ini merangkumi sistem pengeluaran poltri, amalan am, pengurusan di semua peringkat, pemakanan dan sistem pembiakbakaan.

This course encompasses poultry production systems, general farm practices, management at all age stages, nutrition and breeding systems, and egg production.

SHW 3513 Produksi Babi/ *Swine Production* 3 (2+1)

Prasyarat : SHW 3001

Kursus ini merangkumi sistem pengeluaran babi, amalan am, pengurusan di semua peringkat, pemakanan dan sistem pembiakbakaan.

This course encompasses pig production systems, general farm practices, management at all stages, nutrition and breeding systems.





SHW 3602 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.

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.

SHW 3700 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 perundangan 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.

SHW 4100 Hidupan Liar dan Haiwan Rekreasi/ *Wildlife and Recreational Animals* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pelbagai aspek pengurusan haiwan liar dan domestik dalam peliharaan di institusi zoologikal, pusat pemulihan dan taman rekreasi. Asas pengurusan spesies haiwan khusus dibincangkan

This course encompasses various aspects of managing wild and domestic animals in captivity at zoological, rehabilitation and recreational establishments. Basic aspects of species specific animal management are discussed.

SHW 4105 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).

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).

SHW 4201 Fisiologi Persekitaran/ *Environmental Physiology* 3 (3+0)

Prasyarat : Persetujuan Penyelaras

Kursus ini meliputi pengajian respons fisiologi oleh haiwan dalam pelbagai iklim persekitaran termasuk cara haiwan menyesuaikan diri terhadap persekitaran dan tegasan.

This course covers the study of physiological responses by animals in various climatic environments including the ways animals adapt to the environments and stresses.





SHW 4300 Genetik dan Pembiakbakaan Ternakan Gunaan/ *Applied* 3 (2+1)
 Livestock Genetics and Breeding

Prasyarat : Tiada

Kursus ini meliputi prinsip asas genomik haiwan dan pembiakbakaan ternakan. Kursus ini menekankan aplikasi praktik prinsip-prinsip tersebut dalam analisis genetik populasi dan produksi ternakan.

This course covers the basic principles of animal genomics and animal breeding. The course emphasizes on the practical application of these principles in population genetic analysis and livestock production

SHW 4301 Sitogenetik Haiwan/ *Animal Cytogenetics* 3 (2+1)

Prasyarat : SHW 3303

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

SHW 4401 Teknologi Pemprosesan Makanan Haiwan/ *Feed* 3 (3+0)
 Processing Technology

Prasyarat : SHW 3403

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.

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

SHW 4402 Bioteknologi Dalam Makanan Haiwan/ *Biotechnology in* 3 (3+0)
 Animal Feed

Prasyarat : SHW 3403

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.

SHW 4403 Makanan dan Pemberian Makanan/ *Feeds and Feeding* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi pengelasan, 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.





SHW 4404 Pemakanan Haiwan Gunaan/ *Applied Animal Nutrition* 3 (2+1)

Prasyarat : SHW 3403

Kursus ini meliputi konsep dan aplikasi lanjutan pemakanan untuk produksi ruminan dan bukan ruminan. Sistem pemberian makanan dan perumusan rangsum untuk memenuhi keperluan haiwan ditekankan.

This course covers advance concepts and application of nutrition for production of ruminants and non-ruminants. Feeding systems and ration formulation for the animals' requirement are emphasised.

SHW 4500 Rekabentuk dan Infrastruktur Ladang Ternakan/ *Livestock Farm Design And Infrastructure* 3 (3+0)

Prasyarat : SHW 3502, SHW 3510, SHW 3511

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.

SHW 4501 Produksi Ruminan Kecil/ *Small Ruminant Production* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi sistem peternakan kambing dan bebiri termasuk pengurusan, pemakanan, pembiakan, penyakit dan kawalan, serta pemprosesan hasil.

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

SHW 4502 Produksi Tenusu/ *Dairy Production* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengurusan lembu tenusu lanjutan, teknologi pemerahan susu, penjagaan piawaian kualiti susu dan perbincangan masalah yang sering dihadapi oleh pengusaha.

This course encompasses advanced dairy cow management, milking technology, maintaining milk quality standard, and discussion on problems commonly faced by entrepreneurs.

SHW 4511 Sains Babi Lanjutan/ *Advanced Swine Science* 3 (2+1)

Prasyarat : SHW 3511

Kursus ini meliputi aspek lanjutan di dalam produksi babi termasuk reproduksi, pengurusan dan penyapihan awal, kaedah penggunaan dan manipulasi, dan aplikasi bioteknologi untuk meningkatkan produktiviti babi.

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.

SHW 4512 Produksi Ayam Penelur/ *Layer Production* 3 (2+1)

Prasyarat : SHW 3510

Kursus ini meliputi pengurusan di ladang ayam penelur. Penekanan diberi kepada aspek penting sains poltri dan aplikasi praktikal untuk kejayaan pengurusan operasi ayam penelur.

This course covers the management of layer farms. Emphasis is given on the important aspects of poultry science and their practical application to successfully manage layer operations.





SHW 4513 Produksi Ayam Pedaging/ *Broiler Production* 3 (2+1)

Prasyarat : SHW 3510

Kursus ini meliputi pengurusan dan penternakan ayam pembiak dan pedaging. Aspek penting operasi lestari diberi penekanan.

This course covers the management and husbandry of breeder and broiler chicken. Important aspects of sustainable operations are emphasised.

SHW 4540 Pengurusan Ekuin/ *Equine Management* 3 (2+1)

Prasyarat : SHW 3200, SHW 3201

Kursus ini meliputi aspek asas dalam penjagaan dan pengurusan ekuin. Ini termasuk sistem pencernaan, struktur rangka, makanan dan amalan pemberian pemakanan dan perangai kuda. Ia juga meliputi aspek sistem pencernaan, kesihatan dan amalan penjagaan dan pengurusan kuda yang di stabel.

This course encompasses basic aspects in equine care and management. This includes digestive system, skeletal structure, feeds and feeding practices, health and care and management practices of stabled horses.

SHW 4600 Metodologi Penyelidikan/ *Research Methodology* 3 (2+1)

Prasyarat : SHW 3602

Kursus ini merangkumi konsep dan teknik asas dalam pengendalian penyelidikan dan analisis data. Ini termasuk perancangan ujikaji saintifik, menganalisis dan menafsirkan keputusan yang diperolehi dan mempersempah hasil kajian. Ia juga merangkumi rekabentuk eksperimen yang asas dan beberapa kaedah statistik lanjutan yang berguna dalam sains haiwan.

This course covers the basic concepts and techniques in conducting research and analysis of data. It includes planning a scientific experiment, analysis and interpretation of the results generated and presentation of the findings. It will cover the basic experimental designs and some advanced statistical methods useful in animal sciences.

SHW 4703 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.

SHW 4801 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 digunakan melalui kombinasi komponen dalam sistem pengeluaran haiwan.

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





SHW 4999 Projek Ilmiah Tahun Akhir/ *Final Year Project*

6 (0+6)

Prasyarat : Tiada

Kursus ini merangkumi pengendalian sebuah eksperimen yang melibatkan perancangan, penggunaan teknik sesuai, pengumpulan dan analisis data, penafsiran keputusan, dan pembentangan dalam seminar dan laporan projek tahun akhir.

This course covers conducting an experiment which involves planning, use of appropriate research techniques, data collection and analyses, interpretation of results and presentation in a seminar and final year project report.

PRT 4901 Latihan Industri / *Internship Training*

12 (0+12)

Prasyarat : Tiada

Kursus ini meliputi latihan industri selama 24 minggu di agensi kerajaan atau beberapa syarikat atau kilang industri yang terpilih. Latihan dikendalikan bersama oleh penyelaras dan seorang penyelia atau pengurus dari agensi atau syarikat atau kilang tersebut.

This course covers an industrial training for a period of 24 weeks at various selected government agencies, companies or factories. The training is organised jointly by the coordinator and supervisor or the manager from the related agencies, companies or factories





Jabatan Sains Tanaman/ Department of Crop Science

AGR 3001 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.

AGR 3002 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.

AGR 3101 Botani Pertanian/ *Agricultural Botany* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi morfologi, anatomi dan taksonomi tanaman pertanian dikot dan monokot.

This course covers morphology, anatomy and taxonomy of dicotyledonous and monocotyledonous agricultural crops.

AGR 3102 Prinsip Sains Rumpai/ *Principles Of Weed Science* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi prinsip, konsep, serta ekologi rumpai dalam pendekatan pengurusan rumpai, yang merangkumi pencaman, klasifikasi, pertapakan dan kesesuaian habitat serta strategi mengawal dan mengurus rumpai di kawasan pertanian dan bukan pertanian.

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

AGR 3203 Genetik Pertanian/ *Agricultural Genetics* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi genetik pewarisan dan tumpuan kepada aplikasi dalam pertanian, struktur, pengekspresan dan tabiat gen dalam populasi dan teknologi DNA rekombinan.

This course covers genetic inheritance with emphasis on applications in agriculture, structure, expression and behavior of genes in populations and recombinant DNA technology

AGR 3204 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 pembiakbakaan 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.

AGR 3301 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.

AGR 3501 Tanaman Perladangan/ *Plantation Crops* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi prinsip pengeluaran, pengurusan, pemasaran dan ekonomi, arah aliran dan perkembangan industri tanaman perladangan utama.

This course covers principles of production, management, marketing and economics, trends and development of major plantation crop industry.

AGR 3502 Tanaman Makanan/ *Food Crops* 2 (2+0)

Prasyarat : Tiada

Kursus ini meliputi kepentingan, pengeluaran dan pengurusan tanaman bijirin dan berubi untuk menentukan sekuriti bekalan makanan.

This course covers the importance, production and management of cereals and tubers in ensuring food security.

AGR 3609 Tanaman Industri II : Kelapa, Koko, Kopi, Teh Dan Tebu/
Industrial Crops II: Coconut, Cocoa, Coffee, Tea And Sugar Cane 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi pengeluaran tanaman kelapa, koko, kopi, teh dan tebu termasuk penanaman, pengurusan tanaman dan pemprosesan.

This course covers the production of coconut, cocoa, coffee, tea and sugarcane including their cultivation, crop management and processing.

AGR 4101 Botani Pertanian Lanjutan/ *Advanced Agricultural Botany* 3 (2+1)

Prasyarat : AGR 3101

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.

AGR 4102 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.





AGR 4104 Sains Racun Herba/ *Herbicide Science* 3 (2+1)

Prasyarat : Tiada

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.

AGR 4203 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.

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).

AGR 4301 Fisiologi Tanaman Lanjutan/ *Advanced Plant Physiology* 3 (2+1)

Prasyarat : AGR3301 atau HRT3002

Kursus ini meliputi kesan tegasan persekitaran terhadap proses fisiologi, respirasi dan translokasi. Metabolisme pemakanan tanaman meliputi penyerapan dan pengangkutan serta fisiologi tanaman komoditi terpilih akan dibincangkan.

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.

