

FAKULTI PERHUTANAN

Maklumat Am

Fakulti Perhutanan merupakan salah satu daripada fakulti asas semasa penubuhan Universiti Putra Malaysia (UPM) dalam tahun 1971. Misi fakulti adalah menjadi Pusat Pembelajaran dan Pendidikan yang unggul dalam bidang perhutanan tropika, yang menyumbangkan bukan sahaja kepada kemajuan manusia dan penerokaan ilmu tetapi juga kepada pembentukan kekayaan dan pembangunan negara.

Untuk mencapai tahap kecemerlangan dalam pengajaran dan penyelidikan, Fakulti telah menjalin kerjasama rapat dengan Fakulti lain di UPM dan juga dengan agensi dan institut perhutanan dalam negara dan juga di peringkat antarabangsa. Kerjasama ini dapat mempertingkatkan keupayaan Fakulti menyelia pelajar pada peringkat pengajian siswazah.

Sejak penubuhannya, Fakulti telah berkembang dengan pesat dalam aspek pendidikan dan penyelidikan serta pembangunan sumber. Bersandarkan kepada moto ingin terus maju, Fakulti bertekad untuk menjadi sebuah pusat kecemerlangan yang unggul dalam pendidikan dan penyelidikan Perhutanan Tropika. Dalam membangunkan sumber manusia serta kemudahan prasarana profesional yang cemerlang, Fakulti Perhutanan sentiasa berusaha meningkatkan dan memantapkan keupayaan pengajaran, penyelidikan dan perkhidmatan ke tahap yang terbaik.

FACULTY OF FORESTRY

General Information

The Faculty of Forestry is one of the founding faculties of Universiti Pertanian Malaysia (now Universiti Putra Malaysia (UPM)) in 1971. The mission of the faculty is to become a leading Center of Learning and Education in the field of tropical forestry, contributing not only to human advancement and knowledge discovery but also to the creation of wealth and nation building.

To achieve excellence in teaching and research, the Faculty works closely with other faculties in UPM as well as other forestry related agencies and institutions, local as well as international. These partnerships serve to enhance the ability of the Faculty to supervise students at the Graduate level.

Since its inception, the Faculty has grown rapidly in terms of education and research as well as resource development. Drawing on its motto of striving to continually progress further, the Faculty aims to be a premier Center of excellence in Tropical Forestry education and research. The Faculty of Forestry constantly strives to improve and enhance its abilities in teaching, research and services to the highest levels in pursuit of its goals of developing excellent human resources as well as state-of-the-art professional facilities.

Pengurusan Fakulti / Faculty Management

Dekan/Dean

Prof. Dr. Mohamed Zakaria Hussin

Timbalan Dekan (Akademik & Antarabangsa)

Deputy Dean (Academic and Internationalization)

Prof. Madya Dr. Kamziah Abd. Kudus

Timbalan Dekan (Penyelidikan & Inovasi)

Deputy Dean (Research and Innovation)

Prof. Dr. Zaidon Ashaari

Timbalan Dekan (Hal Ehwal Pelajar & Pembangunan)

Deputy Dean (Student Affairs and Development)

Prof. Madya Dr. Mohamad Zaki Hamzah

Ketua Jabatan Pengurusan Hutan

Head

Department of Forest Management

Prof. Madya Dr. Mohd. Nazre Saleh

Ketua Jabatan Pengeluaran Hutan

Head

Department of Forest Production

Dr. Rasmina Halis

Ketua Jabatan Rekreasi dan Ecopelancongan

Head

Department of Recreation and Ecotourism

Prof. Madya Dr. Azlizam Aziz

Ketua Penolong Pendaftar

Head Assistant Registrar

En. Mustafa Che Ali

Penolong Pendaftar Kanan

Senior Assistant Registrar

En. Mohd Sopian Mohd Zin

Ketua Seksyen Hutan dan Ladang

Head

Forest and Plantation Section

En. Mohd Farhan Shahrin

Program Prasiswazah yang ditawarkan

Bachelor/Bachelor

1. Bacelor Sains Perhutanan/ *Bachelor of Forestry Science*
2. Bacelor Sains Teknologi Kayu/ *Bachelor of Wood Science Technology*
3. Bacelor Sains Taman Dan Rekreasi/ *Bachelor of Parks & Recreation Science*

STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Sains Perhutanan/ Bachelor of Forestry Science**
Jumlah Kredit Bergraduat : **138 Jam Kredit/ Credit Hours**
Tempoh Pengajian : **8 Semester/ Semesters (4 Tahun/ Years)**

1. Kursus Universiti/ University Courses (20 Kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
BBI2424	<i>Academic Writing</i>	3	2	1
PRT2008	Pertanian dan Manusia/ <i>Agriculture and Man</i>	2	2	0
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0
MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3	2	1
SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Asian and Islamic Civilization</i>	2	2	0
SKP2204	Hubungan Etnik / <i>Ethnic Relation</i>	2	2	0
QKX	Kokurikulum 1/ <i>Co-curriculum 1</i>	1	0	1
QKX	Kokurikulum 2/ <i>Co-curriculum 2</i>	1	0	1

2. Kursus Teras/ Core Courses (81 kredit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BGY3201	Struktur Dan Fungsi Tumbuhan/ <i>Plant Structure and Function</i>	3	2	1
MTH3003	Statistik Bagi Sains Gunaan/ <i>Statistics for Applied Sciences</i>	4	3	1
FHH3501	Struktur Dan Penggunaan Kayu/ <i>Wood Structure and Utilization</i>	4	3	1
FHK3401	Survei Hutan/ <i>Forest Survey</i>	3	2	1
FHK3403	Kejuruteraan Hutan/ <i>Forest Engineering</i>	3	2	1
FHL3301	Pengurusan Hidupan Liar/ <i>Wildlife Management</i>	3	2	1
FHL3302	Entomologi dan Patologi Hutan/ <i>Forest Pathology And Entomology</i>	4	3	1
FHP3105	Sivikultur Hutan/ <i>Forest Silviculture</i>	4	3	1
FHP3110	Tanah Hutan/ <i>Forest Soil</i>	3	2	1
FHP3101	Dendrologi/ <i>Dendrology</i>	4	3	1
FHP3111	Ekologi Hutan/ <i>Forest Ecology</i>	3	2	1
FHR3601	Pengenalan Kepada Rekreasi Luar/ <i>Introduction to Outdoor Recreation</i>	3	2	1
FHU3203	Sukatatan Hutan/ <i>Forest Mensuration</i>	3	2	1

FHU3204	Kaedah Komputer Dalam Perhutanan/ <i>Computer Methods in Forestry</i>	3	2	1
FHU3205	Kaedah Kuantitatif Dalam Perhutanan/ <i>Quantitative Methods in Forestry</i>	4	3	1
FHU3207	Pengurusan Hutan I/ <i>Forest Management I</i>	3	2	1
FHU3212	Dasar dan Undang-Undang Hutan/ <i>Forest Policy And Law</i>	2	2	0
FHU3215	Ekonomi Perhutanan/ <i>Forestry Economics</i>	4	4	0
FHS4999	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	6	0	6
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
FHS4902	Kem Perhutanan/ <i>Forestry Camp</i>	1	0	1
FHU3211	Pengurusan Kawasan Legeh/ <i>Watershed Management</i>	3	2	1

3. Kursus Elektif Sains Perhutanan/ *Forestry Science Elective Courses*
(Pilih/choose 22 kredit /credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3509	Hasil Hutan Bukan Kayu/ <i>Non-Wood Forest Products</i>	3	2	1
FHK3404	Penuaian Hutan/ <i>Forest Harvesting</i>	3	2	1
FHK3406	Sistem Maklumat Geografi Dalam Perhutanan/ <i>Geographic Information System in Forestry</i>	3	2	1
FHL3303	Kebakaran Hutan/ <i>Forest Fire</i>	2	1	1
FHL3308	Etnobotani/ <i>Ethnobotany</i>	3	2	1
FHP3102	Fisiologi Pokok/ <i>Tree Physiology</i>	3	2	1
FHP3108	Pembaikbiak Pokok/ <i>Tree Improvement</i>	3	2	1
FHP3109	Teknologi Biji Benih/ <i>Seed Technology</i>	2	1	1
FHP4103	Biodiversiti dan Pemuliharaan/ <i>Biodiversity and Conservation</i>	3	2	1
FHR3603	Pengurusan Hutan Bandar/ <i>Urban Forest Management</i>	4	3	1
FHR3602	Interpretasi Persekitaran/ <i>Environmental Interpretation</i>	3	2	1
FHU3213	Analisis Kewangan Industri Perakayuan/ <i>Financial Analysis of Wood Industries</i>	3	2	1
FHU4202	Pengurusan Industri Perhutanan/ <i>Forest Industry Management</i>	2	2	0
FHU4205	Perhutanan Antarabangsa/ <i>International Forestry</i>	2	2	0
FHU4208	Penilaian Ekonomi Sumber Hutan Dan Biodiversiti/ <i>Economic Valuation of Forest Resource and Biodiversity</i>	3	2	1
ELEKTIF OPSYEN PENGURUSAN HUTAN/ <i>FOREST MANAGEMENT OPTIONS</i> (Pilih/Choose 12 kredit/credits)				
FHK4401	Penderiaan Jauh Dalam Perhutanan/ <i>Remote Sensing in Forestry</i>	3	2	1
FHK4402	Pengangkutan Hutan/ <i>Forest Transportation</i>	3	2	1

FHK3407	Jalan Hutan/ <i>Forest Road</i>	3	2	1
FHP3114	Pemulihan Ekosistem/ <i>Ecosystem Restoration</i>	3	2	1
FHL3309	Pentaksiran Biodiversiti/ <i>Biodiversity Assessment</i>	3	2	1
FHU3209	Perhutanan Tani/ <i>Agroforestry</i>	3	2	1
FHU3216	Pengurusan Hutan II/ <i>Forest Management II</i>	2	1	1
ELEKTIF OPSYEN HASIL HUTAN/ <i>FOREST PRODUCTS OPTIONS</i> (Pilih/Chose 12 kredit/credits)				
FHH3521	Perolehan Bekalan Balak Dan Kayu/ <i>Logs and Wood Procurement</i>	3	2	1
FHH3522	Pengilangan dan Pemesinan Kayu/ <i>Sawmilling and Wood Machining</i>	3	2	1
FHH3520	Pengeringan Kayu/ <i>Wood Seasoning</i>	2	1	1
FHH3523	Kemerosotan Kayu dan Rawatan/ <i>Wood Deterioration and Treatment</i>	3	2	1
FHH3512	Pemasaran Hasil Hutan/ <i>Forest Products Marketing</i>	3	2	1
FHH3519	Papan Komposit I/ <i>Wood Composite I</i>	3	2	1
ELEKTIF OPSYEN REKREASI HUTAN/ <i>FOREST RECREATION OPTIONS</i> (Pilih/Chose 12 kredit/credits)				
FHR3606	Perancangan Rekreasi Luar/ <i>Outdoor Recreation Planning</i>	3	2	1
FHR3607	Perilaku Pengguna Rekreasi/ <i>Recreational User Behaviour</i>	3	2	1
FHR3609	Pemrograman Dan Pemimpinan Rekreasi/ <i>Recreation Programming and Leadership</i>	3	2	1
FHR3612	Pentadbiran Dan Organisasi Taman Dan Rekreasi/ <i>Administration and Organisation of Parks and Recreation</i>	3	2	1
FHR3616	Kemahiran Rekreasi Luar/ <i>Outdoor Recreation Skills</i>	3	1	2
FHR4606	Pemasaran Rekreasi/ <i>Recreation Marketing</i>	3	2	1

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

Nota Penting/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

PENGKHUSUSAN PENGURUSAN HUTAN/ FOREST MANAGEMENT OPTIONS

TAHUN 1/ 1ST YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
PRT2008	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>Asian and Islamic Civilization</i>	2	2	0
MTH3003	Statistik Bagi Sains Gunaan/ <i>Statistic for Applied Sciences</i>	4	3	1
BGY3201	Struktur dan Fungsi Tumbuhan/ <i>Plant Structure and Function</i>	3	2	1
QKX	Kokurikulum 1/ <i>Co-curriculum 1</i>	1	0	1
JUMLAH/ TOTAL		18	14	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHK3401	Survei Hutan/ <i>Forest Survey</i>	3	2	1
BBI2424	<i>Academic Writing</i>	3	2	1
FHP3111	Ekologi Hutan/ <i>Forest Ecology</i>	3	2	1
FHP3101	Dendrologi / <i>Dendrology</i>	4	3	1
SKP2204	Hubungan Etnik / <i>Ethnic Relation</i>	2	2	0
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0
QKX	Kokurikulum 1/ <i>Co-curriculum 1</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/T
FHP3110	Tanah Hutan/ <i>Forest Soil</i>	3	2	1
FHU3204	Kaedah Komputer Dalam Perhutanan/ <i>Computer Methods in Forestry</i>	3	2	1
FHS4902	Kem Perhutanan/ <i>Forestry Camp</i>	1	0	1
FHU3203	Sukatan Hutan/ <i>Forest Mensuration</i>	3	2	1
FHH3501	Struktur dan Penggunaan Kayu/ <i>Wood Structure and Utilization</i>	4	3	1
FHU3205	Kaedah Kuantitatif Dalam Perhutanan/ <i>Quantitative Methods in Forestry</i>	4	3	1
JUMLAH/ TOTAL		18	12	6

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHL3302	Entomologi dan Patologi Hutan/ <i>Forest Pathology And Entomology</i>	4	3	1
FHP3105	Silvikultur Hutan/ <i>Forest Silviculture</i>	4	3	1
FHU3215	Ekonomi Perhutanan/ <i>Forestry Economics</i>	4	4	0
FHK3403	Kejuruteraan Hutan/ <i>Forest Engineering</i>	3	2	1
FHR3601	Pengenalan Kepada Rekreasi Luar/ <i>Introduction to Outdoor Recreation</i>	3	2	1
JUMLAH/ TOTAL		18	14	4

TAHUN 3/ 3RD YEAR
SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHU3212	Dasar dan Undang-Undang Hutan/ <i>Forest Policy And Law</i>	2	2	0
FHL3301	Pengurusan Hidupan Liar/ <i>Wildlife Management</i>	3	2	1
FHU3207	Pengurusan Hutan I/ <i>Forest Management I</i>	3	1	2
MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3	2	1
FHU3211	Pengurusan Kawasan Legeh/ <i>Watershed Management</i>	3	2	1
FHXXXXX	Elektif/ <i>Elective</i> (Sains Perhutanan / <i>Forestry Science</i>)	4	-	-
JUMLAH/ TOTAL		18	9	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12

TAHUN 4/ 4TH YEAR
SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHS4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
FHXXXXX	Elektif/ <i>Elective</i> (Sains Perhutanan / <i>Forestry Science</i>)	9	-	-
	Elektif/ <i>Elective</i> (Opsyen/ <i>Option</i>)	6	-	-
JUMLAH/ TOTAL		18	0	3

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHS4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
FHXXXXX	Elektif/ <i>Elective</i> (Sains Perhutanan / <i>Forestry Science</i>)	9	-	-
	Elektif/ <i>Elective</i> (Opsyen/ <i>Option</i>)	6	-	-
	JUMLAH/ TOTAL	18	0	3

STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Sains Teknologi Kayu/ Bachelor of Wood Science Technology**
Jumlah Kredit Bergraduat : **135 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/T
BBI2423	Academic Interaction and Presentation	3	2	1
BBI2424	Academic Writing	3	2	1
FCE3204	Kemahiran Berfikir/Thinking Skills	2	2	0
PRT2008	Pertanian dan Manusia/Agriculture and Man	2	2	0
MGM3180	Asas Keusahawanan/Basic Entrepreneurship	3	2	1
SKP2101	Kenegaraan Malaysia/ Malaysian Nationhood	3	3	0
SKP2203	Tamadun Islam dan Tamadun Asia/ Asian and Islamic Civilization	2	2	0
SKP2204	Hubungan Etnik /Ethnic Relation	2	2	0
QKX	Kokurikulum 1/Co-curriculum 1	1	0	1
QKX	Kokurikulum 2/Co-curriculum 2	1	0	1

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

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BGY3201	Struktur Dan Fungsi Tumbuhan/Plant Structure and Function	3	2	1
FHS4999	Projek Ilmiah Tahun Akhir/ Final Year Project	6	0	6
MTH3003	Statistik Bagi Sains Gunaan/Statistics for Applied Sciences	4	3	1
FHU3227	Pengenalan Kepada Undang-undang Industri Perakayuan Introduction to Wood Industry Law	2	2	0
FHH3509	Hasil Bukan Kayu Hutan/Non-Wood Forest Products	3	2	1
FHH3511	Teknologi Pulpa dan Kertas/ Pulp and Paper Technology	3	2	1
FHH3512	Pemasaran Hasil Hutan/Forest Products Marketing	3	2	1
FHH3516	Anatomi Kayu dan Gentian/ Wood and Fibre Anatomy	3	2	1
FHH3517	Fizik Kayu dan Gentian/ Wood and Fibre Physics	3	2	1
FHH3518	Kimia Kayu dan Gentian/ Wood and Fibre Chemistry	3	2	1
FHH3519	Papan Komposit I/ Wood Composite I	3	2	1
FHH3520	Pengeringan Kayu/ Wood Seasoning	2	1	1

FHH3522	Pengilangan dan Pemesinan Kayu/ <i>Sawmilling and Wood Machining</i>	3	2	1
FHH3523	Kemerosotan Kayu dan Rawatan/ <i>Wood Deterioration and Treatment</i>	3	2	1
FHH3524	Perekat dan Teknologi Perekatan Kayu/ <i>Wood Adhesive and Adhesion Technology</i>	3	2	1
FHP3105	Sivikultur Hutan/ <i>Forest Silviculture</i>	4	3	1
FHP3112	Dendrologi I/ <i>Dendrology 1</i>	3	2	1
FHS4902	Kem Perhutanan/ <i>Forestry Camp</i>	1	0	1
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
FHU3204	Kaedah Komputer Dalam Perhutanan/ <i>Computer Methods in Forestry</i>	3	2	1
FHU3205	Kaedah Kuantitatif Dalam Perhutanan/ <i>Quantitative Methods in Forestry</i>	4	3	1
FHU3218	Ekonomi Industri Perkayuan/ <i>Wood Industry Economics</i>	3	3	0
FHU3219	Pengenalan Kepada Sains Perhutanan/ <i>Introduction to Forest Science</i>	3	3	0

3. Kursus Elektif/ Elective Courses (34 kredit/ *credits*)

i. OPSYEN TEKNOLOGI BIOKOMPOSIT/ *BIOCOMPOSITE TECHNOLOGY OPTION*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3515	Proses Pembuatan Perabot/ <i>Furniture Manufacturing Process</i>	3	2	1
FHH3526	Mekanik Kayu/ <i>Wood Mechanics</i>	3	2	1
FHH3527	Biojisim Dan Biotenaga/ <i>Biomass and Bioenergy</i>	3	2	1
FHH4504	Papan Komposit II/ <i>Wood Composite II</i>	3	2	1
FHH4505	Teknologi Penglitup dan Kemasiapan Kayu/ <i>Wood Coating and Finishing Technology</i>	3	2	1
FHH4506	Teknologi Kitaran Semula Kayu dan Gentian/ <i>Wood and Fiber Recycling Technology</i>	3	2	1
FHH4507	Rekabentuk Kayu dan Analisis Kejuruteraan/ <i>Wood Design and Engineering Analysis</i>	3	2	1

ii. OPSYEN PENGURUSAN INDUSTRI PERKAYUAN/ *WOOD INDUSTRIAL MANAGEMENT OPTION*

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3510	Analisis Operasi Perindustrian Hasil Hutan/ <i>Operations Analysis in Forest Products Industries</i>	3	2	1
FHH3521	Perolehan Bekalan Balak Dan Kayu/ <i>Logs and Wood Procurement</i>	3	2	1
FHH3525	Pencemaran Dalam Industri Hutan/ <i>Pollution in Forest Industries</i>	3	3	0

FHH4501	Sistem Pengawasan Mutu Pemprosesan Kayu/ <i>Wood Processing Quality Control System</i>	2	1	1
FHU3213	Analisis Kewangan Industri Perakayuan/ <i>Financial Analysis of Wood Industries</i>	3	2	1
FHU4207	Perdagangan Kayu Antarabangsa/ <i>International Timber Trade</i>	3	3	0
FHU4202	Pengurusan Industri Perhutanan/ <i>Forest Industry Management</i>	2	2	0
MGM3101	Prinsip Pengurusan/ <i>Principles of Management</i>	3	3	0

iii. Kursus Elektif/ *Elective Courses* ¹ (Pilih/Choose 9 kredit/credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3528	Ergonomik Hutan/ <i>Forest Ergonomics</i>	3	2	1
FHH4508	Penambahbaikan Mutu Kayu/ <i>Wood Quality Improvement</i>	3	2	1
FHP4103	Biodiversiti dan Pemuliharaan/ <i>Biodiversity and Conservation</i>	3	2	1
FHR3601	Pengenalan Kepada Rekreasi Luar/ <i>Introduction to Outdoor Recreation</i>	3	3	0
FHR3607	Perilaku Pengguna Rekreasi/ <i>Recreational User Behaviour</i>	3	3	0
FHU3203	Sukatan Hutan/ <i>Forest Mensuration</i>	3	2	1
FHU3207	Pengurusan Hutan II/ <i>Forest Management II</i>	3	2	1
MGM3113	Gelagat Organisasi/ <i>Organizational Behavior</i>	3	3	0

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

Pelajar kedua-dua opsyen perlu mengambil 9 kredit kursus elektif yang tersenarai dalam (iii). Walau bagaimanapun, pelajar juga dibolehkan memilih kursus daripada senarai kursus opsyen yang lain seperti dalam (i atau ii). Bagi opsyen Teknologi Biokomposit perlu mengambil 3 kredit daripada mana-mana kursus yang ditawarkan universiti manakala opsyen Pengurusan Industri Perakayuan perlu mengambil 2 kredit/ *Students have two options to take 9 credits of elective courses listed in (iii). However, students are allowed to choose courses from a list of options that are other courses as in (i or ii). For opsyen Teknologi Biocomposites have to take 3 credits of any courses offered university and Wood Industry Management option to take 2 credits*

Nota Penting/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**OPSYEN TEKNOLOGI BIOKOMPOSIT/ BIOCOMPOSITE TECHNOLOGY OPTION**TAHUN 1/ 1ST YEARSEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
BGY3201	<i>Struktur Dan Fungsi Tumbuhan/Plant Structure and Function</i>	3	2	1
SKP2203	<i>Tamadun Islam dan Tamadun Asia/ Asian and Islamic Civilization</i>	2	2	0
MTH3003	<i>Statistik Bagi Sains Gunaan/Statistics for Applied Sciences</i>	4	3	1
PRT2008	<i>Pertanian dan Manusia/Agriculture and Man</i>	2	2	0
FHU3219	<i>Pengenalan Kepada Sains Perhutanan/ Introduction to Forest Science</i>	3	3	0
QKX	<i>Kokurikulum 1/ Co-curriculum 1</i>	1	0	1
JUMLAH/ TOTAL		18	14	4

SEMESTER 2

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2424	<i>Academic Writing</i>	3	2	1
FCE3204	<i>Kemahiran Berfikir/Thinking Skills</i>	2	2	0
FHP3112	<i>Dendrologi 1/ Dendrology 1</i>	3	2	1
FHU3204	<i>Kaedah Komputer Dalam Perhutanan/ Computer Methods in Forestry</i>	3	2	1
SKP2204	<i>Hubungan Etnik /Ethnic Relation</i>	2	2	0
FHH3516	<i>Anatomi Kayu dan Gentian/ Wood and Fibre Anatomy</i>	3	2	1
QKX	<i>Kokurikulum 2/ Co-curriculum 2</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/T
FHH3517	<i>Fizik Kayu dan Gentian/ Wood and Fibre Physics</i>	3	2	1
FHH3518	<i>Kimia Kayu dan Gentian/ Wood and Fibre Chemistry</i>	3	2	1
FHH3509	<i>Hasil Hutan Bukan Kayu/ Non-Wood Forest Products</i>	3	2	1
FHH3522	<i>Pengilangan dan Pemesinan Kayu/ Sawmilling and Wood Machining</i>	3	2	1
FHS4902	<i>Kem Perhutanan/ Forestry Camp</i>	1	0	1

SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
JUMLAH/ TOTAL		16	11	5

SEMESTER 2

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHU3218	Ekonomi Industri Perkayuan/ <i>Wood Industry Economics</i>	3	3	0
FHH3519	Papan Komposit I/ <i>Wood Composite I</i>	3	2	1
FHH3520	Pengeringan Kayu/ <i>Wood Seasoning</i>	2	1	1
FHH3523	Kemerosotan Kayu dan Rawatan/ <i>Wood Deterioration and Treatment</i>	3	2	1
FHH3524	Perekat dan Teknologi Perekatan Kayu/ <i>Wood Adhesive and Adhesion Technology</i>	3	2	1
FHP3105	Sivikultur Hutan/ <i>Forest Silviculture</i>	4	3	1
JUMLAH/ TOTAL		18	13	5

