

FACULTY OF FORESTRY

Undergraduate Programme Offered :

Bachelor Programme

1. *Bachelor of Forestry Science*
2. *Bachelor of Wood Science and Technology*
3. *Bachelor of Parks & Recreation Science*

STUDY SCHEME (BACHELOR OF FORESTRY SCIENCE)

1 ST YEAR							
1 ST SEMESTER				2 ND SEMESTER			
CODE	COURSES	L	L/T	CODE	COURSES	L	L/T
BBI2423	Academic Interaction and Presentation	2	1	BBI2424	Academic Writing	2	1
PRT2008	Agriculture and Man	2	0	KOM3403	Public Oration	2	1
SKP2101	Malaysian Nationhood	3	0	SKP2204	Ethnic Relation	2	0
SKP2203	Asian and Islamic Civilization	2	0	FCE3204	Thinking Skills	2	0
FHM3103	Dendrology of Dipterocarps	1	1	FHM3104	Dendrology of Non-Dipterocarps	1	1
FHH3101	Wood Science	2	1	FHM3107	Forest Soil	2	1
FHM3105	Tree Physiology	2	1	FHM3108	Forest Entomology	1	1
QKK2101	Bakti Siwa (Co-Curikulum)	0	1	QK XXXX	Co-Curikulum II	0	1
TOTAL		19		TOTAL		18	
2 ND YEAR							
CODE	COURSES	L	L/T	CODE	COURSES	L	L/T
FHM3106	Forest Ecology	2	1	FHM3109	Forest Pathology	1	1
FHM3201	Forest Survey	2	1	FHM3110	Forestry Economics	3	0
FHM3202	Forest Mensuration	2	1	FHM3206	Geographic Information System in Forestry	2	1
FHM3203	Forest Silviculture	3	1	FHM3301	Forest Management	2	1
FHM3112	Quantitative Methods in Forestry	3	1	FHM3303	Wildlife Management	2	1
FHS4904	Forestry Camp	0	2	FHM3305	Watershed Management	2	1
				FHM3306	Laws in Forestry	3	0
TOTAL		19		TOTAL		20	
3 RD YEAR							
CODE	COURSES	L	L/T	CODE	COURSES	L	L/T
CORE COURSES							
				FHS4959A	Bachelor Dissertation	0	3
Forest Management Elective Package							
FHM3204	Forest Engineering [generic elective 1]	2	1	FHM4202	Economic Valuation of Forest Resource and Biodiversity [elective package 5]	2	1
FHM3205	Forest Harvesting [elective package 1]	2	1	FHMXXXX	Elective package 4	2	0
FHM3208	Tree Improvement [elective package 2]	2	1	XXXXXX	Free elective 1	2	1
FHM4201	Remote Sensing in Forestry [elective package 3]	2	1	XXXXXXX	Free elective 2	2	1
FHMXXXX	Generic elective 2	2	1				
FHMXXXX	Generic elective 3	2	1				

TOTAL		18		TOTAL		14	
Ecology and Conservation of Wildlife Elective Package							
FHM3212	Wildlife Sampling Methods [elective package 1]	2	1	FHM4102	Wildlife Community Ecology [elective package 4]	3	0
FHR3505	Wildlife Management in Recreation [elective package 2]	2	1	FHM4302	Human and Wildlife Conflicts [elective package 5]	3	0
FHM4101	Biodiversity and Conservation [generic elective 1]	2	1	FHXXXX	Elective package 6	2	1
FHM4103	Wildlife Behavioural Ecology [elective package 3]	2	1	XXXXXX	Free elective 1	2	1
FHXXXX	Generic elective 2	2	1				
FHXXXX	Generic elective 3	2	1				
TOTAL		18		TOTAL		15	
Urban Forestry Elective Package							
FHM3209	Arboriculture [elective package 1]	2	1	FHM4207	Urban Ecology [elective package 6]	1	1
FHM3302	Urban Forest Management [elective package 2]	2	1	FHM4303	Risk Management in Urban Forestry [elective package 7]	2	1
FHM3307	Nursery Management and Maintainance [elective package 3]	2	1	XXXXXX	Generic elective 3	2	1
FHM3311	Urban Tree Health Management [elective package 4]	1	1	XXXXXX	Free elective 1	2	1
FHMXXXX	Elective package 5	1	1				
FHM4206	Carbon Measurement and Monitoring [Elektif Generik 1]	2	1				
FHMXXXX	Elektif Generik 2	2	1				
TOTAL		19		TOTAL		14	
Farm Forestry Elective Package							
FHM3204	Forest Engineering [generic elective 1]	2	1	FHM3217	Harvesting System in Forest Plantations [elective package 4]	2	1
FHM3304	Forest Plantation Management [elective package 1]	2	1	FHM3309	Forest Plantation Certification [elective package 5]	1	1
FHM3307	Nursery Management and Maintainance [elective package 2]	2	1	XXXXXX	Free elective 1	2	1
FHM4201	Remote Sensing in Forest [elective package 3]	2	1	XXXXXX	Free elective 2	2	1
FHXXXX	Generic elective 2	2	1				
FHXXXX	Generic elective 3	2	1				
TOTAL		18		TOTAL		14	
4TH YEAR							
CODE	COURSES	L	L/T	CODE	COURSES	L	L/T
CORE COURSES							
FHS4959B	Bachelor Dissertation	0	3	FHS4903	Industrial Training	0	8
MGM3180	Basic Entrepreneurship	2	1				

Forest Management Elective Package							
<i>FHM3111</i>	<i>Forest Fire [elective package 6]</i>	<i>1</i>	<i>1</i>				
<i>FHM4301</i>	<i>Advance Forest Management [elective package 7]</i>	<i>1</i>	<i>1</i>				
<i>FHMXXXX</i>	<i>Elective package 8</i>	<i>2</i>	<i>1</i>				
TOTAL		13		TOTAL		8	
Ecology and Conservation of Wildlife Elective Package							
<i>FHXXXX</i>	<i>Elective package 7</i>	<i>2</i>	<i>1</i>				
<i>XXXXXX</i>	<i>Free elective 2</i>	<i>2</i>	<i>1</i>				
TOTAL		12		TOTAL		8	
Urban Forestry Elective Package							
<i>FHXXXX</i>	<i>Elective package 8</i>	<i>2</i>	<i>1</i>				
<i>XXXXXXX</i>	<i>Free elective 2</i>	<i>2</i>	<i>1</i>				
TOTAL		12		TOTAL		8	
Farm Forestry Elective Package							
<i>FHH3230</i>	<i>Wood Quality and Products [elective package 6]</i>	<i>2</i>	<i>1</i>				
<i>FHM3308</i>	<i>Fire Management in Forest Plantations [elective package 7]</i>	<i>1</i>	<i>1</i>				
<i>FHXXXXX</i>	<i>Elective package 8</i>	<i>1</i>	<i>1</i>				
TOTAL		13		TOTAL		8	

STUDY SCHEME (BACHELOR OF WOOD SCIENCE AND TECHNOLOGY)

Notes : L = Lecture , L/T = Laboratory/Tutorial							
SEMESTER 1				SEMESTER 2			
1 ST YEAR							
CODE	COURSE NAME	L	L/T	CODE	COURSE NAME	L	L/T
PRT2008	Agriculture and Man	2	0	BBI2423	Academic Interaction and Presentation	2	1
SKP2101	Malaysian Nationhood	3	0	KOM3403	Public Oration	3	0
SKP2203	Asian and Islamic Civilization	2	0	SKP2204	Ethnic Relation	2	0
FHM3101	Forest Science	3	0	FHH3201	Non-Wood Forest Products	2	1
FHM3102	Forest Botany	2	1	FHH3103	Wood Physics	2	1
FHH3102	Wood Anatomy	2	1	FHH3104	Wood Chemistry	2	1
QKXxxx	Co-curriculum 1	0	1	QKXxxx	Co-curriculum 2	0	1
	TOTAL	14	3		TOTAL	12	5
2 ND YEAR							
CODE	COURSE NAME	L	L/T	CODE	COURSE NAME	L	L/T
BBI2424	Academic Writing	2	1	FHH3205	Biocomposites	2	1
FHH3202	Sawmilling and Wood Drying	2	1	FHH3206	Wood Machining	2	1
FHH3204	Wood Adhesive and Adhesion Technology	2	1	FHH3301	Forest Products Procurement	2	1
FHH3106	Introduction to Forest Operation	2	1	FHH3203	Wood Deterioration and Treatment	2	1
FHH3105	Wood Mechanics	2	1	FHH3303	Wood Industry Economics	3	0
FHS4904	Forestry Camp	0	2	MGM3180	Basic Entrepreneurship	2	1
	TOTAL	10	7		TOTAL	13	5
3 RD YEAR							
CODE	COURSE NAME	L	L/T	CODE	COURSE NAME	L	L/T
FCE3204	Thinking Skills	2	0	FHH3304	Operation Analysis in Forest Products Industries	2	1
FHH3207	Pulp and Paper Technology	2	1	FHS4959A	Bachelor Dissertation	0	3
FHM3112	Quantitative Methods in Forestry	3	1		Elective IV	-	-
	Elective I	-	-		Elective V	-	-
	Elective II	-	-		Elective VI	-	-
	Elective III	-	-		TOTAL	7	6
	TOTAL	7	2				
4 TH YEAR							
CODE	COURSE NAME	L	L/T	CODE	COURSE NAME	L	L/T
FHH3302	Forest Products Marketing	3	0	FHS4903	Industrial Training	0	8

FHS4959B	Bachelor Dissertation	0	3	<table border="1"> <tr> <td></td> <td>TOTAL</td> <td>0</td> <td>8</td> </tr> </table>		TOTAL	0	8
	TOTAL	0	8					
QKK2101	Bakti Siswa	0	1					
	Elective VII	-	-					
	Elective VIII	-	-					
	Elective IX	-	-					
	TOTAL	6	6					

STUDY SCHEME (BACHELOR OF PARKS AND RECREATION SCIENCE)

<i>Notes : L = Lecture , L/T = Laboratory/Tutorial</i>							
SEMESTER 1				SEMESTER 2			
1 ST YEAR							
CODE	COURSE NAME	L	L/T	CODE	COURSE NAME	L	L/T
BBI2423	Academic Interaction and Presentation	2	1	BBI2424	Academic Writing	2	1
FCE3204	Thinking Skills	2	0	FHM3103	Dendrology of Dipterocarps	1	1
FHM3102	Forest Botany	2	1	FHR3201	Outdoor Recreation Skills	1	2
FHR3101	Introduction to Outdoor Recreation	2	1	SKP2501	Introduction to Psychology	3	0
PRT2008	Agriculture and Man	2	0	SKP2203	Asian and Islamic Civilization	2	0
SKP2101	Malaysian Nationhood	3	0	SKP2204	Ethnic Relation	2	0
QKxxxx	Co-curriculum 1	0	1		TOTAL	12	4
	TOTAL	14	3				
2 ND YEAR							
CODE	COURSE NAME	L	L/T	CODE	COURSE NAME	L	L/T
FHR3102	Recreation Resource Ecology	2	1	FHR3204	Outdoor Recreation Planning	2	1
FHR3202	Park and Recreation Resources Inventory	2	1	FHM3112	Quantitative Methods in Forestry	3	1
FHR3203	Environmental Interpretation	2	1	FHR3503	Entrepreneurship in Parks and Recreation	2	1
FHS4904	Forestry Camp	0	2		Elective		
FHR3501	Recreational User Behaviour	3	0		Elective		
	Elective			QKxxxx	Co-curriculum 2	0	1
	TOTAL	11	6		TOTAL	7	4
3 RD YEAR							
CODE	COURSE NAME	L	L/T	CODE	COURSE NAME	L	L/T
FHR3301	Risk Management in Recreation	2	1	FHS4959A	Bachelor Dissertation	0	3
FHR3302	Recreation Programming and Leadership	2	1		Elective		
FHR4401	Parks and Recreation Management	3	0		Elective		
FHR4302	Research Method in Recreation and Ecotourism	3	0		Elective		
FHR3507	Hospitality in Parks and Recreation	3	0		Elective		
	Elective	-	-		TOTAL		3
	TOTAL	13	2				
4 TH YEAR							

<i>CODE</i>	<i>COURSE NAME</i>	<i>L</i>	<i>L/T</i>	<i>CODE</i>	<i>COURSE NAME</i>	<i>L</i>	<i>L/T</i>
<i>FHR4301</i>	<i>Recreation Resource Valuation</i>	<i>4</i>	<i>0</i>	<i>FHS4903</i>	<i>Industrial Training</i>	<i>0</i>	<i>8</i>
<i>FHR4402</i>	<i>Heritage and Community Tourism Management</i>	<i>2</i>	<i>1</i>		<i>TOTAL</i>	<i>0</i>	<i>8</i>
<i>FHS4959B</i>	<i>Bachelor Dissertation</i>	<i>0</i>	<i>3</i>				
	<i>Elective</i>						
	<i>Elective</i>	<i>-</i>	<i>-</i>				
	<i>TOTAL</i>	<i>6</i>	<i>4</i>				

COURSE SYNOPSIS

Department of Forest Production

- FHH3101 Wood Science** 4 (3+1)
Prerequisite : None
This course introduces student on the importance of wood to human life. The teaching will focus on the anatomical, chemical, physical, and mechanical properties of wood in relation to the processing and production of wood-based products. The student is exposed to the identification technique of various commercial wood species
- FHH3201 Non-Wood Forest Products** 3 (2+1)
Prerequisite : None
This course encompasses the diversity of non-wood forest products such as rattan, bamboo, phytochemicals, medicinal plants and palms. Basic of bamboo and rattan planting as well as non-wood forest products properties are exposed. Process of collection and its distribution using appropriate technology for end product manufacturing towards the development of SME industries and socio-economic are discussed)
- FHH3207 Pulp and Paper Technology** 3 (2+1)
Prerequisite : None
This course encompasses the history, commercial consideration and raw material characteristics of the pulp and paper industry. Technique of pulping, bleaching processes, pulp stock preparation and papermaking are exposed. Procurement of materials and environmental consideration in pulp and paper industry are discussed
- FHH3201 Non-Wood Forest Products** 3 (2+1)
Prerequisite : None
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.
- FHH3301 Forest Products Procurement** 3 (2+1)
Prerequisite : None
This course encompasses the concepts and methods of forest products procurement for downstream processing. Pricing methods, grading and volume measurement methods for logs and sawn timber are emphasized. Legal and sustainable procurement system of forest products are exposed
- FHH3302 Forest Products Marketing** 3 (3+0)
Prerequisite : None
This course encompasses the fundamental concepts of marketing and marketing management to obtain a broad overview of the processes and activities that are required in marketing of forest products and services. Managerial approach in making marketing decisions particularly on the development of the marketing mix and strategies are emphasized. Several topics related to the marketing of forest products/services like product certification are discussed
- FHH3303 Wood Industry Economics** 3 (3+0)
Prerequisite : None
This course encompasses the micro economics principles such as production, demand and supply related to wood industry. Cost theory, market structure and behavior, price determination behavior, and market performance are emphasized. Current issues on timber trade are discussed
- FHH3304 Operation Analysis in Forest Products Industries** 3 (2+1)
Prerequisite : None
This course encompasses the concept and techniques related to planning, design, and control in forest products manufacturing operations. Analysis of forest products manufacturing process to optimize production efficiency are emphasized. Problem solution based on field information are conducted
- FHH3102 Wood and Fibre Anatomy** 3 (2+1)
Prerequisite : None

This course encompasses wood anatomical structures and its importance in production of wood products. Formation and development of wood in cellular level and its relationship with environmental ecology are emphasized. Variety of macro and micro wood anatomical features and its application in wood identification are exposed

FHH3103 Wood Physics 3 (2+1)

Prerequisite : None

This course encompasses physical properties of wood as industrial raw material. Wood and water relationship, density, electrical, thermal, acoustic properties, behaviour of wood towards fire are emphasized. Flow of liquid in wood and its relation treatment methods are exposed

FHH3104 Wood Chemistry 3 (2+1)

Prerequisite : None

This course encompasses wood formation dan distribution of chemical constituents in wood. Chemical structure and chemical reactions on extractives, lignin, cellulose, hemicelluloses and barks are discussed

FHH3105 Wood Mechanics 3 (2+1)

Prerequisite : None

This course encompasses the mechanical properties of solid wood and composite woods. Concept and testing in wood mechanics, factors that influences the mechanical properties and its relation to utilization are emphasized. Elastic design criteria for wood and wood composite structures and the combination of both are exposed

FHH3106 Introduction to Forest Operation 3 (2+1)

Prerequisite : None

This course encompasses the concept of forest operation, logging techniques and harvesting system. Mensuration, survey and logging operation techniques are emphasized. Development of operational plan including forest road, management and maintenance of machinery are exposed

FHH3202 Sawmilling and Wood Drying 3 (2+1)

Prerequisite : None

This course encompasses theory, concept and practices of sawmilling and wood drying. Machineries, processing steps, methods and factors that affect sawmilling recovery are exposed. Principle and methods of wood drying as well as causes and preventions of drying defects are discussed

FHH3203 Wood Deterioration and Treatment 3 (2+1)

Prerequisite : None

This course encompasses the aspects of deterioration of wood and other forest products. Biotic and abiotic agents that affected deterioration are discussed. Methods of wood protection and preservation are exposed

FHH3204 Wood Adhesive and Adhesion Technology 3 (2+1)

Prerequisite : None

This course encompasses various types of wood adhesives and their properties. Fundamental theory and physical properties of the adhesives and its adhesion mechanism are emphasized. Application and adhesion test of wood composites are conducted

FHH3205 Biocomposites 3 (2+1)

Prerequisite : None

This course encompasses types and manufacturing process of conventional composite boards from various type of wood. Testing and evaluation of physical and mechanical properties of composite boards are exposed. Factors influencing performance of composite boards are discussed

FHH3206 Wood Machining 3 (2+1)

Prerequisite : FHH3202

The course encompasses theory, concept and methods of wood machining. Relationship of machining variables with performance and quality in planing and veneer cutting are discussed. Wood machining activities by making furniture are conducted

FHH3208 Furniture Manufacturing Process 3 (2+1)

Prerequisite : None

This course encompasses the background of Malaysian and global furniture industries. Principles and techniques of furniture design, furniture manufacturing processes, and the related environmental and health issues are emphasized. Assessment techniques on quality and productivity through case studies are conducted

- FHH3209 Computer Application in Wood Product Design** 3 (1+2)
Prerequisite : None
This course encompasses the concept of design concept and the application of software in designing wood products. Skills of using software for designing are emphasized. Evaluation of the design and the interpretation of the models are exposed
- FHH3210 Biomass and Bioenergy** 3 (2+1)
Prerequisite : None
This course introduces student to various types of biomass as source of bioenergy. Production of bioenergy in the form of solid, liquid and gas using biochemical processes are exposed. Students Economic aspect, development and utilization policy of bioenergy are discussed
- FHH3230 Wood Quality and Products** 3 (2+1)
Prerequisite : None
This course encompasses the basic knowledge about forest plantation woods and its utilization. Wood structure and properties as well as methods to improve wood quality are emphasized. Impact and effects of replanting including pruning, selection and production of quality timbers are discussed
- FHH3305 Financial Analysis of Forest Products Industries** 3 (3+0)
Prerequisite : None
This course covers the basic concepts and principles of financial management. Teaching focuses on understanding and use of analytical tools in analysing and making financial decision in the forest products industries. Students are also given the opportunity to analyze actual financial statements of forest products industry firm
- FHH3307 Forest Ergonomics** 3 (2+1)
Prerequisite : None
This course encompasses ergonomic issues faced by workers in forestry and wood industry sectors. Application of ergonomics theory and method in forestry sector are conducted. Workplace layout, human factors and aspects of health and safety of worker are discussed
- FHH4201 Wood Coating and Finishing Technology** 3 (2+1)
Prerequisite : None
This course encompasses various types of coating and surface lamination of wood products. Selection of coating technique according to types of wood products and equipment used in finishing process are emphasized. Finishing defects and remedial measures are discussed
- FHH4202 Wood Quality Improvement** 3 (2+1)
Prerequisite : None
This course encompasses the disadvantages of wood as raw material and factors which influences its quality. Principles and methods of treatments to enhance wood quality, and analyse the performance of the treated wood are emphasized. Latest development on wood quality enhancement are discussed
- FHH4203 Advanced Biocomposite** 3 (2+1)
Prerequisite : None
This course encompasses various technique and processes of advanced biocomposites based on suitable end applications. Variability of fibers (natural and synthetic), type of binders (resin and matrix) and processing equipment are emphasized. Evaluation of physical and mechanical properties, manufacturing defects as well as quality control are discussed
- FHH4301 Pollution and Control in Forest Industries** 3 (3+0)
Prerequisite : None

This course encompasses the types of pollution associated with upstream and downstream forest industries. Treatment methods that used in forest industries are emphasized. Pollution issues and importance of safety and health in the wood-based industries are discussed

FHH4302 Wood Processing Quality Control System 2 (1+1)

Prerequisite : None

This course encompasses the quality management in the wood products industry. Quality of raw materials, manufacturing process and final products are emphasized. Aspects of statistical quality control and quality control method used in the wood products industry are practiced

FHH4303 Wood Waste Management and Utilisation 3 (2+1)

Prerequisite : None

This course encompasses the classification and the collection of wood waste material wood industries and other wood using industries. Concept of recycle and fabricating various types of wood-based products are emphasized. Wood recycling industry impact towards wood supply and environment are discussed

FHH4304 Forest Industry Management 3 (3+0)

Prerequisite : None

This course encompasses the principles and activities in managing an organization. Management of human resources, production, marketing and finance, and its relation to the management of an organization in the wood-based industry are emphasized. Issues related to the management of the wood-based industry in Malaysia are discussed

FHH4305 International Timber Trade 3 (3+0)

Prerequisite : None

This course encompasses the world forest resources and theory as well as practices in international timber trade. Supply, demand and analysis of international timber trade are emphasized. Current issues on tropical timber trade are discussed

FHM3206 Geographic Information System in Forestry 3 (2+1)

Prerequisite : None

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

FHM3107 Forest Soil 3 (2+1)

Prerequisite : None

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

FHM3211 Ecosystem Restoration 3 (2+1)

Prerequisite : None

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

FHS4903 Industrial Training 8 (0+8)

Prerequisite : None

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

FHS4904 Forestry Camp 2 (0+2)

Prerequisite : None

This course covers early exposure to the students on the importance of forest ecosystem towards the society and nation. Students are also trained with various forestry skills in the field, as well as developing students' character and values

FHS4959A/FHS4959B Bachelor Dissertation 6 (0+6)

Prerequisite : None

This course covers the preparation of proposal, implementation and scientific writing of research project. Scientific approach to generate data systematically through appropriate design, data collection and analysis are emphasized

FHH4305 International Timber Trade

3 (3+0)

Prerequisite : None

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

Department of Forest Management

- FHM3202 Forest Mensuration** 3 (2+1)
Prerequisite : None
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
- FHM3112 Quantitative Methods in Forestry** 4 (3+1)
Prerequisite : None
This course covers parametric and non-parametric of data description and analyses in forestry. The pattern of random variables and some common distributions of parameters are emphasized. Sampling techniques, experimental designs, experimental errors, correlations and linear regression are discussed
- FHM3101 Forest Science** 3 (3+0)
Prerequisite : None
This course encompasses the basic principles of forest science and its importance. Forest types, ecosystem, and management, as well as forest industries are emphasized. Forestry issues at the local and global levels are discussed
- FHM3102 Forest Botany** 3 (2+1)
Prerequisite : None
This course encompasses dendrology in forestry and plant taxonomy. Morphological characters for identification of Gymnosperm and Angiosperm are emphasized. Value of diversities of plants and its habitats are discussed
- FHM3103 Dendrology of Dipterocarps** 2 (1+1)
Prerequisite : None
This course discussing on the dendrology of family Dipterocarpaceae. Emphasizes are on modern nomenclature, plant habitats, keys identification, botanical indicators and collection of herbarium specimens. Description on genera and species for dipterocarps and its importance in forestry is discussed
- FHM3104 Dendrology of Non-Dipterocarps** 2 (1+1)
Prerequisite : None
This course discussing on the dendrology of family non-Dipterocarps. Emphasizes are on modern nomenclature, plant habitats, keys identification, botanical indicators and collection of herbarium specimens. Description on family and genera for non-dipterocarps and its importance in forestry is discussed
- FHM3108 Forest Entomology** 2 (1+1)
Prerequisite : None
This course encompasses the identification and classification of selected forest insects. Students will understand the ecology, biology and importance of insects associated with natural forest, plantation and urban forest. Methods of diagnosing, sampling and tree insect pest control based on insect pest management principles are emphasized
- FHM3109 Forest Pathology** 2 (1+1)
Prerequisite : None
This course covers plant disease concept, disease symptoms and signs. Emphasis is given on factors in disease formation, disease diagnosis, classification of fungal pathogen, biology of important pathogens and pathogenesis. Host and pathogen interaction, defense mechanism, and control methods for forest tree diseases are also discussed
- FHM3110 Forestry Economics** 3 (3+0)
Prerequisite : None
This course covers concepts and theories in forest economic. These include of market structure, production economics, demand and supply of forest goods and services. Economic valuation of forest resources and payment for ecosystem services (PES) are emphasized. Investment analysis of forestry projects, and the role of forestry sector in national economic development are discussed

- FHM3111 Forest Fire** 3 (3+0)
 Prerequisite : None
 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
- FHM3201 Forest Survey** 3 (2+1)
 Prerequisite : None
 This course covers the basic principles of forest survey, technique of linear and angular measurements which are applied in forestry. The content of this course includes methods of forest area measurement and plan preparation. Calculation technique for data accuracy and appropriate corrections are discussed
- FHM3203 Forest Silviculture** 3 (2+1)
 Prerequisite : None
 This course encompasses the concepts and theory of silviculture, general silvicultural systems practiced in tropical forest, Emphasized is given to the development of silviculture system in Malaysia that includes the current systems and methods. Aspects of introduction and establishment of forest plantation as well as appropriate silviculture treatments are discussed
- FHM3204 Forest Engineering** 3 (2+1)
 Prerequisite : None
 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
- FHM3205 Forest Harvesting** 3 (2+1)
 Prerequisite : None
 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
- FHM3206 Geographic Information System in Forestry** 3 (2+1)
 Prerequisite : None
 This course covers basic concepts of geographic information system (GIS). The content of this course includes method of design and data base development, automation, processing, analysis, display, and modelling of data. It is to support decision making, including case studies of GIS in forestry
- FHM3208 Tree Improvement** 3 (2+1)
 Prerequisite : None
 The course covers the principles and methods of tree improvement of natural and planted forest for sustainable management and production of quality planting stock. The application and importance of genetic variations through Mendelian genetics, quantitative genetics, Hardy-Weinberg equilibrium, species selection, provenance trial, vegetative propagation, progeny trial, seed production area, seed orchard and efficient breeding strategy will be discussed. This course focuses in resource use efficiency and the application of appropriate techniques for tree improvement program
- FHM3209 Arboriculture** 3 (2+1)
 Prerequisite : None
 This course covers the theory and concept of arboriculture especially on the management and maintenance of trees in urban areas. Basic concept of tree biology and physiology, site and species selection, tree planting and pruning, tree health and diseases are discussed. Professionalism aspect in urban tree management through best practices and arborist certification are emphasized
- FHM3210 Ethnobotany** 3 (2+1)
 Prerequisite : None
 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

- FHM3211 Ecosystem Restoration** 3 (2+1)
Prerequisite : None
This course covers the concepts and principles of ecosystem restoration and evaluation of factors affecting forest ecosystem degradation. Assessment and application of methods to restore several forest ecosystems
- FHM3212 Wildlife Sampling Methods** 3 (2+1)
Prerequisite : None
This course covers sampling concepts and methodology, data analysis and interpretation in the tropical regions. Direct and indirect sampling methods according to different animal groups, assessment of habitat quality and environmental variables associated with wildlife presence and abundance are emphasized. Vegetation and environmental factor on wildlife distribution are emphasized
- FHM3213 Agroforestry** 3 (2+1)
Prerequisite : None
This course introduces principle of tropical agroforestry system in tropic. The teaching focuses on appropriate systems and the interactions of the agroforestry system with the environment and social. Economic analysis is used to assess the positive return of the agroforestry system
- FHM3214 Seed Technology** 2 (1+1)
Prerequisite : None
The course discussed issue related to seed production of selected forest species and fibre crops. Seed technology and its potential effects on the yield and quality of seeds are emphasized. Physiological aspects of seed production including phenology, dormancy and storage; and the decision support system such as seed certification and seed research are emphasized
- FHM3215 Green Infrastructure in Urban Forestry** 2 (1+1)
Prerequisite : None
This course covers the understanding of the functions and components of green infrastructure in the context of urban forestry. This course helps students in identifying green infrastructure components found in urban forests and the benefits of these components to the surroundings. This course exposes students to the planning, designing and applying the use of green infrastructure in the context of urban forests
- FHM3216 Environmental Economics and Urban Forestry** 2 (2+0)
Prerequisite : None
This course provides background information to understand method and economic techniques related to urban forest and its environment. Theories of environmental economics related to both natural and non-natural resources are explained. It includes the development of real understanding on the topics of (i) the environmental economics of urban forest, (ii) cost-benefit analysis and discounting macro-economic tools, (iii) measures and policy sustainable development, (iv) and resource valuation
- FHM3217 Harvesting System in Forest Plantations** 3 (2+1)
Prerequisite : None
This course will discuss the preparation of sustainable forest plantation harvesting plan. It includes analyzing the rate of timber production, harvesting costs, and controlling costs. Important aspects within the construction of forest plantations roads, planted forest harvesting systems and techniques, and cutting cycle in forest plantation are discussed
- FHM3218 Planting Material Production for Forest Plantation** 3 (2+1)
Prerequisite : None
The course comprises various techniques in producing plant material for forest plantations. These includes natural breeding, tissue culture, genetic selection, DNA recombinant and transgenic plant. Emphasis is given in producing a quality product to achieve the operational goals of forest plantations

- FHM3302 Urban Forest Management** 3 (2+1)
 Prerequisite : None
 This course covers the concept, function and benefit of urban forestry. Arboriculture principles and green space planning in urban forest management are emphasized. Species and site matching, planting, tree care and maintenance are discussed
- FHM3304 Forest Plantation Management** 3 (2+1)
 Prerequisite : None
 This course encompasses the establishment and nursery management until maturity of forest plantation. Activities of forest plantation includes management of seed sources, site preparation, planting, enspacement, fertilization, protection, thinning, pruning and rotation are emphasized. Issues and good practices in forest plantation management are covered
- FHM3306 Laws in Forestry** 3 (3+0)
 Prerequisite : None
 This course encompasses provisions of laws in forestry sectors including natural resource, environment, wildlife, national parks, water and upstream industries. Differences between related state laws are emphasized. Application of laws to solve current forest management are discussed
- FHM3307 Nursery Management and Maintainance** 2 (1+1)
 Prerequisite : None
 This course discusses basic of nursery establishment based on good practices for conservation and business purposes. Emphasized are given on nursery establishment techniques, plant and infrastructure maintenance. Plant propagation techniques and plant marketing are discussed
- FHM3308 Fire Management in Forest Plantations** 2 (1+1)
 Prerequisite : None
 This course covers the concept and causes of fire in forest plantations. It explains effects of forest fire on soil, plants and wildlife. Students are exposed to Fire Danger Rating System for Southeast Asia and it's application in the management of fire in forest plantations
- FHM3309 Forest Plantation Certification** 2 (1+1)
 Prerequisite : None
 This course provides an overview of the purpose and requirements of the Malaysian Criteria and Indicators for Forest Plantation Management Certification (MC&I Forest Plantations). It explains on the understanding and interpretation of the 10 principles and 55 criteria of MC&I Forest Plantations. Role of national governing body in developing certification standards and other certification processes are studied
- FHM3310 Integrated Pest Management of Urban Forests** 3 (2+1)
 Prerequisite : None
 This course discusses on the identification and classification of selected pests, insects and their biology, habitat and importance in urban forestry. The utilization and integration of pest control tactics for management of insects and pathogens are emphasized. Control technique and management in field are discussed
- FHM3311 Urban Tree Health Management** 2 (1+1)
 Prerequisite : None
 This course discusses agent and causes of urban forest tree diseases. Emphasized are given in identifying diseases of palms, shrubs, and shade trees and ornamental plants in urban forest. Controlling methods of urban tree diseases are discussed
- FHM4101 Biodiversity and Conservation** 3 (2+1)
 Prerequisite : None
 This course encompasses theory and principle in biodiversity and conservation that includes definition, level in biodiversity, definition of species, habitat, ecosystems and importance of biodiversity. Emphasis is given on measuring technique, assessment and biodiversity monitoring for conservation. Current issues, national biodiversity policy, management and mechanism for biodiversity conservation are covered
- FHM4102 Wildlife Community Ecology** 3 (3+0)

Prerequisite : None

This course covers concepts and theories related to the structure and dynamics of terrestrial wildlife communities. Community concept, ecological interactions and population stability are emphasized. Theory and model related to space dynamic, habitat selection, food web in wildlife community are emphasized

FHM4103 Wildlife Behavioural Ecology 3 (2+1)

Prerequisite : None

This course covers the theory and fundamental concepts in behavioral ecology of wildlife. It includes mechanisms of wildlife behavior in relation to survival, communication, resource competition, prey and predator, and movement, and space necessity. The applications of behavioral ecology in wildlife conservation are emphasized

FHM4201 Remote Sensing in Forestry 3 (2+1)

Prerequisite : None

This course introduces students to basic theory on remote sensing and basic principles of satellite image processing. The teaching focuses on appropriate used image processing software. The student will be given the opportunity to analyze field data

FHM4202 Economic Valuation of Forest Resource and Biodiversity 3 (2+1)

Prerequisite : None

This course covers the basic concepts and methods in conducting economic valuation of forest and biological resources. Emphasis are given on 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 covered

FHM4203 International Forestry 2 (2+0)

Prerequisite : None

This course covers status, classification of forest and current global issues related to forestry sectors. Discussion on global and national forestry organizations, and international treaty related to forest management

FHM4204 Biotechnology Application in Forestry 3 (2+1)

Prerequisite : None

This course covers the theory and practice of biotechnology in the field of forestry including cell biology, molecular genetics, gene cloning, PCR technology, DNA sequencing, genetic engineering, DNA fingerprinting and forensic. It focuses on its application in the management of forest biodiversity, genetic heterogeneity, protection of endangered flora and fauna, and genetic engineering of plantation forest species. This course also emphasise on hands-on training

FHM4205 Forest Hidrology Technique 3 (2+1)

Prerequisite : None

This course gives exposure about equipment types and their measurement of basic hydrological processes. Emphasis is given to the watershed area including the micro and macro research. Hydrological data analysis methods are covered

FHM4206 Carbon Measurement and Monitoring 3 (2+1)

Prerequisite : None

This course encompasses the role of forests in climate change. International cooperation by various related agencies in reducing the impact of global climate change is discussed. Emphasized is given on methods in measurement and monitoring of carbon in the forested area

FHM4207 Urban Ecology 3 (2+1)

Prerequisite : None

This course encompasses the theory, function and components functions in the scope of urban ecology. Interaction analysis between various components of urban ecosystem and issues in urban ecology are emphasized. Solutions to the problems relating to urban ecology are discussed

- FHM4301 Advance Forest Management** 2 (1+1)
 Prerequisite : None
 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
- FHM4302 Human and Wildlife Conflicts** 3 (3+0)
 Prerequisite : None
 This course covers concept of conflict management and roles of human and wildlife. The understanding of ecosystem functions and carrying capacity are emphasized in evaluating human and wildlife conflicts. Mitigation methods for solving human and wildlife conflicts are emphasized
- FHM4303 Risk Management in Urban Forestry** 3 (2+1)
 Prerequisite : None
 This course discusses the responsibility of urban forestry managers in managing risks. Emphasized are given to the preparation and presentation of risk management plan in urban forestry including liability assessment, standard and principle in urban forestry and health and security. Management of hazardous trees, health and security in workplace and search and rescue are discussed
- FHM4304 Conflict Management in Forest Plantations** 3 (2+1)
 Prerequisite : None
 This course covers conflict management concept, roles of human in managing forest plantations. The course focuses on human conflicts to wildlife in forest plantation. Methods for dealing with conflicts between human and forest resources and land claims issues are discussed
- FHU3211 Watershed Management** 3 (2+1)
 Prerequisite : None
 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
- FHU4207 International Timber Trade** 3 (3+0)
 Prerequisite : None
 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

Recreation and Ecotourism Department

- FHR3101 Introduction to Outdoor Recreation** 3 (2+1)
Prerequisite : None
This course covers the basic concepts of leisure, outdoor recreation and ecotourism. The relationship between recreation resource, consumer and management are discussed. Scope, development and professionalisme in the recreation and ecotourism industry are emphasised.
- FHR3102 Recreation Resource Ecology** 3 (2+1)
Prerequisite : None
This course covers the impacts of user towards the resources and ecosystem in recreational areas. The importance of impact measurement in recreational resources management is discussed. Methods on impact management at recreational areas are emphasised.
- FHR3201 Outdoor Recreation Skills** 3 (1+2)
Prerequisite : None
This course covers the basic technique in handling outdoor recreation activities. Planning and management of outdoor recreational skills activities handling is discussed. Implementation of outdoor recreational activities are emphasised.
- FHR3202 Park and Recreation Rescouces Inventory** 3 (2+1)
Prerequisite : None
This course covers principles and methods of natural resources inventory. Utilisation of equipments for inventory is discussed. Application of inventory techniques, data collection and analysis of parks and recreation resource are emphasised
- FHR3203 Environmental Interpretation** 3 (2+1)
Prerequisite : None
This course covers the theory in the application of environmental interpretation program. Demonstration of interpretational techniques towards specific target groups are discussed. The effectiveness of the delivery methods of environmental interpretation through one-way communication skills are emphasised
- FHR3204 Outdoor Recreation Planning** 3 (2+1)
Prerequisite : None
This course covers planning concept in developing outdoor recreation resource. Analysis for outdoor recreation development plan is discussed. Demand and supply estimation approaches in outdoor recreation resource are emphasised.
- FHR3205 Park Operation and Maintenance** 2 (1+1)
Prerequisite : None
This course covers the principles of park operation and maintenance. Method of park maintenance through planning is discussed. Approaches in developing park operation and maintenance plans are emphasised
- FHR3301 Risk Management in Recreation** 3 (2+1)
Prerequisite : None
This course covers the principles of risk management for each recreation activity in a park setting. The existence of risk elements in recreational activities are discussed. The importance of risk management plans to control recreational activities are emphasised.
- FHR3503 Entrepreneurship in Parks and Recreation** 3 (2+1)
Prerequisite : None
This course encompasses the diversity of business opportunities in parks and recreation management. Preparation of business plan according to the current demands of users in parks and recreation is trained. Business project based on developed business plan is conducted
- FHR3302 Recreation Programming and Leadership** 3 (2+1)
Prerequisite : None

This course covers the concept and technique of leadership in designing recreation program. Programming techniques and approaches of recreation activities are discussed. Development and implementation of recreation programs for various recreational user groups are emphasised.

- FHR3501 Recreational User Behaviour** 3 (3+0)
Prerequisite : None
This course covers the basic concept of consumer behaviour in recreation. Consumer behaviour problems in parks and recreation are discussed. The theory of consumer behaviour through case study is emphasised.
- FHR3502 Recreation Site Planning and Design** 3 (2+1)
Prerequisite : None
This course encompasses the design and recreational facilities concepts in a natural environment. The process of planning a recreation area and fundamental design of recreational are 173 emphasized
- FHR3504 Recreational Facilities Operation and Management** 3 (2+1)
Prerequisite : None
This course covers concepts of management and operation of recreational based camp. The requirements of camp management, administration and operation are discussed. The processes involved in outdoor recreational camp are emphasised
- FHR3505 Wildlife Management in Recreation** 3 (2+1)
Prerequisite : None
This course covers the concept and classification of wildlife. Management and conservation of wildlife in the context of recreation are discussed. The utilisation of wildlife conservational methods in organizing recreational programme is emphasised
- FHR3506 Therapeutic Recreation for Special People** 3 (2+1)
Prerequisite : None
This course covers therapeutic principles in recreation programming for special group. The need for special skills in conducting therapeutic recreation programme is discussed. Applications of appropriate therapeutic recreation with special groups are emphasised.
- FHR3507 Hospitality in Parks and Recreation** 3 (2+1)
Prerequisite : None
This course covers the concept of hospitality in recreational setting. Service quality towards various recreational user is discussed. Various hospitality service procedures and activities are emphasised.
- FHR4301 Recreation Resource Valuation** 4 (4+0)
Prerequisite : None
This course covers the fundamental theory and concepts of economics in the valuation of the benefits and cost from recreation and ecotourism. Individual and community well-being along with environmental sustainability are discussed. Decision making towards recreational resource consumption by applying recreational and ecotourism valuation techniques is emphasised.
- FHR4302 Research Method in Recreation and Ecotourism** 3 (3+0)
Prerequisite : None
This course covers research methods in solving problems in recreation and ecotourism field. The teaching emphasises on sampling techniques, measurements and suitable statistical procedure in problem solving. Determination of suitable approaches of research design in recreation and ecotourism is discussed.
- FHR4401 Parks and Recreation Management** 3 (3+0)
Prerequisite : None
This course covers the principles and practices of effective administration and organization in the field of parks and recreation. The relationships of administrative and organizational concepts in the public and private institutions are discussed. Case studies on policies and practices of parks and recreation organisations are emphasised
- FHR4402 Heritage and Community Tourism Management** 3 (2+1)

Prerequisite : None

This course covers the relationship of heritage and community aspects within the context of tourism industry. Development of community-based heritage tourism products is discussed. The importance of preserving heritage resources for tourism purposes are emphasised

FHR4501 Environmental Education 3 (2+1)

Prerequisite : None

This course covers the relationship between environmental educational and environmental problems faced by society. Environmental educational programs are planned and implemented. Community awareness towards environmental educational is emphasised

FHR4503 Ecotourism Management 3 (2+1)

Prerequisite : None

This course covers the meaning and concept of ecotourism management. Teaching focuses on ecotourism services based on local communities. The best management practices in ecotourism services are emphasised

FHR4504 Development of Recreation Products 3 (2+1)

Prerequisite : None

This course covers concept of consumer behaviour in the development of recreational products and product commercialization. Financial management in the recreation industry is emphasised

FHR4502 Recreation Marketing 3 (2+1)

Prerequisite : None

This course covers the concepts and techniques of marketing recreation products. The marketing strategy for recreation and ecotourism products are discussed. Promotional methods for recreation and ecotourism products are emphasised

FHR4608 Protected Areas Management 3 (2+1)

Prerequisite : None

This course covers concept and principles of protected area management. Establishment process, legislation and community engagement in protected areas is discussed. Development of a protected area management and monitoring plan for a specific area

FHM3103 Dendrology Of Dipterocarps 3 (2+1)

Prerequisite : None

This course introduces student to dendrology in forestry and plant taxonomy. The teaching focuses on morphological characters for identification of Gymnosperm and Angiosperm. Students are also exposed to value of diversities of plants and its habitats.

FHM3105 Tree Physiology 3 (2+1)

Prerequisite : None

This course covers the role, function and process of tree physiology within forest ecosystem includes photosynthesis, carbohydrate metabolism, assimilation and respiration. The relationship between tree physiological processes with environmental factor such as absorption, movement and loss of water, and sexual and asexual reproductions is discussed. This course focusses on the appropriate techniques for tree physiological measurement

FHM3106 Forest Ecology 3 (2+1)

Prerequisite : None

This course emphasises on ecological concept, including environmental factors such as edaphic, climatic and biotic variables that influence the growth and development of vegetation, forest classification as well as community dynamics and processes such as organic matter production, energy flow and nutrient cycling

FHM3301 Forest Management 3 (2+1)

Prerequisite : None

This course covers the functions and importance of sustainable 220 forest management in Malaysia. The principles and standard of international forest management related to the sustainable yield, rotation and cutting cycle, the manipulation of growing stock, yield, and regulation of fellings related to forest management system in Malaysia are discussed. Forest certification and verification of forest products from sustainable forest are emphasized.

FHM3303 Wildlife Management

3 (2+1)

Prerequisite : None

The course encompasses classification and ecological aspect of wildlife in Malaysia includes population dynamics, habitat requirement, pressure and disturbance of original habitat. Population measurement through sampling techniques for population estimation is emphasized. Principles of forest management towards wildlife, conservation, current and future status, functions of agencies, national policies and public awareness is discussed

FHM3305 Watershed Management

3 (2+1)

Prerequisite : None

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