UNIVERSITI TEKNOLOGI MARA

AGA703: TRANSFORMATION IN CROP PRODUCTION TECHNOLOGY

Course Name (English)	TRANSFORMATION IN CROP PRODUCTION TECHNOLOGY APPROVED
Course Code	AGA703
MQF Credit	3
Course Description	This course discusses the development and revolution in crop production for high yield and improved quality of produce at reduced cost of degradation to ecosystem. Various issues on sustainable crop production are included in this course. It also includes the agricultural machines that have massively improved farm output.
Transferable Skills	knowledge and methodology
Teaching Methodologies	Lectures, Discussion, Presentation
CLO	CLO1 Discuss the need for revolution in crop production by reviewing the history of crop production for human life hood. CLO2 Relate the role of crop production technology and innovations in yield and quality improvement with minimal impact on environment CLO3 Utilize the concepts of sustainability in managing crop production activities
Pre-Requisite Courses	No course recommendations

Topics
1. History of Crop Production 1.1) Prehistoric food production 1.2) Feudal agricultural system 1.3) Scientific/modern agricultural system
2. Issues in Crop Production Revolution 2.1) Food security 2.2) Quality of diet 2.3) Environmental impact and sustainability of production 2.4) Political, social and economic impact 2.5) High-tech mechanized equipment 2.6) Technology transfer 2.7) Supply chain management
3. Planting Material Production 3.1) Plant genetic resources and conservation 3.2) Conventional varital improvement and seedling production 3.3) Plant mutation and transformation 3.4) Molecular marker and genetic engineering 3.5) Micropropagation for production of quality planting material
4. Land Preparation and Planting 4.1) Zero burning practice 4.2) No tilled farming and conservation tillage 4.3) Site-species specific cultivation 4.4) Rehabilitation of lands
5. Crop Husbandry 5.1) The concept of interdependency of biological activities 5.2) Preventive vs remedial technology 5.3) Biofertilizer and composting technology 5.4) Biopesticide and biocontrol 5.5) Low cost irrigation 5.6) Good Agricultural Practices 5.7) Precision farming 5.8) Organic farming

5.9) Case study of precision oil palm cultivation
6. Harvesting and Postharvest Technology 6.1) Mechanical/automated harvester 6.2) Grader 6.3) Storage and transportation of produce 6.4) Certification scheme 6.5) Recycling of wastes

Assessment Breakdown	%
Continuous Assessment	70.00%
Final Assessment	30.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Assignment 1	15%	CLO1 , CLO2 , CLO3
Assignment	Assignment 2	15%	CLO1 , CLO2 , CLO3
Attendance	n/a	5%	CLO1 , CLO2 , CLO3
Presentation	Engagement	5%	CLO1 , CLO2 , CLO3
Test	Mid Term Test 1	30%	CLO1 , CLO2 , CLO3

Reading List

Recommended Text

- **Sharma, P. (2007). 2007, *Precision Farming*, Gene Tech Books**

Reference Book Resources

- **Acquaah, G. 2001, *Principles of Crop Production. Theory, Techniques and Technology*, Pearson, Prentice Hall.**
- **Baker, C.J. and Saxton, K.E. 2007, *No Tillage Seeding in Conservation Agriculture*, CABI**
- **Barker, A.V. 2010, *Science and Technology of Organic Farming*, CRC Press**
- **Barker, A.V. and Pilbeam, D.J. 2007, *Handbook of Plant Nutrition*, CRC Press**
- **Bohlen, P.J. and House, G. 2009, *Sustainable Agroecosystem Management.*, CRC Press**
- **Brase, T. (2006). 2006, *Precision Agriculture.*, Thomson Delmar Learning.**
- **Gupta, H.M. (2005). 2005, *Organic Farming and Sustainable Agriculture.*, ABD Publishers.**
- **Hashimoto, Y., Bot, G.P.A., Day, W., Tantau, H.J. and Nonami 1993, *The Computerized Greenhouse: Automatic Control Application in Plant Production.*, Academic Press.**
- **Insam, H., Riddeck, N. and Klammer, S. 2002, *Microbiology of Composting*, Springer**
- **Lazarova, V. and Akica, B. (2005). 2005, *Water Reuse for Irrigation: Agriculture, Landscapes and Turf Grass.*, CRC Press.**
- **Les, B. (2003). 2003, *-Soilless Gardening Explained*, The Crowood Press**
- **Lichtfouse, E. (2009). 2009, *Organic Farming, Pest Control and Remediation of Soil Pollutants.*, Springer.**
- **Mazumdar, B.C. 2004, *Orchard Irrigation and Soil Management Practices.*, Daya Publishing House, New Delhi.**
- **Sathe, T.V. (2004). 2004, *Vermiculture and Organic Farming*, Daya Publishing House, New Delhi.**
- **Sharma, R.K. and Sharma, T.K. (2002). 2002, *Irrigation Engineering*, Ram Nagar, New Delhi.**
- **Singh, R. 2007, *Modern Farm Management: Principles and Practice*, Oxford Book Company.**

Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources