



UNIVERSITI TEKNOLOGI MARA

AGR606: PLANTATION INTEGRATION

<b>Course Name (English)</b>	PLANTATION INTEGRATION <b>APPROVED</b>
<b>Course Code</b>	AGR606
<b>MQF Credit</b>	3
<b>Course Description</b>	no description provided
<b>Transferable Skills</b>	knowledge, Life long learning, Communication and Leadership skill.
<b>Teaching Methodologies</b>	Lectures, Blended Learning, Discussion, Presentation
<b>CLO</b>	CLO1 Understand, appreciate and disseminate the concept of plantation integration and their benefit in maintaining and improving environmental quality CLO2 Discuss and illustrate the effect of plantation integration on nutrient cycling and soil fertility in plantation environment CLO3 Evaluate and assess the economics of different plantation integration system CLO4 Understand and able to suggest suitable integration system in different socioeconomic environment CLO5 Identify community response and acceptance and offer advisory and extension services to upgrade knowledge on plantation integration system
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. 1. Introduction to plantation integration</b> 1.1) 1.1 Introduction 1.2) 1.2 Plantation crop and woody trees integration 1.3) 1.3 Tree-crop integration at plantation scale 1.4) 1.4 Tree-crop-integration at farm scale 1.5) 1.5 Tree-crop and livestock integration	
<b>2. 2. Environmental aspects of tree-crop-livestock integration</b> 2.1) 2.1 Effect on soil conservation 2.2) 2.2 Effect on water management 2.3) 2.3 Effect on nutrient management 2.4) 2.4 Resource partitioning	
<b>3. 3.0 Trees and Crops relationship</b> 3.1) 3.1 Tree-crop interface: key to success or failure of the system 3.2) 3.2 Competition and complementarity (conflict and compromise) 3.3) 3.3 Measuring the efficiency of tree-crop integration 3.4) 3.4 Effect of livestock in tree crop relationship	
<b>4. 4.0 Soil fertility and tree-crop-livestock integration</b> 4.1) 4.1 Site modification 4.2) 4.2 Nutrient cycling and organic matter built up 4.3) 4.3 N-fixing leguminous trees – a basic resource in tree-crop 4.4) 4.4 Sustainability of tree-crop-livestock integration	
<b>5. 5.0 Plantation crop integration system</b> 5.1) 5.1 Integrated land use system with plantation crop 5.2) 5.2 Small holder system with selected tree crop 5.3) 5.3 Crop combination with other plantation crop 5.4) 5.4 Multi-storey tree gardens	

**6. 6.0 Livestock Production in Plantation System**

- 6.1) 6.1 Nutrient cycles in crop-livestock integration system
- 6.2) 6.2 Livestock feeding strategies and choice of animal species
- 6.3) 6.3 Effect of crops and trees on livestock nutrition
- 6.4) 6.4 Crop-livestock system and soil conservation
- 6.5) 6.6 Modeling of crop-livestock nutrition

**7. 7.0 Socio-economic aspect of tree-crop-livestock integration**

- 7.1) 7.1 Economic benefit of the integration
- 7.2) 7.2 Productivity evaluation of crops
- 7.3) 7.3 Productivity evaluation of trees
- 7.4) 7.4 Productivity evaluation of livestock
- 7.5) 7.5 Social acceptability of tree-crop-livestock integration
- 7.6) 7.6 Government policies and implementation of the integration

**8. 8.0 Other integration system and practices**

- 8.1) 8.1 Tree fodder silvipastoral system
- 8.2) 8.2 Intercropping under scattered or regular planted trees
- 8.3) 8.3 Tree-crop system for reclamation of problem soils
- 8.4) 8.4 Buffer zone tree-crop system

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Group Assignment	20%	CLO3 , CLO4 , CLO5
	Attendance	Ethics	2%	CLO1 , CLO2 , CLO3
	Group Project	Concept Map	4%	CLO1 , CLO2 , CLO3
	Presentation	Class Dialogue	5%	CLO1 , CLO2 , CLO3
	Presentation	Presentation	5%	CLO1 , CLO2 , CLO3
	Quiz	Quiz 1	2%	CLO3 , CLO4
	Quiz	Quiz 2	2%	CLO4 , CLO5
	Test	Test 1	10%	CLO1 , CLO2
	Test	Test 2	10%	CLO3 , CLO4

Reading List	Recommended Text	• Schroth, G. and Sinclair, F.L 2002, <i>Trees, crops and soil fertility concepts and research Method</i> , CABI
Article/Paper List	Recommended Article/Paper Resources	• Ashton. M.S and Montagnini, F. 2002, <i>The silvicultural Basis for Agroforestry Systems</i> .
Other References		• n/a Aminuddin, A.B. Ismail, O. Ahmad Shokri and H. Abdul Razak 2003, <i>Methodology Development for Exploratory Agricultural Land use Planning: A case study in Kedah- Perlis</i>