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3526	Mekanik Kayu/ <i>Wood Mechanics</i>	3	2	1
FHH3511	Teknologi Pulpa dan Kertas/ <i>Pulp and Paper Technology</i>	3	2	1
FHH3515	Proses Pembuatan Perabot/ <i>Furniture Manufacturing Process</i>	3	2	1
FHH4504	Papan Komposit II/ <i>Wood Composite II</i>	3	2	1
FHH4505	Teknologi Penglitup dan Kemasiapan Kayu/ <i>Wood Coating and Finishing Technology</i>	3	2	1
FHU3227	Pengenalan Kepada Undang-undang Industri Perkayuan / <i>Introduction to Wood Industry Law</i>	2	2	0
JUMLAH/ TOTAL		17	12	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHU3205	Kaedah Kuantitatif Dalam Perhutanan/ <i>Quantitative Methods in Forestry</i>	4	3	1
FHH3512	Pemasaran Hasil Hutan/ <i>Forest Products Marketing</i>	3	2	1
FHS4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
FHH4507	Rekabentuk Kayu dan Analisis Kejuruteraan/ <i>Wood Design and Engineering Analysis</i>	3	2	1
	Elektif I/ <i>Elective I</i>	3	-	-
	Elektif II/ <i>Elective II</i>	3	-	-
JUMLAH/ TOTAL		19	7	6

TAHUN 4/ 4TH YEARSEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3527	Biojisim Dan Biotenaga/ <i>Biomass and Bioenergy</i>	3	2	1
FHH4506	Teknologi Kitaran Semula Kayu dan Gentian/ <i>Wood and Fiber Recycling Technology</i>	3	2	1
FHS4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3	2	1
	Elektif III/ <i>Elective III</i>	3	-	-
	Elektif IV/ <i>Elective IV</i>	3	-	-
JUMLAH/ TOTAL		18	6	6

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12

i. **OPSYEN PENGURUSAN INDUSTRI PERKAYUAN/ WOOD INDUSTRIAL
MANAGEMENT OPTION**

TAHUN 1/ 1ST YEARSEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
BGY3201	Struktur Dan Fungsi Tumbuhan/ <i>Plant Structure and Function</i>	3	2	1
FHU3219	Pengenalan Kepada Sains Perhutanan/ <i>Introduction to Forest Science</i>	3	3	0
MTH3003	Statistik Bagi Sains Gunaan/ <i>Statistics for Applied Sciences</i>	4	3	1
PRT2008	Pertanian dan Manusia/ <i>Agriculture and Man</i>	2	2	0
SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Asian and Islamic Civilization</i>	2	2	0
QKX	Kokurikulum 1/ <i>Co-curriculum 1</i>	1	0	1
JUMLAH/ TOTAL		18	14	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2424	<i>Academic Writing</i>	3	2	1
FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2	2	0

FHH3516	Anatomi Kayu dan Gentian/ <i>Wood and Fibre Anatomy</i>	3	2	1
FHP3112	Dendrologi I/ <i>Dendrology 1</i>	3	2	1
FHU3204	Kaedah Komputer Dalam Perhutanan/ <i>Computer Methods in Forestry</i>	3	2	1
SKP2204	Hubungan Etnik / <i>Ethnic Relation</i>	2	2	0
QKX	Kokurikulum 2/ <i>Co-curriculum 2</i>	1	0	1
JUMLAH/ TOTAL		17	12	5

TAHUN 2/ 2ND YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3517	Fizik Kayu dan Gentian/ <i>Wood and Fibre Physics</i>	3	2	1
FHH3518	Kimia Kayu dan Gentian/ <i>Wood and Fibre Chemistry</i>	3	2	1
FHS4902	Kem Perhutanan/ <i>Forestry Camp</i>	1	0	1
FHH3509	Hasil Hutan Bukan Kayu/ <i>Non-Wood Forest Products</i>	3	2	1
FHH3522	Pengilangan dan Pemesinan Kayu/ <i>Sawmilling and Wood Machining</i>	3	2	1
SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3	3	0
	Elektif I/ <i>Elective I</i>	2	-	-
JUMLAH/ TOTAL		18	11	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3523	Kemerosotan Kayu dan Rawatan/ <i>Wood Deterioration and Treatment</i>	3	2	1
FHP3105	Sivikultur Hutan/ <i>Forest Silviculture</i>	4	3	1
FHH3524	Perekat dan Teknologi Perekatan Kayu/ <i>Wood Adhesive and Adhesion Technology</i>	3	2	1
FHH3520	Pengeringan Kayu/ <i>Wood Seasoning</i>	2	1	1
FHH3519	Papan Komposit I/ <i>Wood Composite I</i>	3	2	1
FHU3218	Ekonomi Industri Perkayuan/ <i>Wood Industry Economics</i>	3	3	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/T
FHH3510	Analisis Operasi Perindustrian Hasil Hutan/ <i>Operations Analysis in Forest Products Industries</i>	3	2	1

FHU3227	Pengenalan Kepada Undang-Undang Industri Perakayan/ <i>Introduction to Wood Industry Law</i>	2	2	0
FHH3521	Perolehan Bekalan Balak Dan Kayu/ <i>Logs and Wood Procurement</i>	3	2	1
FHH3511	Teknologi Pulpa dan Kertas/ <i>Pulp and Paper Technology</i>	3	2	1
FHU4207	Perdagangan kayu antarabangsa/ <i>International Timber Trade</i>	3	3	0
MGM3101	Prinsip Pengurusan/ <i>Principles of Management</i>	3	3	0
JUMLAH/ TOTAL		17	14	3

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHU3205	Kaedah Kuantitatif Dalam Perhutanan/ <i>Quantitative Methods in Forestry</i>	4	3	1
FHU3213	Analisis Kewangan Industri Perakayan/ <i>Financial Analysis of Wood Industries</i>	3	2	1
FHH3512	Pemasaran Hasil Hutan/ <i>Forest Products Marketing</i>	3	2	1
FHS4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
	Elektif II/ <i>Elective II</i>	3	-	-
FHH3525	Pencemaran Dalam Industri Perhutanan/ <i>Pollution in Forest Industries</i>	3	3	0
JUMLAH/ TOTAL		19	10	6

TAHUN 4/ 4TH YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHU4202	Pengurusan Industri Perhutanan/ <i>Forest Industry Management</i>	2	2	0
FHH4501	Sistem Pengawalan Mutu Pemprosesan Kayu/ <i>Wood Processing Quality Control System</i>	2	1	1
FHS4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3	2	1
	Elektif III/ <i>Elective III</i>	3	-	-
	Elektif IV/ <i>Elective IV</i>	3	-	-
JUMLAH/ TOTAL		16	5	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
JUMLAH/ TOTAL		12	0	12

STRUKTUR KURIKULUM/ CURRICULUM STRUCTURE

Nama Program : **Bachelor Sains Taman dan Rekreasi/ *Bachelor of Parks and Recreation Science***

Jumlah Kredit Bergraduat : **137 Jam Kredit/ *Credits Hours***

Tempoh Pengajian : **8 Semester/ *Semesters* (4 Tahun/ *Years*)**

1. Kursus Universiti/ *University Courses* (20 kredit/ *credits*)

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

2. Kursus Teras/ *Core Courses* (81 kredit/ *credits*)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BGY3201	<i>Struktur Dan Fungsi Tumbuhan/Plant Structure and Function</i>	3	2	1
ECN4343	<i>Ekonomi Rekreasi Dan Pelancongan/ Tourism and Recreation Economics</i>	3	3	0
FHK3401	<i>Survei Hutan/ Forest Survey</i>	3	2	1
FHP3112	<i>Dendrologi I/ Dendrology 1</i>	3	2	1
FHR3602	<i>Interpretasi Persekitaran/ Environmental Interpretation</i>	3	2	1
FHR3606	<i>Perancangan Rekreasi Luar/ Outdoor Recreation Planning</i>	3	2	1
FHR3607	<i>Perilaku Pengguna Rekreasi/ Recreational User Behaviour</i>	3	3	0
FHR3608	<i>Pengurusan Risiko Dalam Rekreasi/Risk Management and Recreation</i>	3	2	1
FHR3609	<i>Pemrograman Dan Pemimpinan Rekreasi/ Recreation Programming and Leadership</i>	3	2	1
FHR3612	<i>Pentadbiran Dan Organisasi Taman Dan Rekreasi/ Administration and Organisation of Parks and Recreation</i>	3	2	1
FHR3616	<i>Kemahiran Rekreasi Luar/ Outdoor Recreation Skills</i>	3	1	2

FHR3618	Inventori Sumber Taman dan Rekreasi/ <i>Park and Recreation Resources Inventory</i>	3	2	1
FHR3619	Ekologi Sumber Rekreasi/ <i>Recreation Resource Ecology</i>	3	2	1
FHR3620	Keusahawanan Dalam Taman Dan Rekreasi/ <i>Entrepreneurship in Parks and Recreation</i>	3	2	1
FHR3624	Undang-Undang Sumber Asli Dan Rekreasi/ <i>Natural Resources and Recreation Law</i>	2	2	0
FHR4601	Hospitaliti Dalam Taman dan Rekreasi/ <i>Hospitality in Park and Recreation</i>	3	2	1
FHS4902	Kem Perhutanan/ <i>Forestry Camp</i>	1	0	1
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
FHS4999	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	6	0	6
FHU3204	Kaedah Komputer Dalam Perhutanan/ <i>Computer Methods in Forestry</i>	3	2	1
FHU3205	Kaedah Kuantitatif Dalam Perhutanan/ <i>Quantitative Methods in Forestry</i>	4	3	1
FHU3219	Pengenalan Kepada Sains Perhutanan/ <i>Introduction to Forest Science</i>	3	3	0
MTH3003	Statistik Bagi Sains Gunaan/ <i>Statistics for Applied Sciences</i>	4	3	1

3. Kursus Elektif/ *Elective Courses* (Pilih/Choose 34 credit/ credits)

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHH3501	Struktur Dan Penggunaan Kayu/ <i>Wood Structure and Utilization</i>	4	3	1
FHH3509	Hasil Hutan Bukan Kayu/ <i>Non-Wood Forest Products</i>	3	3	0
FHK3406	Sistem Maklumat Geografi Dalam Perhutanan/ <i>Geographic Information System in Forestry</i>	3	2	1
FHP3110	Tanah Hutan/ <i>Forest Soil</i>	3	2	1
FHP3114	Pemulihan Ekosistem/ <i>Ecosystem Restoration</i>	3	2	1
FHR3603	Pengurusan Hutan Bandar/ <i>Urban Forest Management</i>	4	3	1
FHR3610	Operasi Dan Senggaraan Taman/ <i>Parks Maintenance and Operation</i>	2	1	1
FHR3611	Perancangan Dan Rekabentuk Tapak Kawasan Rekreasi/ <i>Recreation Site Planning and Design</i>	3	2	1
FHR3614	Pengurusan Perniagaan Rekreasi/ <i>Recreation Business Management</i>	3	2	1
FHR3617	Arborikultur/ <i>Arboriculture</i>	3	2	1
FHR3621	Pengurusan Dan Operasi Kem/ <i>Camp Operation and Management</i>	3	2	1
FHR3622	Rekreasi Terapeutik Bagi Golongan Istimewa/ <i>Therapeutic Recreation for Special People</i>	3	2	1
FHR3625	Pengurusan Hidupan Liar Rekreasi/ <i>Recreational Wildlife Management</i>	3	2	1

FHR4602	Reka Bentuk Kemudahan Rekreasi/ <i>Design of Recreational Facilities</i>	3	2	1
FHR4603	Pendidikan Alam Semula Jadi/ <i>Nature Education</i>	3	2	1
FHR4604	Pengurusan Pelancongan Eko/ <i>Ecotourism Management</i>	3	2	1
FHR4605	Pembangunan Produk Rekreasi/ <i>Development of Recreation Products</i>	3	2	1
FHR4606	Pemasaran Rekreasi/ <i>Recreation Marketing</i>	3	2	1
FHR4607	Pengurusan Pelancongan Warisan Dan Komuniti/ <i>Heritage and Community Tourism Management</i>	3	2	1
FHR4608	Pengurusan Kawasan Perlindungan/ <i>Protected Areas Management</i>	3	2	1
FHU3203	Sukatan Hutan/ <i>Forest Mensuration</i>	3	2	1

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

Nota Penting/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 SCHEMETAHUN 1/ 1ST YEARSEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2423	<i>Academic Interaction and Presentation</i>	3	2	1
FCE3204	<i>Kemahiran Berfikir/Thinking Skills</i>	2	2	0
MTH3003	<i>Statistik Bagi Sains Gunaan/ Statistics for Applied Sciences</i>	4	3	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/ Asian and Islamic Civilization</i>	2	2	0
SKP2204	<i>Hubungan Etnik /Ethnic Relation</i>	2	2	0
JUMLAH/ TOTAL		18	16	2

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
BBI2424	<i>Academic Writing</i>	3	2	1
BGY3201	<i>Struktur Dan Fungsi Tumbuhan/ Plant Structure and Function</i>	3	2	1
FHP3112	<i>Dendrologi I/ Dendrology I</i>	3	2	1
FHU3204	<i>Kaedah Komputer Dalam Perhutanan/ Computer Methods in Forestry</i>	3	2	1
FHU3219	<i>Pengenalan Kepada Sains Perhutanan/ Introduction to Forest Science</i>	3	3	0
KOM3403	<i>Pengucapan Awam/Public Oration</i>	3	3	0
JUMLAH/ TOTAL		18	14	4