AGR 4401 Pemakanan Tanaman/ *Crop Nutrition* 3 (2+1)

Prasyarat : AGR 3301 atau HRT 3302

Kursus ini merangkumi peranan dan fungsi unsure pemakanan utama, metabolisme, penyerapan translokasi dan keupayaan media untuk membekal nutrien. Kesan kekurangan dan keterlebihan nutrien kepada tumbuhan, penghasilan tanaman dan alam sekitar dibincangkan.

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 deficiency and excess on growth, yield and the environment are discussed.

AGR 4501 Pengurusan Pastura/ *Pasture Management* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi penilaian spesies rumput dan kacang pastura tropika, penanaman dan pengurusan pastura untuk membekalkan makanan dalam pelbagai sistem pengeluaran ternakan ruminant.

This course encompasses an evaluation of tropical pasture grass and legume species, planting and pasture management to provide feed in various ruminant production systems.





- AGR 4503 Pengeluaran Tanaman Padi/ *Rice Crop Production* 3 (2+1)
Prasyarat : Tiada
Kursus ini merangkumi semua aspek pengeluaran dan pengurusan tanaman padi termasuk penuaian dan pengendalian lepas tuai.
This course covers all aspects of rice production and management including harvesting and post harvest handling.
- AGR 4507 Pengeluaran Tanaman Perladangan- Kelapa Sawit/ *Plantation Crop Production: Oil Palm* 3 (2+1)
Prasyarat : Tiada
Kursus ini meliputi industri kelapa sawit termasuk pengeluaran, pengurusan dan pemprosesan hasil.
This course covers the oil palm industry including production, management and processing.
- AGR 4508 Pengeluaran Tanaman Perladangan- Getah/ *Plantation Crop Production : Rubber* 3 (2+1)
Prasyarat : Tiada
Kursus ini meliputi industri getah termasuk pengeluaran, pengurusan dan pemprosesan hasil.
This course covers the rubber industry including production, management and processing.
- HRT 3000 Pengeluaran Tanaman Hortikultur/ *Horticultural Crop Production* 3 (3+0)
Prasyarat : Tiada
Kursus ini meliputi pengelasan, prinsip, teknik pengeluaran dan pengendalian lepas tuai dengan member 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.
- HRT 3001 Pembiakan Tumbuhan dan Pengurusan Semaian/ *Plant Propagation and Nursery Management* 3 (2+1)
Prasyarat : Tiada
Kursus ini meliputi prinsip dan teknik pembiakan seks dan aseks tanaman hortikultur serta perancangan dan pengurusan tapak semaian. Pemasaran hasil semaian juga dibincangkan.
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.
- HRT 3002 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.
This course covers plant systematics and structures, physiological processes, growth and development of horticultural crops.





HRT 3004 Amalan Ladang : Pengeluaran Buah-buahan/ Farm 1 (0+1)
Practice: Fruit Production

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.

HRT 3005 Amalan Ladang : Pengeluaran Sayur-sayuran/ Farm 1 (0+1)
Practice: Vegetable Production

Prasyarat : Tiada

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

This course covers practices on sustainable vegetable production involving seedling production, field and protected environmental cultivation systems, composting, harvesting, postharvest handling and marketing.

HRT 3008 Amalan Ladang : Hortikultur Hiasan/ Landskap/ Farm 1 (0+1)
Practice: Ornamental and Landscape Horticulture

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.

HRT 3009 Amalan Ladang :Turf/ Farm Practice: Turf 1 (0+1)

Prasyarat : Tiada

Kursus ini meliputi amalan pengeluaran dan penjagaan rumput turf serta pencaman, pembiakan, teknik menanam dan pengurusan.

This course covers practices on production and management of turf grass that includes identification, propagation, planting techniques and management.

HRT 3102 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 pascatuai tanaman sayur-sayuran.

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





- HRT 3202 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.
- HRT 3302 Pengeluaran Tanaman Hiasan Dan Bunga/ *Ornamental and Flower Production* 2 (2+0)
Prasyarat : Tiada
Kursus ini meliputi klasifikasi, prinsip dan teknik dalam pengeluaran tanaman hiasan yang merangkumi pengecaman, penanaman dan pengurusan.
This course covers classification, principles and techniques of ornamental plant production which includes identification, planting and management.
- HRT 3401 Fisiologi Lepas Tuai/ *Postharvest Physiology* 3 (2+1)
Prasyarat : HRT3101 dan HRT 3201 atau HRT 3301
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.
- HRT 3501 Pengenalan Rekabentuk Landskap/ *Introduction To Landscape Design* 3 (2+1)
Prasyarat : Tiada
Kursus ini meliputi berbagai elemen rekabentuk, prinsip dan proses merekabentuk pelan landskap 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.
- HRT 3601 Sains Turf/ *Turf Science* 2 (2+0)
Prasyarat : Tiada
Kursus ini merangkumi pengelasan, pengecaman spesies 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.
- HRT 4101 Kultur Tanpa Tanah/ *Soilless Culture* 3 (2+1)
Prasyarat : AGR3301 atau HRT3002
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.

HRT 4102 Pertanian Persekitaran Terkawal/ *Controlled Environment* 3 (2+1)
 Agriculture

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

HRT 4201 Pengeluaran Komersil Buah-buahan/ *Commercial Fruit* 3 (2+1)
 Production

Prasyarat : HRT3202

Kursus ini merangkumi isu dan aspek teknologi pengeluaran buah-buahan bernilai tinggi yang mempunyai impak ekonomi. Akses pemasaran global dan domestik serta logistik dibincangkan.

This course covers issues and aspects of high value fruit production technology with economic impact. Global and domestic market access and logistics are discussed.

HRT 4301 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 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 of orchids.

HRT 4302 Tanaman Hiasan Eksotik/ *Exotic Ornamental Plants* 3 (2+1)

Prasyarat : HRT 3301

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

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

HRT 4401 Pengawalatur Tumbesaran Tumbuhan/ *Plant Growth* 3 (2+1)
 Regulators

Prasyarat : AGR 3301 atau HRT 3002

Kursus ini meliputi sintesis, mekanisme dan peranan pengawalatur dalam tumbesaran tanaman. Inisiasi bunga, kejadian dan keguguran buah, pasca tuai, kesan sisabaki dan interaksi antara pengawalatur tumbesaran dengan alam sekitar dibincangkan.

This course covers synthesis, mechanism and roles of growth regulators in plant growth. Flower initiation, fruit set and abscission, postharvest, residual effects, and their interactions with the environment are discussed.

HRT 4601 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, penubuhan dan pengurusan rumput turf untuk pelbagai fungsian.

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

HRT 4701 Pembiakan Mikro Tumbuhan / *Plant Micropropagation* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi sistem, teknik, pengurusan dan aplikasi pembiakan tumbuhan secara *in vitro*. Aspek fisiologi pertumbuhan dan ekonomi dibincangkan.

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





Jabatan Perlindungan Tumbuhan/ Department of Plant Protection

PLP 3002 Pengurusan Perosak Tanaman Hortikultur 3 (2+1)

Prasyarat : Tiada

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

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

PLP 3104 Entomologi Asas/ *Fundamentals Of Entomology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi 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.

PLP 3105 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.

PLP 3204 Patologi Tumbuhan Asas/ *Fundamentals Of Plant Pathology* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi prinsip patologi tumbuhan dan pengurusan penyakit tumbuhan.

This course covers the principles of plant pathology and management of plant diseases.

PLP 4001 Pengawalan Perosak/ *Pest Control* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi kaedah pengurusan perosak tanaman utama termasuk ekologi, kaedah penilaian infestasi perosak dan kerugian tanaman.

This course covers pest management methods of major crops including ecology, assessment methods of pest infestation and crop losses.

PLP 4002 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.

PLP 4003 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.

PLP 4101 Entomologi/ *Entomology* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi fisiologi serangga, pemakanan dan kelakuan. Serangga entomofagus, patologi serangga, ekologi serangga, perhubungan serangga-tumbuhan dan sistematik serangga perosak utama juga dibincangkan.

This course covers insect physiology, nutrition and behavior. Entomophagous insects, insect pathology, insect ecology, insect host-plant relationship and systematic of major insect pests are discussed.

PLP 4102 Apikultur/ *Apiculture* 3 (2+1)

Prasyarat : Tiada

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

PLP 4201 Patologi Tumbuhan/ *Plant Pathology* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi taksonomi dan fisiologi organisma patogenik tumbuhan, proses jangkitan, hubungan perumah-parasit, epidemiologi dan kawalan penyakit tumbuhan, patologi bijibenh dan pasca tuai.

This course covers the taxonomy and physiology of plant pathogens, infection processes, host-parasite relationships, epidemiology and control of plant diseases, seed and post harvest pathology.

PLP 4601 Sains Racun Perosak 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi ciri utama racun perosak, mod tindakan, keresistanan, penggunaan agen biologi, formulasi dan nasib racun dalam alam sekitar. Teknologi aplikasi racun perosak, kaedah mengkaji dan mengukur gerakbalas perosak kepada 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 Sistem Maklumat/ Department of Agribusiness and Information System

PPT 3001 Pengenalan kepada Sistem Perniagaantani Malaysia/ 3 (3+0)
Introduction To Malaysia Agribusiness System

Prasyarat : Tiada

Kursus ini merangkumi perniagaantani secara komprehensif, 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 includes agribusiness production, processing and marketing, the consumer, credit and finance, roles of government, and future of agribusiness.

PPT 3201 Prinsip Pengurusan Perniagaantani/ *Principles Of* 3 (3+0)
Agribusiness Management

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.

PPT 3301 Prinsip Pengurusan Dan Pemasaran Pertanian/ *Principles* 3 (3+0)
of Agricultural Management and Marketing

Prasyarat : Tiada

Kursus ini merangkumi konsep asas pengurusan dan pemasaran pertanian, persekitaran pasatan serta kesan dasar kerajaan terhadap agribisnes

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

PPT 3302 Prinsip Pemasaran Perniagaantani/ *Principle Of* 3 (3+0)
Agribusiness Marketing

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.

PPT 3401 Perakaunan Perniagaantani/ *Agribusiness Accounting* 4 (3+1)

Prasyarat : Tiada

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.

PPT 3701 Keusahawanan Pertanian/ *Agricultural Entrepreneurship* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep keusahawanan, ciri-ciri usahawan, pengurusan syarikat dan penyediaan pelan perniagaan.

This course covers the concepts of entrepreneurship, the characteristics of an entrepreneur, firm management and preparation of a business plan.

PPT 3801 Statistik dalam Perniagaantani/ *Statistics In Agribusiness* 4 (3+1)

Prasyarat : MTH3004

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.

PPT 4202 Perancangan Dan Pengurusan Projek Perniagaantani/ *Agribusiness Project Planning And Management* 3 (3+0)

Prasyarat : EPT3100/EPT3110/EPT3102/ECN3100

Kursus ini merangkumi teori dan teknik penilaian projek termasuklah nilai kini bersih, kadar pulangan dalam nisbah faedah kos. Ia juga meliputi langkah penting dalam merancang projek perniagaantani. Proses dan teknik pengurusan projek seperti PERT/COM dan organisasi projek juga dibincangkan.

This course encompasses the theory and techniques of project evaluation including the net present value, internal rate of return and benefit-cost ratio. It also encompasses the essential steps in planning an agribusiness project. The process and techniques of project management such as PERT/CPM and project organization will also be discussed.

PPT 4203 Pengurusan Strategik Perniagaantani/ *Agribusiness Strategic Management* 3 (3+0)

Prasyarat : Tiada

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

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

PPT 4206 Pengurusan Koperasi Pertanian/ *Management Of Agricultural Cooperative* 3 (3+0)

Prasyarat : PPT3201

Kursus ini merangkumi sejarah perkembangan, teori, knsep dan akta-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.









PPT 4701 Keusahawanan Perniagaantani/ Agribusiness 3 (3+0)
 Entrepreneurship

Prasyarat : Tiada

Kursus ini merangkumi peranan dan tanggungjawab usahawan, permasalahan yang wujud, kaedah pengurusan dan perancangan perniagaan, penilaian projek, pemasaran, kredit, strategi dan pengurusan sumber serta isu semasa mengenai keusahawanan dalam perniagaantani.

This course encompasses the role and responsibilities of an entrepreneur, problems and techniques in management, business planning, project evaluation, marketing, credit, business strategies, management of resources and current issues of entrepreneurship in agribusiness.

PPT 4801 Teknik Kuantitatif Perniagaantani/ Quantitative Techniques 3 (2+1)
 In Agribusiness

Prasyarat : PPT 3801

Kursus ini meliputi model kuantitatif sebagai alat untuk membuat keputusan yang melibatkan pembentukan model, konsep matrik dan vektor, pemrograman 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.

PPT 4901 Latihan Industri Perniagaantani/ Agribusiness Industrial 12 (0+12)
 Training

Prasyarat : Tiada

Kursus ini merangkumi penempatan pelajar di syarikat berasaskan 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.

PPT 4997 Kajian Kes I/ Case Study I 3 (0+3)

Prasyarat : Tiada

Kursus ini merangkumi pengetahuan dan pengalaman praktik dalam mengendalikan dan melaporkan sesuatu kajian kes. Pelajar dikehendaki mengenalpasti kes untuk dikaji 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 case study. Students are required to identify a researchable case in their specialization area with the guidance of a supervisor. Students will also plan, implement and report the findings of the case in accordance to an acceptable format.

PPT 4998 Kajian Kes II/ Case Study II 3 (0+3)

Prasyarat : Tiada

Kursus ini merangkumi pengetahuan dan pengalaman praktik dalam mengendalikan dan melaporkan sesuatu kajian kes. Pelajar dikehendaki mengenalpasti kes untuk dikaji 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 case study. Students are required to identify a researchable case in their specialization area with the guidance of a supervisor. Students will also plan, implement and report the findings of the case in accordance to an acceptable format.

PPT 4999 Projek Ilmiah Tahun Akhir/ *Final Year Academic Project* 6 (0+6)

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, melaksanakan 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.

EPT 3100 Prinsip Ekonomi Pertanian/ *Principles of Agricultural Economics* 3 (3+0)

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.

EPT 3101 Ekonomi Sumber Asli/ *Economic Of Natural Resources* 3 (3+0)

Prasyarat : ECN 3100/EPT 3100/EPT 3102

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.

EPT 3102 Ekonomi Pertanian/ *Agricultural Economics* 3 (3+0)

Prasyarat : ECN3100

Kursus ini merangkumi aplikasi konsep asas teori ekonomi dalam bidang pertanian.

This course covers the application of basic concept of economic theory in the field of agriculture.

EPT 3201 Ekonomi Pengeluaran Pertanian/ *Agricultural Production Economics* 3 (3+0)

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.

EPT 3202 Pengurusan Ladang/ *Farm Management* 3 (3+0)

Prasyarat : ECN3100

Kursus ini meliputi penggunaan teori dan prinsip ekonomi di dalam proses membuat keputusan ladang.





This course covers applications of economic theory and principles in farm decision-making process.

EPT 4201 Analisis Keputusan Pertanian/ *Agricultural Decision Analysis* 3 (3+0)

Prasyarat : ECN 3100

Kursus ini meliputi konsep dan peranan model membuat keputusan pertanian dalam menyelesaikan masalah dalam pengurusan ladang.

This course covers concepts and roles of agricultural decision making models in solving farm management problems.

EPT 4204 Perancangan dan Pengurusan Projek Pertanian/ *Agriculture Project Planning and Management* 3 (3+0)

Prasyarat : 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.

EPT 4301 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.

EPT 4303 Perdagangan Serahan Hadapan dan Opsyen/ *Futures And Options Trading* 3 (3+0)

Prasyarat : EPT4301 atau PPT4501

Kursus ini merangkumi konsep perdagangan serahan hadapan, asas harga tunai dan serahan hadapan, analisis asas dan teknikal, opsyen ke atas serahan hadapan komoditi, strategi utama urus niaga opsyen, strategi harga 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.

EPT 4401 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

EPT 4501 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.

EPT 4602 Kaedah Penyelidikan Dalam Ekonomi Pertanian/ *Research* 3 (2+1)
 Methods In Agricultural Economics

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

TKP 3001 Teknologi Pertanian Moden/ *Modern Agricultural Technology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi penggunaan teknologi pertanian moden di dalam mempertingkatkan hasil dan kualiti produk pertanian dan aspek sosial dibincangkan dalam konteks teknologi pertanian moden.

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

TKP 3002 Amalan Ladang: Akuakultur/ *Farm Practices : Aquaculture* 1 (0+1)

Prasyarat : Tiada

Kursus ini merangkumi latihan penyediaan kolam, pengurusan unit penetasan, pembiakan, larvikultur, pengurusan tangki dan kolam, pemberian makanan 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.

TKP 3104 Bioteknologi Pertanian/ *Agricultural Biotechnology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi bioteknologi pertanian, teknik dan aplikasinya pada tumbuhan dan haiwan.

This course encompasses agricultural biotechnology, techniques and its applications on plants and animals.

TKP 3201 Pengembangan Pertanian/ *Agricultural Extension* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi sejarah, kaedah, perancangan program dan pendedahan kepada situasi semasa pengembangan pertanian.

This course encompasses history, methods, programme planning and exposure to current status of agricultural extension.

TKP 3301 Taman Rekreasi Pertanian/ *Agriculture Recreational Park* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep, pembangunan dan khidmat sokongan taman rekreasi pertanian.

This course covers the concept, development and support services of agriculture recreational park.

TKP 3401 Teknologi Maklumat Dan Komunikasi Untuk Pertanian/ *Information and Communication Technology for Agriculture* 3 (2+1)

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.

TKP 3501 Mekanisasi Pertanian/ *Agriculture Mechanization* 3 (2+1)

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.

TKP 4201 Pemindahan Teknologi Pertanian/ *Transfer Of Agricultural Technology* 3 (2+1)

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.

TKP 4202 Komunikasi Pertanian/ *Agricultural Communication* 3 (2+1)

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.

TKP 4203 Perencanaan Program Pengembangan Pertanian/ *Programme Planning In Agricultural Extension* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep dan proses perencanaan program pengembangan pertanian, pelaksanaan dan penilaian program.

This course covers concepts and process of programme planning in agricultural extension, implementation and evaluation.

TKP 4802 Kejuruteraan Akuakultur/ *Aquaculture Engineering* 3 (2+1)

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

PRT 2001 Pertanian Asas/ *Basic Agriculture* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi asas pertanian termasuk aspek-aspek agronomi dan akuakultur, tanah dan perlindungan tumbuhan dalam pengeluaran tanaman. Ini meliputi prinsip tumbesaran tanaman sehubungan dengan keadaan sekeliling, pedologi, sifat tanah, pemakanan tumbuhan, pengurusan baja, system pengeluaran tanaman agronomi dan hortikultur, perosak dan penyakit tanaman serta kawalannya.

This course encompasses the basic agriculture encompassing various aspects of agronomy and aquaculture, horticulture, soil science and plant protection in crop production. This covers principles of plant growth in relation to the environment, pedology, soil characteristics, plant nutrition, fertilizer management, plant production systems in agronomic and horticultural crops, plant pests and diseases and their control.

PRT 2008 Pertanian dan Manusia/ *Pertanian dan Manusia/ Agriculture and Man* 2 (2+0)

Prasyarat : Tiada

Kursus ini merangkumi evolusi pertanian daripada permulaan kepada status masa kini sebagai aktiviti terancang dan terurus, didorong oleh kemajuan ekonomi dan teknologi. Pertanian moden dipaparkan sebagai sains, seni dan bisnes yang meliputi peranan dan impaknya terhadap pengurusan sumber dan pembangunan manusia. Perbincangan merangkumi scenario pertanian Malaysia.

This course encompasses the evolution of agriculture from the beginnings to its present status as planned and managed activities, driven by economics and technological advancement. Modern agriculture is presented as a science, an art and a business encompassing its role and impact on resource management and human development. Discussion incorporates Malaysian agriculture scenarios.

PRT 3003 Pertanian, Persekitaran dan Sistem Makanan/ *Agriculture, Environment And Food System* 3 (3+0)

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 kepelbagaian produk, kualiti makanan, sekuriti dan keselamatan makanan, etika serta cabaran dalam era globalisasi diliputi.

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

PRT 3004 Sistem Pengeluaran Ternakan dan Akuakultur/ *Livestock And Aquaculture Production Systems* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi kefahaman asas sistem biologi ternakan dan akuakultur serta keperluannya untuk perladangan. Amalan pengurusan dan pendekatan pengeluaran dalam sistem pertanian penternakan dan akuakultur moden diberi penekanan.

This course covers basic understanding of livestock and aquaculture biological systems and their requirement for farming. The management practices and approaches of production in modern livestock and aquaculture agricultural systems are emphasized.





PRT 3005 Sistem Pengeluaran Tanaman/ *Crop Production System* 3 (3+0)

Prasyarat : Tiada

Kursus ini mengaitkan pelbagai jenis sistem pengeluaran tanaman dengan keperluan zon-agroekologi dan amalan kultura.

This course relates various types of crop production systems with their requirement for agro-ecological zones and cultural practices.

PRT 3006 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.

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.

PRT 3201 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.

The course encompasses basic statistical methods. Topics include descriptive statistics, probability, random sampling, tests of hypothesis, estimation, simple linear regression and correlation.

PRT 3202 Rekabentuk Dan Analisis Eksperimen/ *Experimental Design And Analysis* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi kaedah melaksanakan eksperimen yang merangkumi rekabentuk eksperimen, pensampelan, analisis dan interpretasi data dan membuat rumusan.

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

PRT 3203 Prinsip Statistik Dan Rekabentuk Penyelidikan Hortikultur/ *Statistical Principles And Research Design In Horticulture* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi reka bentuk eksperimen, persampelan, analisis data dan perumusan kesimpulan.

This course covers experimental design, data sampling and analysis and formulation conclusions.

PRT 3401 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.





- PRT 3402 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.
- PRT 3501 Mikrobiologi Pertanian/ *Agricultural Microbiology* 3 (2+1)
Prasyarat : Tiada
Kursus ini meliputi prinsip mikrobiologi serta aplikasi dan peranan mikroba 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.
- PRT 4002 Pertanian Presisi/ *Precision Agriculture* 3 (2+1)
Prasyarat : Tiada
Kursus ini merangkumi konsep dan amalan pertanian presisi yang lestari. Pengukuran variabiliti menerusi berbagai prosedur persampelan, pemetaan nutrien, hasil dan perosak, interpolasi corak ruang, sistem maklumat geografi, pemodelan dan simulasi pertumbuhan tanaman dan penggunaan data penderian jarak jauh dibincangkan.
This course encompasses concepts and sustainable practices on precision agriculture. Variability measurements using various sampling procedures, nutrient, yield and pest mapping, interpolation of spatial patterns and geographical information system, modeling and simulation of crop growth, use of remote sensing data are discussed.
- PRT 4041 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.
- PRT 4201 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.
- PRT 4301 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.





PRT 4901 Latihan Industri/ *Industrial Training*

12 (0+12)

Prasyarat : Tiada

Kursus ini meliputi latihan industri selama 24 minggu di agensi kerajaan atau beberapa syarikat atau kilang, dalam industri yang terpilih. Latihan dikendalikan bersama oleh penyelaras dan seorang penyelia atau pengurus dari agensi atau syarikat atau kilang tersebut.

This course covers an industrial training for a period of 24 weeks at various selected government agencies, companies or factories, in the related industry. The training is organized jointly by the coordinator and supervisor or the manager from the related agencies, companies or factories.

PRT 4999 Projek Ilmiah Tahun Akhir/ *Final Year Academic Project* 8 (0+8)

Prasyarat : Tiada

Kursus ini merangkumi perancangan, pelaksanaan, analissi dan penterjemahan data, menyediakan dan membentangkan laporan saintifik.

This course encompasses planning, implementation, data analysis and interpretation, preparation and presentation of scientific report.





Jabatan Pengurusan Tanah/ Department of Land Management

SST 3005 Sains Tanah Asas/ *Fundamentals Of Soil Science* 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.

This course encompasses soil formation, physical, chemical and biological properties, plant nutrition and fertilizers, soil classification, survey and evaluation.

SST 3201 Tanah-Tanah Di Malaysia/ *Soils Of Malaysia* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi prinsip survei tanah, pemerihalan profil tanah, pengkelasan tanah di Malaysia mengikut siri dan pengurusan am kumpulan tanah utama.

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.

SST 3502 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.

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.

SST 3602 Pengurusan Tanah Lestari/ *Sustainable Soil Management* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep pertanian 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.

This course encompasses the concept of sustainable agriculture, methods of assessing soil fertility and fertilizer requirement, improvement and maintainance of soil quality, impacts and control of soil degradation, soil as a sink for pollutants and its management.

SST 3603 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 optimum.

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 optimum crop production.

SST 3802 Pengurusan Sisa Pertanian/ *Agricultural Waste Management* 3 (2+1)

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.

SST 4201 Pembentukan dan Pengelasan Tanah/ *Soil Formation And Classification* 3 (2+1)

Prasyarat : SST 3005 atau setara

Kursus ini meliputi morfologi tanah, luluhawa dan pembentukan tanah dan mineral, dan pengelasan tanah.

This course covers soil morphology, weathering and formation of soils and minerals, and soil classification.

SST 4302 Fizik Tanah/ *Soil Physics* 3 (2+1)

Prasyarat : SST 3005 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.

SST 4303 Pemuliharaan Tanah/ *Soil Conservation* 3 (2+1)

Prasyarat : SST 3005 atau setara

Kursus ini merangkumi konsep dan kepentingan pemuliharaan tanah. Proses, faktor mempengaruhi hakisan tanah, teknik menyukat kehilangan tanah dan nutrien, kaedah mengawal dan ramalan hakisan serta kesan pemuliharaan tanah ke atas tanaman dibincangkan.

This course encompasses the concept and importance of soil conservation. Processes, factors influencing soil erosion, techniques of soil and nutrient loss measurements, control measures and prediction of soil erosion and effects of soil conservation on crop are discussed.

SST 4304 Perubahan Iklim Dan Pertanian/ *Climatic Change And Agriculture* 3 (2+1)

Prasyarat : SST 3005 atau setara

Kursus ini merangkumi sains perubahan iklim, penyebab dan kesannya terhadap pengeluaran makanan, usaha mitigasi dan ramalan perubahan iklim.

This course encompasses the science of climate change, its causes and effects on food production, mitigation efforts and prediction of climate change.

SST 4402 Kimia Tanah/ *Soil Chemistry* 3 (2+1)

Prasyarat : SST 3005 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.





SST 4501 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.

SST 4601 Kesuburan Tanah II/ *Soil Fertility II* 3 (2+1)

Prasyarat : Tiada

Kursus ini meliputi kitaran nutrien, mobility nutrien dalam tanah, pengambilan oleh tumbuhan, kekurangan dan keracunan nutrien. Penilaian kesuburan tanah, pembajaan dan tafsiran data bagi mengekal dan membaiki kesuburan tanah juga dibincang.

This course covers nutrient cycles, nutrient mobility in soil, plant nutrient uptake, deficiency and toxicity. Evaluation of soil fertility, fertilization and interpretation of data for sustaining and improving soil fertility are also discussed.

SST 4701 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.

SST 4801 Sains Tanah Kesekitaran/ *Environmental Soil Science* 3 (2+1)

Prasyarat : SST 3005

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.





KURSUS TAWARAN FAKULTI LAIN

(Sila rujuk sinopsis pada fakulti berkenaan)

1. FAKULTI BAHASA MODEN DAN KOMUNIKASI

1.1	BBI2423	<i>Academic Interaction and Presentation</i>	3 (2+1)
1.2	BBI2424	<i>Academic Writing</i>	3 (2+1)
1.4	BBI 2416	Business English	3 (3+0)
1.5	KOC 3301	Pengenalan Komunikasi Korporat/ <i>Introduction to Corporate Communication</i>	3 (3+0)
1.6	BBI 2414	Interactive Speaking	3 (3+0)
1.7	BBI 2415	Report Writing	3 (3+0)
1.8	BBC 2401	Mandarin I/ <i>Mandarin I</i>	3 (2+1)
1.9	BBC 2402	Mandarin II/ <i>Mandarin II</i>	3 (2+1)
2.0	BBA 2401	Bahasa Arab I/ <i>Arabic I</i>	3 (2+1)
2.1	BBA 2402	Bahasa Arab II/ <i>Arabic II</i>	3 (2+1)

2. FAKULTI EKOLOGI MANUSIA

2.1	SKP 2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3 (3+0)
2.2	SKP 2203	Tamadun Islam dan Tamadun Asia/ <i>Islamic Civilization and Asian Civilization</i>	2 (2+0)
2.3	SKP 2204	Hubungan Etnik/ <i>Ethnic Relations</i>	2 (2+0)

3. FAKULTI PERUBATAN VETERINAR

3.1	VPK 3101	Kesihatan dan Penjagaan Haiwan/ <i>Animal Health and Care</i>	4(3+1)
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4. FAKULTI SAINS DAN TEKNOLOGI MAKANAN

4.1	FST 3003	Pengenalan Kepada Sains Makanan/ <i>Introduction to Food Science</i>	3 (3+0)
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5. FAKULTI SAINS KOMPUTER DAN TEKNOLOGI MAKLUMAT

5.1	SSK 3000	Teknologi Maklumat dan Penggunaannya/ <i>Information Technology and its Applications</i>	3 (2+1)
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6. FAKULTI SAINS

6.1	MTH 3002	Pengenalan kepada Kalkulus/ <i>Introduction to Calculus</i>	4(3+1)
6.2	MTH 3004	Pengenalan kepada Matematik Ekonomi dan Perniagaan/ <i>Introduction to Economics And Business Mathematics</i>	4(3+1)





7. FAKULTI BIOTEKNOLOGI DAN SAINS BIOMOLEKUL

7.1 BCM 3000 Prinsip Biokimia/ *Principles of Biochemistry* 4 (4+0)

8. FAKULTI EKONOMI DAN PENGURUSAN

8.1 ECN 3100 Prinsip Ekonomi/ *Principles of Economics* 3 (3+0)

8.2 ACT 2112 Perakaunan Pengenalan/ *Introductory Accounting* 4 (3+1)

8.3 ACT 2131 Perakaunan Kos dan Pengurusan/ *Cost And Management Accounting* 3 (3+0)

8.4 MGM 3351 Undang-undang Komersial/ *Commercial Laws* 3 (3+0)

8.5 ACT 2111 Pengantar Perancangan dan Penggunaan Maklumat Perakaunan/ *Introduction To Planning And Use Of Financial Information* 3 (3+0)

9. FAKULTI PENGAJIAN PENDIDIKAN

9.1 FCE 3204 Kemahiran Berfikir/ *Thinking Skills* 2 (2+0)

9.2 DCE 3406 Kepimpinan dalam Pengembangan dan Pembangunan Masyarakat/ *Leadership in Extension & Community Development* 3 (3+0)

9.3 DCE 3304 Perencanaan Program Pendidikan Dewasa/ *Adult Education Program Development* 3 (3+0)

9.4 DCE 3311 Pendidikan Dewasa/ *Adult Education* 3 (3+0)

9.5 DCE 3411 Pembangunan Sumber Masyarakat/ *Community Development* 3 (3+0)



ELEx SCHEME FOR 4 YEARS PROGRAMMES FROM SEPTEMBER 2013

MUET Band	Graduation Requirements for 4-year programmes
1 & 2	3 BBI + 3 CEL + 24 LAX points
3 & 4	2 BBI + 2 CEL + 36 LAX points
5 & 6	3 CEL + 36 LAX points

Sem	4 - Years Programme					
	MUET 1 & 2		MUET3 & 4		MUET 5 & 6	
Sem 1	BBI2422	CEL101	CEL102	LAX	LAX	
Sem 2	LAX	CEL102	BBI2423		CEL103	
Sem 3	BBI2423		BBI2424		LAX	
Sem 4	BBI2424		LAX		Choose ONE : CEL104/105	
Sem 5	LAX		LAX		LAX	
Sem 6	Choose ONE : CEL105/106/107		Choose ONE : CEL105/106/107		LAX	
Sem 7	LAX		LAX		Choose ONE : CEL105/106/107	
Sem 8	LAX or	OPTIONS : CEL104/105/106/107	LAX or	OPTIONS : CEL104/105/106/107	LAX or	OPTIONS : CEL104/105/106/107

Note :

Students who are away on Industrial Training in any semester need not enroll in any course or LAX for that particular semester, but they must enroll in a course LAX in subsequent semesters.

BBI courses

- BBI2422 (Reading for Academic Purpose)
- BBI2423 (Academic Interaction and Presentation)
- BBI2424 (Academic Writing)

CEL courses

- CEL101 (Vocabulary and Grammar for Communication)
- CEL102 (Effective Listening and Speaking)
- CEL103 (Writing Academic Texts)
- CEL104 (Oral Presentation)
- CEL105 (Spoken Communication for the Workplace)
- CEL106 (Communication for Professional Development)
- CEL107 (Written Business Communication)

LAX

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

Pre-requisites for courses

- CEL102 : Level 2 in CEL101 **or** MUET Band 5-6
- CEL103 : Passed BBI2424 **or** MUET Band 5 - 6
- BBI2423 : Level 2 in CEL102
- BBI2424 : Passed BBI2423
- CE2104,105,106,107 :Passed BBI2424 **or** MUET Band 5 – 6