TAHUN 2/ 2ND YEARSEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHK3401	<i>Survei Hutan/Forest Survey</i>	3	2	1
FHR3616	<i>Kemahiran Rekreasi Luar/ Outdoor Recreation Skills</i>	3	1	2
FHR3618	<i>Inventori Sumber Taman dan Rekreasi/ Park and Recreation Resources Inventory</i>	3	2	1
FHR3619	<i>Ekologi Sumber Rekreasi/Recreation Resource Ecology</i>	3	2	1
FHS4902	<i>Kem Perhutanan/ Forestry Camp</i>	1	0	1
FHU3205	<i>Kaedah Kuantitatif Dalam Perhutanan/ Quantitative Methods in Forestry</i>	4	3	1
JUMLAH/ TOTAL		17	12	5

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHR3602	Interpretasi Persekitaran/ <i>Environmental Interpretation</i>	3	2	1
FHR3612	Pentadbiran Dan Organisasi Taman Dan Rekreasi/ <i>Administration and Organisation of Parks and Recreation</i>	3	2	1
FHR3612	Perancangan Rekreasi Luar/ <i>Outdoor Recreation Planning</i>	3	2	1
FHR3607	Perilaku Pengguna Rekreasi/ <i>Recreational User Behaviour</i>	3	3	0
	Elektif / <i>Elective</i>	5	-	-
	JUMLAH/ TOTAL	17	5	4

TAHUN 3/ 3RD YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHR3608	Pengurusan Risiko Dalam Rekreasi/ <i>Risk Management and Recreation</i>	3	2	1
FHR3609	Pemrograman Dan Pemimpinan Rekreasi/ <i>Recreation Programming and Leadership</i>	3	2	1
FHR4601	Hospitaliti Dalam Taman dan Rekreasi/ <i>Hospitality in Park and Recreation</i>	3	2	1
FHR3606	Perancangan Rekreasi Luar/ <i>Outdoor Recreation Planning</i>	3	2	1
	Elektif/ <i>Elective</i>	9	-	-
	JUMLAH/ TOTAL	18	6	3

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12	0	12
	JUMLAH/ TOTAL	12	0	12

TAHUN 4/ 4TH YEAR

SEMESTER 1/ 1ST SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
ECN3100	Prinsip Ekonomi/ <i>Economics Principles</i>	3	3	0
FHS4999A	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
FHR3620	Keusahawanan Dalam Taman Dan Rekreasi/ <i>Entrepreneurship in Parks and Recreation</i>	3	2	1
QKX	Kokurikulum 1/ <i>Co-curriculum 1</i>	1	0	1

Elektif/ <i>Elective</i>	9	-	-
JUMLAH/ TOTAL	18	5	4

SEMESTER 2/ 2ND SEMESTER

KOD KURSUS/ COURSE CODE	NAMA KURSUS/COURSE NAME	Kr	K	A/T
ECN4135	Ekonomi Rekreasi Dan Pelancongan/ <i>Tourism and Recreation Economics</i>	3	3	0
FHR3624	Undang-Undang Sumber Asli Dan Rekreasi/ <i>Natural Resources and Recreation Law</i>	3	2	1
FHS4999B	Projek Ilmiah Tahun Akhir/ <i>Final Year Project</i>	3	0	3
QKX	Kokurikulum 2/ <i>Co-curriculum 2</i>	1	0	1
	Elektif IV/ <i>Elective IV</i>	9	-	-
	JUMLAH/ TOTAL	19	5	5

SINOPSIS KURSUS/ COURSE SYNOPSIS

Jabatan Pengeluaran Hutan/ Department Of Forest Production

FHH3501	Struktur Dan Penggunaan Kayu/ <i>Wood Structure and Utilization</i>	4 (3+1)
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Prasyarat : Tiada

Kursus merangkumi perbincangan asal usul botani bahan kayu, struktur anatomi, pembentukan jenis sel kayu, sifat fizikal, kandungan lembapan serta teknik pengecaman spesies kayu komersial termasuk pemprosesan utama untuk bahan mentah, kaedah pengeringan dan pengawetan serta pembuatan papan komposit berasaskan kayu.

This course includes discussion on the botanical origin of wood, anatomical structure, formation of cell types, physical properties, moisture content, identification techniques for commercial woods including primary processing of raw material, drying and preservation methods as well as wood-based composite panel manufacturing

FHH3509	Hasil Hutan Bukan Kayu/ <i>Non-Wood Forest Products</i>	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi sejarah, jenis hasil hutan bukan kayu seperti rotan, buluh, fitokimia tumbuhan ubatan dan palma. Proses pengumpulan dan agihan menggunakan teknologi sesuai dalam proses pembuatan produk akhir untuk pembangunan industri desa serta sosio-ekonomi

This course covers the history, types of non-wood forest products, i.e., rattan, bamboo, phytochemicals, medicinal plants and palms. Collection and its distribution process by means of appropriate technology in manufacturing end products towards the development of cottage industries as well as socio-economic development.

FHH3510	Analisis Operasi Perindustrian Hasil Hutan/ <i>Operations Analysis in Forest Products Industries</i>	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi analisis operasi dalam sistem pembuatan hasil hutan. Pendekatan analitik bagi mengoptimumkan fungsi pengeluaran untuk menyelesaikan isu-isu keupayaan, ramalan permintaan, pengagihan sumber, kawalan mutu, penyelenggaraan dan peranan tabiat manusia turut dibincangkan

This course covers analyses on operations of forest products manufacturing systems. Analytical approach for the optimum production functions in solving the issues of capabilities, forecasting demands, allocation of resources, quality control, maintenance and human behavior are also discussed

FHH3511	Teknologi Pulpa dan Kertas/ <i>Pulp and Paper Technology</i>	3 (2+1)
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Prasyarat : Tiada

Kursus ini merangkumi sejarah dan pertimbangan komersial dan pencirian bahan mentah bagi industri pulpa dan kertas. Teknik memulpa, proses pelunturan dan penyediaan stok pulpa serta proses pembuatan kertas serta perolehan bahan dan pertimbangan alam sekitar dalam industri pulpa dan kertas turut dibincangkan

This course covers the history, commercial consideration and raw materials characteristics of the pulp and paper industry. The technique of pulping, bleaching processes, pulp stock preparation and papermaking as well as recovery of the materials and environmental consideration in the pulp and paper industry are also discussed

FHH3512	Pemasaran Hasil Hutan/ <i>Forest Products Marketing</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi konsep asas pemasaran dan pengurusan pemasaran dengan tumpuan kepada analisis peluang pemasaran, dan keputusan keluaran/perkhidmatan. Beberapa topik berkaitan dengan pemasaran produk/perkhidmatan seperti pensijilan keluaran hutan turut dibincangkan.		
<i>This course covers the fundamental concepts of marketing and marketing management with emphasis on marketing opportunities analysis and decisions on products/services., Several topics related to the marketing of forest products/services like product certification are also discussed.</i>		
FHH3515	Proses Pembuatan Perabot/ <i>Furniture Manufacturing Process</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi latar belakang industri perabot di Malaysia dan di dunia. Proses pembuatan perabot, reka bentuk perabot, isu-isu alam sekitar dan isu lain turut dibincangkan.		
<i>This course covers the background of Malaysian furniture industry and global furniture industry. Furniture manufacturing processes, furniture design, environmental and other related issues are also discussed.</i>		
FHH3516	Anatomi Kayu dan Gentian/ <i>Wood and Fibre Anatomy</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi pengenalan kepada struktur kayu. Perkembangan sel tumbuhan, kecacatan dan mutu kayu yang berkait dengan pertumbuhannya. Struktur molekul dan ultra, komposisi kimia dinding sel kayu. Rupa kayu berhubung dengan struktur dan prestasi kegunaannya, hubungan jisim-isipadu, ketumpatan dan keporosan turut dibincangkan.		
<i>This course covers the introduction to structure of wood. Development of woody plant cells and growth related defects, wood quality in relation to wood growth. Molecular and ultra structure and chemical constituents of wood cell walls. Appearance of wood in relation to its structure, performance in use, mass-volume relationship, density and porosity are also discussed.</i>		
FHH3517	Fizik Kayu dan Gentian/ <i>Wood and Fibre Physics</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi sifat fizikal dan mekanikal kayu sebagai bahan mentah industri. Hubungkait air dan kayu, ketumpatan, sifat haba, elektrik, akustik kayu, gelagat kayu terhadap api dan kaedah rawatan perencat kebakaran. Faktor yang mempengaruhi kekuatan kayu dan ujian kekuatan kayu turut dibincangkan.		
<i>This course covers physical and mechanical properties of wood as raw materials. Wood and water relationship, density, electrical, thermal, acoustic properties, behaviour of wood towards fire and methods of fire retardant treatments. Factors affecting strength and types of mechanical test are also discussed.</i>		
FHH3518	Kimia Kayu dan Gentian/ <i>Wood and Fibre Chemistry</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi pembentukan kayu dalam tumbuh-tumbuhan dan taburan komponen kimia dalam kayu. Struktur, kandungan, pembentukan dan sifat-sifat ekstraktif serta tindakbalas kimia terhadap lignin, polisakarida, selulosa, hemiselulosa dan kulit pokok turut dibincangkan.		

This course covers wood cell formation, distribution and variation of the primary chemical constituents in wood. Structure, chemical contents and properties of extractives and chemical reaction with lignin, polysaccharide, cellulose, hemicelluloses and barks are also discussed.

FHH3519 Papan Komposit I/ Wood Composite I 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi proses pembuatan dan sifat fizikal papan lapis, papan serpai, papan simen, papan gentian, kayu berlamina, kayu-polimer komposit dan bahan kayu berlapis. Penggunaan sisa kayu dan teknologi baru yang berkaitan serta piawaian dan peggedan produk turut dibincangkan.

This course covers the manufacturing processes and physical properties of plywood, particleboard, cement-board, fiberboard, laminated wood, wood-polymer composite, and sandwich materials. Wood waste utilization and new technology involved as well product standards and grading are also discussed.

FHH3520 Pengerian Kayu/ Wood Seasoning 2 (1+1)

Prasyarat : Tiada

Kursus ini merangkumi prinsip pengeringan kayu termasuk hubungkait kayu dengan lembapan, kaedah pengeringan udara, tanur serta kaedah lain pengeringan kayu. Jenis kecacatan akibat pengeringan dan kawalan, ekonomi pengeringan kayu dan rawatan kestabilan kayu turut dibincangkan.

The course covers the principle of wood seasoning including wood moisture relationship, methods of air, kiln drying as well as other modes of drying. Types of seasoning defects and prevention, economics of wood drying and dimensional stabilization treatment are also discussed.

FHH3521 Perolehan Bekalan Balak Dan Kayu/
Logs and Wood Procurement 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi sistem perolehan bekalan balak dan bahan kayu untuk pemprosesan hiliran. Penekanan diberikan kepada penentuan harga, penggredan dan kaedah pengukuran untuk kayu balak, kayu balak kecil, kayu getah, kayu gergaji dan papan lapis.

This course covers log and timber procurement systems for downstream processing. Emphasis is given to price determination, grading and measurement methods for logs, small logs, rubber wood, sawn timber and plywood.

FHH3522 Pengilangan dan Pemesinan Kayu/ Sawmilling and Wood
Machining 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi teori asas dan amalan pengilangan dan pemesinan kayu. Jenis pemesinan, pemotongan ortogonal dan periferal, arah potongan, dan faktor yang mempengaruhi pemesinan, proses pengetaman, pemotongan venir, dan aspek kesihatan dan keselamatan kerja turut dibincangkan.

This course covers the basic theories and practices of sawmilling and wood machining. Machining categories, orthogonal and peripheral cutting, cutting directions, and influencing factors are discussed in the machining part. Planning, veneer cutting and health and work safety aspect are also discussed.

FHH3523 Kemerosotan Kayu dan Rawatan/ *Wood Deterioration and Treatment* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada agen biotik dan abiotik yang merosotkan kayu, ciri-ciri kemerosotan dan kesannya ke atas sifat dan kualiti kayu. Bahan pengawet dan teknik pengawetan kayu, kaedah pengawalan agen perosak turut dibincangkan.

This course covers introduction to biotic and abiotic agents that deteriorate wood, characteristic features of deterioration and the effects on wood properties and quality. Wood preservatives and preservation techniques, pests controlling system are also discussed).

FHH3524 Perekat dan Teknologi Perekatan Kayu/ *Wood Adhesive and Adhesion Technology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada perekat, perekatan dan kepentingan perekat dalam industri komposit. Prinsip adhesion, sistem perekat kayu, jenis perekat dan mekanisma perekatan juga turut dibincangkan.

This course covers an introduction to wood adhesives, adhesion and the importance of adhesives in the composite industry. Principles of adhesion, adhesive systems and mechanisms of adhesion and types of natural and synthetic wood adhesives are also discussed

FHH3525 Pencemaran Dalam Industri Hutan/ *Pollution in Forest Industries* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi jenis pencemaran yang berkaitan dengan industri hulu dan hiliran hutan serta kesannya ke atas alam sekitar. Kaedah dalam menentukan kadar pencemaran dan cara mengurangkan pencemaran serta kepentingan isu keselamatan dan kesihatan dalam kilang berasas kayu turut dibincangkan.

This course covers the types of pollution associated with upstream and downstream forest industries and its impact on the environment. Methods for the determination of pollution levels and reduction of pollution, as well as the importance of issues on safety and health in the wood-based industries are also discussed.

FHH3526 Mekanik Kayu/ *Wood Mechanics* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi ciri-ciri mekanikal kayu dan konsepnya untuk menghuraikan papan komposit. Faktor yang mempengaruhi sifat mekanikal kayu dan papan komposit terhadap penggunaannya akan dibincangkan. Kaedah untuk menghuraikan hubungan beban dan peralihan pada kayu dan papan komposit turut dibincangkan.

The course covers the characteristics of wood mechanic and the concept for deriving wood composite. Influence of the timbers and wood composite's mechanical properties on its end use is discussed. Method to derive the relationship of load and displacement on wood and wood composite are also discussed.

FHH3527 Biojisim Dan Biotenaga/ *Biomass and Bioenergy* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada pelbagai kaedah dan teknologi penghasilan biotenaga dalam bentuk pepejal, cecair dan gas. Keberkesanan penghasilan biotenaga daripada biojisim seperti hidrolisis, fermentasi, pencairan dan pirolisis dibincangkan dan dibandingkan. Aspek ekonomi, dasar pembangunan dan penggunaan biotenaga turut dibincangkan.

This course covers the introduction of methods and technologies for biofuel production in the form of solid, liquid and gas. Conversion efficiency of biomass to biofuel such as hydrolysis, fermentation, liquefaction and pyrolysis are discussed and compared. The economic aspect, development and utilization policy of biofuel are also discussed.

FHH3528 Ergonomik Hutan/ Forest Ergonomics 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi perbincangan pelbagai masalah yang dihadapi pekerja di bidang perhutanan dan industri perkayuan. Aplikasi teori dan kaedah ergonomik, seperti produktiviti, kajian masa, antropometri, bebanan persekitaran kerja, bebanan kerja secara fizikal dan psikologikal, susun atur tempat kerja, faktor manusia dan aspek kesihatan dan keselamatan pekerja turut dibincangkan.

This course covers discussion on some problems faced by workers in forestry and wood industry sectors. The application of the ergonomics theory and method on forestry field, such as productivity, time study, anthropometry, load of working environment, physiological and psychological work load, works place lay-out, human factors and the aspect safety and health of workers are also discussed

FHH4501 Sistem Pengawalan Mutu Pemprosesan Kayu / Wood Processing Quality Control System 2 (1+1)

Prasyarat : Tiada

Kursus ini merangkumi pengurusan kualiti dalam industri produk kayu, seperti kualiti bahan mentah, proses pembuatan dan produk akhir. Disamping itu, kaedah kualiti pengurusan kualiti secara statistik turut dibincangkan.

This course encompasses the quality management in the wood products industry, including raw materials, manufacturing process and final products. Aspects of statistical quality control are also discussed.

FHH4504 Papan Komposit II/ Wood Composite II 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi hubungkait di antara sifat bahan lignoselulosa, parameter pemprosesan dengan sifat papan komposit. Perlakuan dinamik haba, lembapan dan defomasi elemen lignoselulosa semasa tekanan panas dibincangkan. Piawaian dan sistem penggredan papan komposit turut dibincangkan.

This course covers the relationship between the characteristics of lignocellulosic materials and processing parameters with wood composite properties. Dynamic behaviour of heat, moisture and deformation of lignocellulosic elements during hot pressing are discussed. Standard and grading system of wood composite are also discussed.

FHH4505 Teknologi Penglitup dan Kemasiapan Kayu/ Wood Coating and Finishing Technology 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada jenis kemasan dan rawatan permukaan kayu untuk kegunaan komersial serta pemilihan teknik kemasiapan mengikut jenis produk. Sistem kemasiapan dan alatan, teknik, masalah, kawalan mutu serta ujian piawaian dalam produk yang telah dikemasiapkan turut dibincangkan.

This course covers an introduction of types of finishes and surface treatment of wood for commercial use and selection of technique of finishing according to the product. Finishing system and equipment, techniques, problems and remedial measures, quality control and standard tests for finished products are also discussed.

FHH4506 Teknologi Kitaran Semula Kayu dan Gentian/ *Wood and Fiber Recycling Technology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengkelasan dan pengumpulan sisa kayu dan gentian daripada industri pembalakan, industri pemprosesan kayu dan industri kertas di Malaysia untuk di kitar semula. Pembuatan pelbagai jenis produk dan kawalan mutu daripada bahan yang di kitar semula. Kebajikan industri kitar semula terhadap bekalan kayu dan alam sekitar juga turut dibincangkan.

This course covers the classification and the collection of wood waste from logging, wood processing and paper industries in Malaysia to be recycled. Manufacturing of wood products and its quality control from recycled materials. The benefits of recycled wood industries towards wood supply and environment are also discussed.

FHH4507 Rekabentuk Kayu dan Analisis Kejuruteraan/ *Wood Design and Engineering Analysis* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi teori asas dan penggunaan reka bentuk berbantu komputer dan analisis kejuruteraan berbantu komputer dalam reka bentuk kayu. Penilaian dan interpretasi hasil model reka bentuk kayu turut dibincangkan.

This course covers the basic theories and application of the computer aided design (CAD) and computer aided engineering (CAE) in timber design. Analysis, interpretation of output from design and engineering analysis software and the interpretation of post-analyzed timber design models will be discussed.

FHH4508 Penambahbaikan Mutu Kayu/ *Wood Quality Improvement* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada sifat semula jadi, fizik dan kimia kayu yang mempengaruhi mutu kayu. Pendedahan kepada faktor biotik dan abiotik yang menurunkan mutu kayu. Kaedah rawatan bagi penambahbaikan ketahanan, kekuatan, kestabilan dimensi, dan sifat rencatan kebakaran kayu. Kajian kes penambahbaikan mutu kayu dengan secara impregnasi turut dibincangkan.

This course covers the nature of wood, physical and chemical properties of wood related to the wood quality. Introduction to the biotic and abiotic agents that reduces wood quality. Introduction to wood treatment that improve the durability, strength, dimensional stability and fire retardant. Case study of quality improvement of oil palm wood with the impregnation treatment are also discussed.

FKH3401 Survei Hutan/ *Forest Survey* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi prinsip asas survei, teknik ukuran linear dan sudut, ukuran aras, penggunaan kompas, aras Abney, transit dan teodolit, terabes, pengiraan luas dan isipadu, stadia, teori ralat, skala, survei kontor topografi dan aplikasi survei dalam inventori hutan

This course covers the basic principles of survey, technique of linear and angular measurements, levelling, use of compass, Abney level, transit and theodolite, traverse, area and volume computation, stadia, theory of errors, scale, contour-topographic survey and applications of survey in forest inventory

FBK3403	Kejuruteraan Hutan/ <i>Forest Engineering</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi kejuruteraan hutan, sains bahan binaan, penganalisan kestabilan tebing dan dinding penahan, torque, rimpul, jentera perhutanan terpilih serta ekonomi kejuruteraan hutan yang merangkumi kos mesin dan penggantian termasuk penilaian kos alternatif.		
<i>This course encompasses forest engineering, building material science, analysis of slope stability and retaining wall, torque, rimpull, selected forest machinery as well as economics of forest engineering including costs of machinery and replacement, including evaluation of alternative costs</i>		
FBK3404	Penuaian Hutan/ <i>Forest Harvesting</i>	3 (2+1)
Prasyarat : FBK3403 Kejuruteraan Hutan		
Kursus ini meliputi konsep, sistem, teknik dan proses penuaian hutan termasuk menganalisa termasuk menganalisa kadar pengeluaran, kos penuaian, pengawalan kos pengeluaran balak serta penyediaan pelan penuaian hutan.		
<i>This course covers forest harvesting concept, system, technique and process of forest harvesting including analysis of production rate, cost of forest harvesting, control of logging production cost as well as development of forest harvesting plans</i>		
FBK3406	Sistem Maklumat Geografi Dalam Perhutanan/ <i>Geographic Information System in Forestry</i>	3 (2+1)
Prasyarat : Tiada		
Konsep asas sistem maklumat geografi (GIS) termasuk kaedah rekabentuk dan pembangunan pengkalan data, automasi, pemprosesan, penganalisaan, pemaparan dan modeling data untuk menyokong proses membuat keputusan termasuk kajian kes sistem maklumat geografi dalam perhutanan.		
<i>This course covers basic concepts of geographic information system (GIS) which include methods of design and data base development, automation, processing, analysis, display, and modelling of data to support decision making, including case studies of GIS in forestry</i>		
FBK3407	Jalan Hutan/ <i>Forest Road</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi konsep dan pendekatan dalam perancangan dan pembinaan jalan hutan dan kos yang terlibat. Tajuk yang dibincangkan meliputi geometri dan spesifikasi jalan, langkah dalam perancangan dan pembinaan jalan hutan, penggunaan perisian komputer, bagi perancangan jalan hutan dan analisis kos.		
<i>This course covers concepts and approaches in forest road planning and construction, and their associated costs. Topics discussed include road geometry and specifications, steps in forest road planning and construction, application of computer software for road planning and cost analysis</i>		
FBK4401	Penderiaan Jauh Dalam Perhutanan/ <i>Remote Sensing in Forestry</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi teori asas penderiaan jauh dan Sistem Maklumat Geografi (SMG) dalam perhutanan. Tajuk-tajuk yang dibincangkan meliputi teori radiasi magnetik elektro, jenis dan fungsi satelit, pelantar penderia, alat penderiaan jauh, kaedah pemprosesan imej satelit, penonjolan dan pengelasan imej, foto udara digital, teori asas SMG dan penyediaan peta hasil analisis imej satelit. Aplikasi penderiaan jauh dalam SMG dan pengurusan hutan juga dibincangkan.		

This course covers basic theories of remote sensing and Geographical Information System (GIS) in forestry. Topics discussed include electro magnetic radiation theory, types and functions of the satellite, sensor platform, remote sensing equipment, satellite image processing methods, image enhancement and classification, digital aerial photo, basic GIS theory, and preparation of maps from analyzed satellite imageries. Applications of remote sensing in GIS and forest management are also discussed

HHK4402 Pengangkutan Hutan/ *Forest Transportation* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep dan teori sistem pengangkutan dalam perhutanan, sistem pengangkutan hutan berasaskan darat dan air dan kaedah perancangan. Reka bentuk, perancangan dan pembangunan sistem pengangkutan hutan di darat dan air, spesifikasi alatan dan mesin pengangkutan sumber hutan juga dibincangkan. Kursus ini juga meliputi jenis matau dalam hutan, dan matau air, serta kaedah pengrusannya, analisis ekonomi sistem pengangkutan hutan dan sistem matau.

This course covers concepts and theories of transportation systems in forestry, land and water-based forest transportation systems, and planning methods. Design, planning and development of forest transportation systems on land and water, specifications of equipment and machinery for forest transportation are also discussed. The course also includes types of forest landings and log ponds, and their management methods, economic analysis of forest transportation and landing systems

FHP3102 Fisiologi Pokok/ *Tree Physiology* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi peranan fisiologi pokok dalam perhutanan, proses seperti fotosintesis metabolisme karbohidrat, asimilasi, respirasi, translokasi dan penumpukan makanan, pemakanan mineral dan penyerapan garam, perhubungan pokok dengan air termasuklah penyerapan, pergerakan dan kehilangan dari pokok dan pembiakan mengawan dan tumbesaran dan faktor mempengaruhinya tumbesaran.

This course encompasses the role of tree physiology in forestry, physiological processes such as photosynthesis, carbohydrate metabolism, assimilation and respiration, translocation and food accumulation, mineral nutrition and salt absorption, plant water relations including absorption, movement and water loss, sexual and asexual reproductions, growth and factors affecting growth

FHP3105 Sivikultur Hutan/ *Forest Silviculture* 4 (3+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep dan asas silvikultur, sistem silvikultur am dan sistem silvikultur yang diamalkan di hutan asli Malaysia. Penubuhan dan pengurusan hutan ladang turut dibincangkan.

This course covers the concept and fundamentals of silviculture, general silvicultural systems and silvicultural systems practiced in natural forests in Malaysia. The establishment and management of forest plantation are also discussed

FHP3108 Pembaikbiakan Pokok/ *Tree Improvement* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi perbincangan mengenai prinsip dan kaedah dalam pembaikbiakan pokok yang berkaitan dengan hutan asli dan penubuhan ladang hutan termasuk, genetik Mendel, genotip dan frekuensi genotip, ciri kuantitatif, keseimbangan Hardy-Weinberg, variasi semulajadi dalam dan antara populasi, mutasi, migrasi, pilihan semulajadi, pemilihan spesies dan ujian provenans, pembiakan tampang, ujian progeni dirian bijibenih dan strategi pembiakan mampan.

The course includes discussions on the principles and methods in tree improvement related to natural forest and development of plantation forestry including quantitative genetics, Mendelian genetics, genotype and gene frequency, Hardy-Weinberg equilibrium, natural variation, intra and inter- population variation, mutation, migration, natural selection, species and provenance selection, vegetative propagation, progeny trials, seed stand, seed orchard and sustainable breeding strategies

FHP3109 Teknologi Biji Benih/ *Seed Technology* 2 (1+1)

Prasyarat : Tiada

Kursus ini merangkumi perbincangan mengenai, teknologi biji benih dalam perhutanan termasuk topik biji benih seperti morfologi, anatomi, fisiologi, fenologi dan pengeluaran biji benih, masalah berkaitan pengutipan dan penyimpanan, agen perosak dan penyakit serta pensijilan biji benih.

The course includes discussions on seed technology in forestry and includes topics in seed morphology, anatomy, physiology, phenology and seed production, problems related to collection and storage, damaging agents and diseases as well as seed certification

FHP3110 Tanah Hutan/ *Forest Soil* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi topik sains tanah termasuk sifat kimia, fizikal dan biologi; pengecaman dan pengkelasan tanah, kesan aktiviti hutan terhadap ciri tanah serta indeks tapak

This course covers topics in soil sciences including chemical, physical and biological properties, soil classification and identification, effects of forest activities on soil properties as well as site index

FHP3111 Ekologi Hutan/ *Forest Ecology* 3 (2+1)

Prasyarat : Tiada

Kursus ini member penekanan kepada konsep ekologi yang mencakupi faktor persekitaran seperti faktor edafik, iklim dan biotik yang mempengaruhi perkembangan tumbuhan. Pengelasan hutan serta dinamik komuniti tumbuhan dan proses seperti pengeluaran bahan organik, aliran tenaga dan kitaran nutrien.

Scope and importance of ecology. Environment factors such as edaphic, climatic and biotic variables that influence the growth and development of vegetation. Forest classification in Malaysia. Community dynamics and processes such as production of organic matter, energy flow and nutrient cycling

FHP4103 Biodiversiti dan Pemuliharaan/ *Biodiversity and Conservation* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi isu semasa pemuliharaan biodiversiti dan impak aktiviti manusia terhadap biodiversiti. Kajian kes pada tajuk utama, perjanjian antarabangsa dan pembangunan mampan yang berkaitan dengan pemuliharaan, dan kaedah untuk memastikan integrasi antara pembangunan dan pemuliharaan turut dibincangkan.

This course covers current issues on biodiversity conservation, and impact of human activities on biodiversity. Case studies on the key points, international agreements and sustainable development related to conservation, and methods to realise integration between development and conservation are also discussed

FHP3101	Dendrologi / <i>Dendrology</i>	4 (3+1)
Prasyarat : Tiada		
Kursus ini memberi penekanan kepada bidang dendrologi dan kepentingannya dalam perhutanan termasuk amalan tatanama moden, habitat tumbuhan, kekunci sifat tumbuhan yang digunakan dalam pengecaman, petunjuk botani, pengumpulan spesimen herbarium, klasifikasi tumbuhan dipterokarpa dan bukan dipterokarpa.		
<i>The course emphasizes the importance of dendrology in forestry including the practice of modern nomenclature, the plant habitat, plant taxonomic keys and characteristics in plant identification, botanic indicators, collection of herbarium specimens, plant specification of dipterocarps and non-dipterocarps.)</i>		
FHP3112	Dendrologi I/ <i>Dendrology 1</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi asas dendrologi dalam perhutanan dan taksonomi tumbuhan. Sifat morfologi untuk pengecaman tumbuhan Gimnosperma dan Angiosperma turut dibincangkan.		
<i>This course covers the basic of dendrology in forestry and plant taxonomy. Morphological characters for identification of Gymnosperm and Angiosperm are also discussed</i>		
FHP3114	Pemulihan Ekosistem/ <i>Ecosystem Restoration</i>	3 (2+1)
Prasyarat : Tiada		
Kursus ini merangkumi konsep dan prinsip pemulihan ekosistem dan penilaian faktor yang menyebabkan kemerosotan ekosistem. Penilaian dan penggunaan kaedah bagi pemulihan pelbagai ekosistem yang rosak.		
<i>This course covers the concepts and principles of ecosystem restoration and evaluation of factors affecting ecosystem degradation. Assessment and application of methods to restore several ecosystem</i>		
FHS4902	Kem Perhutanan/ <i>Forestry Camp</i>	1 (0+1)
Prasyarat : Tiada		
Kursus ini memberi latihan kem perhutanan kepada pelajar selama dua minggu secara berterusan semasa cuti antara semester, yang mana modul aktiviti merangkumi pengenalan sains perhutanan di lapangan dan pembentukan sahsiah pelajar dalam persekitaran hutan.		
<i>This course trains the students with forestry camp for two consecutive weeks during the semester break where the modules of activities encompasses familiarization to field forestry science and student character building in forest environment</i>		
FHS4901	Latihan Industri/ <i>Industrial Training</i>	12 (0+12)
Prasyarat : Tiada		
Pelajar menjalani latihan industri sama ada dengan agensi awam atau swasta yang berkaitan dengan sektor perhutanan selama 24 minggu pada semester akhir program pengajian akademik, dengan penumpuan kepada aspek perkhidmatan, pengurusan sumber, pengurusan industri, pengilangan dan penggunaan produk berasaskan kayu.		
<i>Students undergo industrial taining in either private or public agencies related to the forestry sector for 24 weeks at the final semester of the academic program, with emphasis on the services, resource management, industrial management, manufacturing and utilisation of wood-based products</i>		

FHS4999A/
FHS4999B Projek Ilmiah Tahun Akhir/ *Final Year Project* 6 (0+6)

Prasyarat : Tiada

Dalam kursus ini pelajar tahun akhir dikehendaki menjalankan satu projek penyelidikan yang berkaitan dengan bidang perhutanan di bawah penyeliaan seorang staf akademik. Setiap pelajar akan mencadangkan satu tajuk atau memilih tajuk yang telah ditentukan oleh Fakulti. Pelajar dikehendaki menyediakan dan membentangkan kertas cadangan pada semester semasa dan seterusnya menjalankan penyelidikan mereka. Pada semester berikutnya pelajar diwajibkan membentangkan hasil penyelidikan dan mengemukakan laporan akademik.

The course is conducted over two semesters where students carry out research project in related forestry field under the supervision of an academic staff. The project will be evaluated through preparation and presentation of research proposal, presentation of results, and writing of thesis

FHU3218 Ekonomi Industri Perakayuan/Wood Industry Economics 4 (4+0)

Prasyarat : Tiada

Kursus ini merangkumi prinsip asas ekonomi mikro seperti penawaran, permintaan dan pengeluaran yang melibatkan industri perakayuan. Penumpuan diberikan kepada teori kos, penawaran dan permintaan hasil kayu, struktur dan tingkahlaku pasaran, tingkah laku penentuan harga, dan prestasi pasaran. Isu semasa berkaitan dengan perdagangan kayu turut dibincangkan.

This course covers the micro economics principles such as production, demand and supply related to wood industrty. Emphasis is given to cost theory, demand and supply of wood products, market structure and behavior, price determination behavior, and market performance. Current issues on timber trade are also discussed

FHU3219 Pengenalan Kepada Sains Perhutanan/ *Introduction to Forest Science* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi prinsip asas sains perhutanan yang merangkumi kepentingan perhutanan, sejarah hutan, jenis hutan, industri perhutanan, ekosistem hutan, pengurusan hutan, hasil dan perkhidmatan hutan serta isu perhutanan semasa di peringkat tempatan dan global.

This course covers the basic principles of forest science which includes the importance of forestry, forest history, forest types, forest industries, forest ecosystem, forest management, forest goods and services and forestry issues at the local and global levels

FHU4207 Perdagangan Kayu Antarabangsa / *International Timber Trade* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi sumber hutan dunia dan teori serta amalan perdagangan kayu antarabangsa. Isu semasa berkaitan dengan perdagangan kayu tropika turut dibincangkan.

This course covers world forest resources and theory as well as practices in international timber trade. Current issues on tropical timber trade are also discussed

Jabatan Pengurusan Hutan/ Department Of Forest Management

FHL3301 Pengurusan Hidupan Liar/ *Wildlife Management* 3 (2+1)

Prasyarat : Tiada

Pengenalan dan pengelasan hidupan liar di Malaysia. Aspek ekologi termasuk keperluan habitat, tekanan dan gangguan terhadap habitat, dinamik populasi hidupan liar, teknik pensampelan dan anggaran populasi. Prinsip pengurusan hidupan liar dan pengurusan hutan untuk hidupan liar. Kesedaran dan kefahaman umum, dan polisi negara ke atas kedudukan hidupan liar masa kini dan masa hadapan.

The course encompasses classification of wildlife in Malaysia, ecological aspect covering habitat requirement, pressures and disturbance of habitat, wildlife population dynamics, wildlife sampling techniques, population estimates, principles of forest management towards wildlife, management and conservation of wildlife, wildlife agencies and national wildlife policies including discussion on public awareness and understanding of current and future status of wildlife

FHL3302 Entomologi dan Patalogi Hutan/ *Forest Pathology And Entomology* 4 (3+1)

Prasyarat : Tiada

Kursus ini merangkumi pengecaman dan pengelasan serangga perosak hutan terpilih, habitatnya, biologi serangga perosak, penting, sistem pengurusan serangga perosak, konsep penyakit pokok, simptom, gejala, pengelasan, postulat koch, interaksi perumah dan patogen, wabak penyakit tumbuhan, diagnosis dan kaedah kawalan penyakit pokok hutan.

This course encompasses on the identification and classification of selected forest insects, their habitat, biology of important pests, insect pest management systems, plant disease concept, symptoms, causes, classification, Koch's postulates, host and pathogen interactions, plant disease epidemics, diagnosis and control methods for forest tree diseases

FHL3303 Kebakaran Hutan/ *Forest Fire* 2 (1+1)

Prasyarat : Tiada

Kursus ini meliputi konsep kebakaran hutan. Jenis hutan yang mudah terbakar, implikasi terhadap pengurusan hutan, kaedah mengelak, mengawal dan melawannya pengaruh cuaca dan sosial.

This course covers the concept of forest fire, forests vulnerable to fire, forest management implications, methods for preventing, controlling and fire fighting as well as weather and social influences

FHL3308 Etnobotani/ *Ethnobotany* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep asas etnobotani dari segi sejarah dan budaya terhadap manusia. Tajuk yang dibincangkan meliputi kepentingan budaya sebagai perantara dalam penggunaan tumbuhan oleh manusia, peranan tumbuhan liar dan tumbuhan yang telah didomestikasi dalam evolusi manusia, isu semasa etnobotani di peringkat global dan keberuntungan manusia terhadap tumbuhan. Penilaian keatas impak tumbuhan terhadap aspek ekonomi dan sosial masyarakat setempat.

This course covers the basic concept of ethnobotany in terms of its historical and cultural contribution to human. Topics covered include the importance of culture in mediating the use of plants amongst people, the role of wild and plants in domesticated human evolution, current global issues in ethnobotany, and human dependency on plants. Evaluation on the impact of plants to social and economic aspects of local communities

FHL3309	Pentaksiran Biodiversiti/ <i>Biodiversity Assessment</i>	3 (2+1)
<p>Prasyarat : Tiada</p> <p>Kursus ini merangkumi konsep, teori dan teknik yang digunakan untuk membuat penilaian biodiversiti. Tumpuan diberikan kepada teknik penilaian kepelbagaian tumbuhan peringkat rendah dan tinggi, penilaian invetabrata, dan vertebrata. Tajuk-tajuk mengenai analisis data dan penulisan laporan ke atas penilaian biodiversiti juga di bincangkan.</p> <p><i>This course covers the concepts, theories and techniques used in biodiversity assessment. Emphasis is given to the techniques on evaluation of lower and higher plants, evaluation of invertebrates and vertebrates. Topics on data analysis and report writing of biodiversity assessment are also discussed</i></p>		
FHU3203	Sukatan Hutan/ <i>Forest Mensuration</i>	3 (2+1)
<p>Prasyarat : Tiada</p> <p>Kursus ini merangkumi prinsip pengukuran dan pengukuran pokok, dengan memberi penekanan kepada perkaitan antara , penaksiran dan pembolehubah pokok dan dirian hutan., Pertambahan dan pertumbuhan hasil, indeks tapak, stok, kepadatan dirian, termasuk perancangan dan pelaksanaan inventori sumber hutan berdasarkan teknik pensampelan yang digunakan di Malaysia turut dibincangkan.</p> <p><i>This course covers the principles of measurement and tree measurement with emphasis on relationship between assessment and tree and stand variables. Growth and yield increment, site index, stocking, stand density including planning and conducting forest resource inventory according to sampling techniques used in Malaysia are also discussed</i></p>		
FHU3204	Kaedah Komputer Dalam Perhutanan/ <i>Computer Methods in Forestry</i>	3 (2+1)
<p>Prasyarat : Tiada</p> <p>Kursus ini merangkumi pengenalan kepada komputer, perkembangan teknologi digital dan pengaturcaraan komputer kepada pelajar. Penekanan kepada penggunaan perisian terpilih sebagai alat untuk menyelesaikan masalah dalam perhutanan turut dibincangkan.</p> <p><i>The course covers introduction to computer, development of digital technology and computer programming for students. Emphasis on the use of selected softwares as problem solving tools in forestry are also discussed</i></p>		
FHU3205	Kaedah Kuantitatif Dalam Perhutanan/ <i>Quantitative Methods in Forestry</i>	4 (3+1)
<p>Prasyarat : Tiada</p> <p>Kursus ini merangkumi pemerihalan dan analisis data parametrik dan bukan parametrik perhutanan termasuk pola pembolehubah rawak dan taburan umum, ujian hipotesis, teknik pensampelan, reka bentuk ujikaji, ralat ujikaji, kovarian, korelasi dan regresi linear.</p> <p><i>The course covers parametric and non-parametric data description and analyses in forestry, including pattern of random variables and general distributions, hypothesis testing, sampling techniques, experimental designs, experimental errors, covariance, correlations and linear regression</i></p>		
FHU3207	Pengurusan Hutan I/ <i>Forest Management I</i>	3 (2+1)
<p>Prasyarat : Tiada</p> <p>Kursus ini merangkumi fungsi dan pentingnya pengurusan hutan, prinsip hasil berkekalan, hutan normal, giliran dan pusingan tebangan, pengendalian stok tumbuhan, hasil dan kawalan tebangan, organisasi hutan dan sistem pengurusan hutan di Malaysia.</p>		

The course covers the functions and importance of forest management, the principles of sustained yield, normal forest, rotation and cutting cycle, the manipulation of growing stock, yield, regulation of felling, forest organization and forest management system in Malaysia

FHU3209 Perhutanan Tani/ Agroforestry 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep, skop dan prinsip perhutanan tani, Potensi dan halangan, pengelasan dan penghuraian, perancangan projek berasaskan maklumat sosio-ekonomi, cara hidup penduduk tempatan, keperluan tempatan dari sudut perhutanan dan pertanian dan keadaan ekologi. Pengurusan dari segi pengeluaran hasil tumbuhan, binatang, sumber manusia dan institusi, kaedah diagnosis dan rekabentuk teknologi serta kajian kes dan perbincangan kumpulan mengenai topik tertentu.

This course emphasizes the concept, scope and principles of agroforestry, potentials and constraints, classification and description, project planning based on socio-economic data, local cultural practices, local needs from forestry, agriculture and ecological conditions, management in terms of plant production, animal production and technology design methodology as well as case studies and group discussions on special topics

FHU3211 Pengurusan Kawasan Legeh/ Watershed Management 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi masalah air dan langkah untuk mengatasinya, edaran hidrologi, kawasan tadahan hutan dan hubungannya dengan hujan, air tanah, pemeluapan, larian air, banjir dan hakisan tanah. Kaedah kawalan kuantiti dan kualiti air dalam pengurusan kawasan legeh serta Masalah sosial yang berkaitan.

The course covers water problems and approaches to their solutions, hydrological cycle, water catchment area and its relation to rainfall, ground water, evapotranspiration, runoff, floods and soil erosion, control methods for water quality and quantity in watershed management as well as related social problems

FHU3212 Dasar dan Undang-Undang Hutan/ Forest Policy And Law 2 (2+0)

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada dasar awam dan perhutanan, teori, amalan penggubalan dan pelaksanaan, peruntukan undang-undang perhutanan serta pemakaiannya dalam menangani masalah pengurusan hutan semasa, juga melibatkan undang-undang sumber semula jadi berkaitan alam sekitar, hidupan liar, Taman Negara dan air.

This course encompasses introduction to public and forest policy, theory, practices on forest formulation and implementation, provisions of forest laws and their application in solving several current forest management, which also includes natural resource laws relating to environment, wildlife, national parks and water

FHU3213 Analisis Kewangan Industri Perakayuan/ Financial
Analysis of Wood Industries 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi penyata dan analisis kewangan, konsep penilaian, ramalan kewangan, perancangan dan kawalan kewangan bagi firma industri perakayuan, teknik belanjawan modal dan analisis aliran tunai, pengurusan harta semasa, pembiayaan jangka pendek, sederhana dan jangka panjang, serta dasar dividen dan pendapatan terkumpul.

This course covers financial statements and analysis, concepts of valuation, financial forecasting, planning and control of wood industry firms, capital budgeting techniques and cash flow analysis, management of current assets, short, intermediate and long term financing, and also dividend policy and retained earnings

FHU3215 Ekonomi Perhutanan/ *Forestry Economics* 4 (4+0)

Prasyarat : Tiada

Pengenalan kepada konsep asas ekonomi. Sistem-sistem ekonomi. Struktur pasaran, permintaan, penawaran dan penentuan harga. Peranan kerajaan dalam ekonomi negara. Pendapatan negara dan penentuan pendapatan negara. Ekonomi pengeluaran barangan dan perkhidmatan hutan, kementerian kewangan, ekonomi gunatahan, pelbagai guna hutan, penilaian ekonomi sumber hutan, analisis pelaburan projek perhutanan, serta peranan sektor perhutanan dalam pembangunan ekonomi negara.

This course covers basic concepts of economics, economic systems, market structure, demand, supply, price determination, role of government in economic development and national income, production economics, demand and supply of forest goods and services, financial maturity, landuse economics, multiple use of forestry, economic valuation of forest resources, investment analysis of forestry projects, and the role of forestry sector in national economic development

FHU3216 Pengurusan Hutan II/ *Forest Management 2* 2 (1+1)

Prasyarat : Tiada

Pengenalan dan prinsip perancangan pengurusan hutan dan penyediaan rancangan pengurusan hutan, termasuk kaedah dan teknik perancangan, pengaturcaraan matematik, simulasi, teori permainan dan analisis rangkaian.

The course covers the principles of forest management planning and preparation for forest management plans, including methods and techniques of planning, mathematical programming, simulation, game theory as well as network analysis

FHU3227 Pengenalan Kepada Undang-undang Industri Perakayuan 2 (2+0)
Introduction to Wood Industry Law

Prasyarat : Tiada

Kursus ini merangkumi pengenalan kepada undang-undang berkaitan dengan industri berasaskan kayu. Proses penggubalan, interpretasi, pelaksanaan dan permasalahan masa kini dalam industri perakayuan negara turut dibincangkan

This course covers an introduction to laws related to the wood based industry. Formulation process, interpretation, implementation and configuration of law related to wood industry are also discussed

FHU4202 Pengurusan Industri Perhutanan/ *Forest Industry Management* 2 (2+0)

Prasyarat : Tiada

Kursus ini merangkumi prinsip pengurusan serta aktiviti dalam mengurus sesebuah organisasi dengan memberi tumpuan kepada pengurusan sumber manusia, pengeluaran, pemasaran dan kewangan serta perkaitannya dengan pengurusan industri perhutanan. Isu semasa yang berkaitan dengan pengurusan industri perhutanan di Malaysia turut dibincangkan.

The course covers the principles and main activities in managing an organization with emphasis on the management of human resources, production, marketing and finance, and its relation to the management of the wood industry. Current issues related to wood industry management in Malaysia are also discussed

FHU4205 Perhutanan Antarabangsa/ *International Forestry* 2 (2+0)

Prasyarat : Tiada

Sumber perhutanan dunia; status, klasifikasi dan dinamik. Peranan sumber perhutanan dalam perkembangan sosio-ekonomi dan kemampuan pembangunan. Perdagangan antarabangsa hasil kayu dan bukan kayu hutan. Hutan dalam alam persekitaran sejagat. Industri dan perjanjian antarabangsa.

World's forest resources; status, classification and dynamics. Issues and roles of forests in socio-economic development and sustainable development. International trade in wood and wood products. Forest and global environment. International institutions and agreements

FHU4207 Perdagangan Kayu Antarabangsa/ *International Timber Trade* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi sumber hutan dunia dan teori serta amalan perdagangan kayu antarabangsa. Isu semasa berkaitan dengan perdagangan kayu tropika turut dibincangkan.

This course covers world forest resources and theory as well as practices in international timber trade. Current issues on tropical timber trade are also discussed

FHU4208 Penilaian Ekonomi Sumber Hutan Dan Biodiversiti/ *Economic Valuation of Forest Resource and Biodiversity* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep asas dan kaedah dalam menjalankan penilaian ekonomi sumber hutan dan biodiversiti. Tajuk-tajuk yang dibincangkan meliputi pembangunan mampan, kepentingan sumber hutan dan biodiversiti, masalah berkaitan dengan nyah hutan, konsep dan teori utiliti, dan ekonomi kebajikan, jenis-jenis nilai ekonomi, pendekatan penilaian ekonomi, langkah terlibat dan kaedah penilaian ekonomi, perakaunan sumber hutan, dan aplikasi penilaian ekonomi dalam perhutanan. Kajian kes dalam penilaian ekonomi sumber hutan dan biodiversiti juga dibincangkan.

This course covers the basic concepts and methods in conducting economic valuation of forest and biological resources. Topics covered include sustainable development, the importance of forest and biological resources, problems related to deforestation, concept and theory of utility and welfare economics, types of economic value, approaches in economic valuation, steps involved and methods of economic valuation, forest resource accounting and applications of economic valuation. Case studies in economic valuation of forest resources and biodiversity are discussed

FHR3601 Pengenalan Kepada Rekreasi Luar/ *Introduction to Outdoor Recreation* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep asas kesenggangan, rekreasi dan rekreasi luar termasuk pengaruh faktor peribadi, sosial, agama dan moral kepada penyertaan dalam aktiviti rekreasi. Pembangunan dan sistem pengurusan sumber rekreasi luar di Malaysia turut dibincangkan.

This course covers basic concepts of leisure, recreation and outdoor recreation including influences of personal, social, religious and moral attitudes towards leisure and recreation. Development and management system of outdoor recreation resources in Malaysia are also discussed

FHR3602 Interpretasi Persekitaran/ *Environmental Interpretation* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi prinsip interpretasi sumber semula jadi, sejarah dan budaya, termasuk komunikasi satu dan dua hala, dengan mengaplikasi teori socio-psikologi dalam pembangunan produk interpretasi

The course comprises interpretive principles for natural, historical and cultural resources, including one and two way communication, with the application of socio-psychological theories in the development of interpretative products

FHR3603 Pengurusan Hutan Bandar/ *Urban Forest Management* 4 (3+1)

Prasyarat : Tiada

Kursus ini merangkumi penubuhan dan pengurusan kawasan hijau, penggunaan prinsip arborikultur dan silvikultur dalam pemulihan kawasan, pemulihan spesies dan tapak, penanaman, penjagaan dan senggaraan pokok.

This course covers the establishment and management of urban green space, using arboriculture principles and horticulture in site rehabilitation, species and site matching, planting, tree care and maintenance

FHR3606 Perancangan Rekreasi Luar/ *Outdoor Recreation Planning* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi teknik perancangan rekreasi di pelbagai peringkat pentadbiran dengan mengambil kira elemen permintaan dan penawaran, reka bentuk pelan rekreasi dan pembentangan hasil perancangan

This course covers recreation planning technique at various administrative levels, taking into account elements of demand and supply, design and presentation of planning outputs

FHR3607 Perilaku Pengguna Rekreasi/ *Recreational User Behaviour* 3 (3+0)

Prasyarat : Tiada

Kursus ini merangkumi teori dan konsep perilaku pengguna rekreasi, pendekatan dan teknik pengurusan pengguna, dengan memberi penekanan terhadap motivasi dan komunikasi dalam pengurusan dan penentuan keputusan berkumpulan turut dibincangkan.

This course covers the theories and concepts of recreation user behavior, user management approaches and techniques with emphasis on motivation and communication in management and group decision making are also discussed

FHR3608 Pengurusan Risiko Dalam Rekreasi/ *Risk Management in Recreation* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi tanggungjawab penyediaan perkhidmatan taman dan rekreasi terhadap pengguna, penyediaan dan pembentangan rancangan pengurusan risiko bagi organisasi, program dan aktiviti,

This course covers on responsibility of park and recreation service provider to the user, preparation and presentation of risk management plan for organization, programme and activities

FHR3609 Pemrograman Dan Pemimpinan Rekreasi/ *Recreation Programming and Leadership* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep, perkhidmatan, reka bentuk dan pengendalian program rekreasi untuk melayani pelbagai kumpulan pengguna termasuk penggunaan kaedah pemrograman dan prinsip kepimpinan dalam pembangunan dan penilaian program rekreasi

This course covers concept, service, design and conduct of programmes to serve different clientele groups including the application of recreation programming method and leadership principles in the development and evaluation of recreation programmes

FHR3610 Operasi Dan Senggaraan Taman/ *Parks Maintenance and Operation* 2 (1+1)

Prasyarat : Tiada

Kursus ini meliputi prinsip objektif pembangunan dan piawaian senggaraan, perancangan, organisasi dan operasi kawasan taman dan rekreasi termasuk senggaraan prasarana dan perkhidmatan.

This course covers the principles of development objective and maintenance standards, planning, organization for operation of parks and recreation areas, including maintenance of facilities and services

FHR3611 Perancangan Dan Rekabentuk Tapak Kawasan Rekreasi/ *Recreation Site Planning and Design* 3 (2+1)

Prasyarat : Tiada

kursus ini merangkumi konsep perancangan setempat dan reka bentuk berkaitan dengan kawasan rekreasi, kemudahan dan aktiviti rekreasi dengan mengambil kira impak terhadap alam sekitar.

This course covers site planning and design concepts pertaining to recreation areas, facilities and activities, taking into consideration of the environmental impact

FHR3612 Pentadbiran Dan Organisasi Taman Dan Rekreasi/ *Administration and Organisation of Parks and Recreation* 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi teori asas, prinsip dan fungsi pentadbiran dan organisasi taman dan rekreasi, dengan memberi tumpuan khusus kepada penyediaan bajet, pengurusan sumber manusia, proses membuat keputusan, pengurusan konflik dalam organisasi, analisis organisasi taman dan rekreasi, pentadbiran dan dasar taman dan rekreasi di peringkat daerah, negeri dan persekutuan, termasuk isu dalam pentadbiran taman dan rekreasi

This course covers fundamental theories, principles and functions of administration and organization for parks and recreation with emphasis on budget preparation, human resource management, decision making process, management of organizational conflicts, analysis of parks and recreation organization, administration and policies at district, state and federal levels, including issues in parks and recreation

FHR3614 Pengurusan Perniagaan Rekreasi/ *Recreation Business Management* 3 (2+1)

Prasyarat : Tiada

Kursus ini merangkumi konsep dan peranan perniagaan dalam pengurusan taman dan rekreasi, pendekatan kearah membuat keputusan dalam perniagaan taman dan rekreasi, dan penggunaan prinsip perniagaan bagi menyelesaikan isu-isu perniagaan taman dan rekreasi dengan menggunakan kajian kes.

This course covers concept and function of business in parks and recreation management, decision making approach in parks and recreation business management, and application of business principles in solving business issues in parks and recreation by using case studies

FHR3616 Kemahiran Rekreasi Luar/ *Outdoor Recreation Skills* 3 (1+2)

Prasyarat :Tiada

Kursus ini merangkumi pembentukan kemahiran rekreasi luar mengutamakan sensitiviti terhadap suasana dan etika sumber alam semula jadi dan norma sosial, serta merangkumi daya tahan fizikal, mental dan emosi dengan mengamalkan kumpulan dinamik dalam rekreasi luar.

This course covers the outdoor recreation skills development, with emphasis on sensitivity towards environmental ethics and social norm, including physical, mental and emotional strength, by practicing group dynamics in outdoor recreation

FHR3617 Arborikultur/ Arboriculture 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi konsep biologi dan fisiologi pokok serta kaedah penanaman pokok dan senggaraan bi kawasan bandar, amalan arborikultur, kesihatan pokok dan profesionalisme dalam pengurusan pokok bandar.

This course covers concept of tree biology and physiology including methods of tree planting and maintenance in urban area, arboriculture practices, tree health and professionalism in urban tree management

FHR3618 Inventori Sumber Taman Dan Rekreasi/ Park and Recreation Resources Inventory 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi prinsip dan teori inventori sumber semula jadi, perancangan dan pengurusan, teknik inventori, dan penyediaan laporan inventori taman dan rekreasi.

This course covers principles and theory of natural resources inventory, planning and management, inventory techniques, and the preparation of inventory report for parks and recreation

FHR3619 Ekologi Sumber Rekreasi/ Recreation Resource Ecology 3 (2+1)

Prasyarat :Tiada

Kursus ini meliputi isu yang berkaitan pengurusan impak pengguna dikawasan taman dan rekreasi termasuk hubungkait antara pengguna, persekitaran rekreasi dan pelancongan, kesan pengaruh dan ciri-ciri impak keatas kualiti pengalaman pengguna rekreasi, penilaian dan pemantauan impak sumber rekreasi dengan penekanan kepada peranan amalan pengurusan dan penyelenggaraan serta perbincangan strategik bagi mengatasi impak dan aplikasi teknik penilaian impak.

This course covers issues related to the management of user impacts on parks and recreation areas, including the interrelationships between users, recreation environment and tourism, influence of impact attributes on the quality of recreation experience, assessment and monitoring of recreation resource impacts with emphasis on the role of management and maintenance, as well as strategic discussion to mitigate deleterious impacts and application of impact assessment techniques

FHR3620 Keusahawanan Dalam Taman Dan Rekreasi/ Entrepreneurship in Parks and Recreation 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi prinsip dan aplikasi keusahawanan dalam industri taman dan rekreasi, pengurusan aset, perancangan pemasaran, pengurusan kewangan dan perniagaan rekreasi kecil dan sederhana di Malaysia

This course covers principles and application of entrepreneurship in parks and recreation industry, asset management, marketing planning, financial and business management for small and medium scale parks and recreation enterprises in Malaysia

FHR3621 Pengurusan Dan Operasi Kem/ Camp Operation and Management 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi konsep pengurusan dan operasi kem, pelan pengurusan kem, reka bentuk, pentadbiran, operasi dan pemrograman aktiviti rekreasi hutan.

This course covers concepts of management and camp operations, management planning, camp design, administration, operation and forest recreation activity programming

FHR3622 Rekreasi Terapeutik Bagi Golongan Istimewa/ *Therapeutic Recreation for Special People* 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi konsep rekreasi terapeutik, program bagi golongan istimewa, peranan masyarakat, pembangunan program, rekreasi terapeutik, pelaksanaan dan penilaian program

This course covers concepts of therapeutic recreation, program for special people, role of society, development of therapeutic recreation programme, its implementation and evaluation

FHR3624 Undang-Undang Sumber Asli Dan Rekreasi/ *Natural Resources and Recreation Law* 2 (2+0)

Prasyarat :Tiada

Kursus ini merangkumi ciri dan objektif perundangan, peruntukan perlembagaan persekutuan, kuasa perundangan kerajaan negeri dan persekutuan, penguatkuasaan, kuasa pegawai dan penyediaan kertas penyiasatan dan pendakwaan.

This course covers characteristics and objectives of legislation, federal constitution, legislative power of federal and state governments, enforcement, power of investigating officer and preparation of investigation paper and prosecution

FHR3625 Pengurusan Hidupan Liar Rekreasi/ *Recreational Wildlife Management* 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi konsep, takson dan sebaran hidupan liar, ekologi dan habitat, pengurusan dan program rekreasi berasaskan hidupan liar, pemuliharaan *in-situ* dan *ex-situ*, kesihatan dan penyakit hidupan liar rekreasi.

This course covers concepts, taxon and distribution of wildlife, ecology and habitat, program and management of wildlife recreation, in-situ and ex-situ conservation, health and diseases of recreational wildlife

FHR4601 Hospitaliti Dalam Taman Dan Rekreasi/ *Hospitality in Parks and Recreation* 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi konsep dan fungsi pengurusan hospitaliti dalam industri taman dan rekreasi, operasi kaunter dan perkhidmatan bilik, kemahiran berkomunikasi, pengurusan dapur, penyediaan hidangan makanan dan minuman serta perkhidmatan dobi..

This course covers the concept and functions of hospitality management in parks and recreation industry, counter and room service operation, communication skills, kitchen management, preparation of food and beverages serving and laundry services

FHR4602 Reka Bentuk Kemudahan Rekreasi/ *Design of Recreational Facilities* 3 (2+1)

Prasyarat :Tiada

Kursus ini merangkumi konsep, tema pembangunan, reka bentuk kemudahan rekreasi, infrastruktur rekreasi, prasarana pameran, denai interpretif, keaslian idea dalam mereka bentuk.

This course covers concepts, development theme, design of recreational facilities, recreational infrastructure, exhibition infrastructure, interpretive trail and originality of ideas in designing

- FHR4603 Pendidikan Alam Semula Jadi/ *Nature Education* 3 (2+1)
Prasyarat :Tiada
Kursus ini merangkumi isu dan masalah penggunaan sumber, impak ke atas alam semula jadi, konflik kegunaan dan kesedaran masyarakat awam, reka bentuk program pendidikan alam semula jadi, pelaksanaan dan penilaian program.
This course covers issues and problems of resource utilization, impact on nature, use conflicts and public awareness, design of nature education program implementation and evaluation
- FHR4604 Pengurusan Pelancongan Eko/ *Ecotourism Management* 3 (2+1)
Prasyarat :Tiada
Kursus ini merangkumi konsep, perkhidmatan, pengurusan, sumber pelancongan eko, keselamatan, etika dan profesionalisme dalam pengurusan industri pelancongan eko.
This course covers concepts, services, management of ecotourism resources, safety, ethics and professionalism in managing ecotourism industry
- FHR4605 Pembangunan Produk Rekreasi/ *Development of Recreation Products* 3 (2+1)
Prasyarat :Tiada
Kursus ini merangkumi konsep, gelagat pengguna, pembangunan produk rekreasi, komersialisasi produk dan pengurusan kewangan dalam industri rekreasi.
This course covers concepts, consumer behavior, development of recreational product, product commercialization and financial management in recreation industry
- FHR4606 Pemasaran Rekreasi/ *Recreation Marketing* 3 (2+1)
Prasyarat :Tiada
Kursus ini merangkumi konsep pemasaran, penawaran produk dan perkhidmatan, penentuan harga, pengagihan, promosi, perancangan pemasaran dan penyelidikan pemasaran dalam industri rekreasi.
This course covers marketing concept, product supply and services, pricing determination, distribution, promotion, marketing planning and research in recreation industry
- FHR4607 Pengurusan Pelancongan Warisan Dan Komuniti/ *Heritage and Community Tourism Management* 3 (2+1)
Prasyarat :Tiada
Kursus ini merangkumi konsep perancangan dan pembangunan produk, penyertaan komuniti dalam membangun produk pelancongan warisan, pemasaran, perundangan, perkongsian ekuiti perniagaan pelancongan warisan dan komuniti.
The course covers concepts, planning and product development, community participation in development of heritage tourism product, marketing, legislation, equity sharing in heritage and community tourism business
- FHR4608 Pengurusan Kawasan Perlindungan/ *Protected Areas Management* 3 (2+1)
Prasyarat :Tiada
Kursus ini merangkumi konsep, prinsip, proses penubuhan, perundangan dan keselamatan pengguna di kawasan perlindungan, amalan pengurusan, kawalan sumber, hubungan antara kerajaan negeri dan persekutuan, perjanjian antarabangsa, perundangan dan penguatkuasaan.

This course covers concept, principles, establishment process, legislation and user safety in protected areas, management practices, resource regulation, federal and state government relationship, international agreement, law and enforcement

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)
1.3	KOM3403	Pengucapan Awam/ <i>Public Oration</i>	3 (3+0)
1.4	BB_ _ _ _	Elektif Bahasa Asing	3

2. FAKULTI PERTANIAN

2.1	PRT2008	Pertanian dan Manusia/ <i>Agriculture and Man</i>	2 (2+0)
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3. FAKULTI PENGAJIAN PENDIDIKAN

3.1	FCE3204	Kemahiran Berfikir/ <i>Thinking Skills</i>	2 (2+0)
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4. FAKULTI EKONOMI DAN PENGURUSAN

4.1	MGM3180	Asas Keusahawanan/ <i>Basic Entrepreneurship</i>	3 (2+1)
4.2	MGM3101	Prinsip Pengurusan/ <i>Principles of Management</i>	3 (3+0)
4.3	MGM3113	Gelagat Organisasi/ <i>Organizational Behavior</i>	3 (3+0)

5. FAKULTI EKOLOGI MANUSIA

5.1	SKP2101	Kenegaraan Malaysia/ <i>Malaysian Nationhood</i>	3 (3+0)
5.2	SKP2203	Tamadun Islam dan Tamadun Asia/ <i>Asian and Islamic Civilization</i>	2 (2+0)
5.3	SKP2204	Hubungan Etnik / <i>Ethnic Relation</i>	2 (2+0)

6. FAKULTI SAINS

6.1	MTH3003	Statistik Bagi Sains Gunaan/ <i>Statistics for Applied Sciences</i>	4 (3+1)
6.2	BGY3201	Struktur Dan Fungsi Tumbuhan/ <i>Plant Structure And Function</i>	3 (2+1)

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 <u>or</u>	OPTIONS : CEL104/105/106/107	LAX <u>or</u>	OPTIONS : CEL104/105/106/107	LAX <u>or</u>	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