



UNIVERSITI TEKNOLOGI MARA

AGC705: MICROBIOL CONTROL ISSUES

Course Name (English)	MICROBIOL CONTROL ISSUES APPROVED
Course Code	AGC705
MQF Credit	3
Course Description	This course covers the biological fundamentals of microbes, its impact to the plant and efforts to prevent and limit their spread. Besides that, it also will discuss issues as they relate to the environmental science and sustainable agriculture. Students are expected to actively participate in the discussion, and find, present and critique recent literature in the field of microbial control issues.
Transferable Skills	knowledge of microbial issues in agriculture
Teaching Methodologies	Lectures, Discussion, Presentation, Journal/Article Critique
CLO	CLO1 Understand some basic concepts of the microbes biology CLO2 Compare and contrast various important microbes with regards to infections, treatment, and control CLO3 Describe of microbial diversity according with physical and chemical requirements for the control methods of microbial growth and the impact of microorganisms on crop plant CLO4 Understand the role of microbes in recent events of public/social interest including organic waste management, pest and disease control, and soil sustainable CLO5 Formally communicate the results of literature investigations using written communication skills
Pre-Requisite Courses	No course recommendations
Topics	
1. Microbes in perspective 1.1) Microbial characterization 1.2) Microbial nutrition and cultivation 1.3) Microbial growth and metabolism 1.4) Microbial ecology	
2. Plant disease 2.1) Plant disease by bacteria 2.2) Fungal and bacretial Plant Diseases 2.3) Disease mechanism 2.4) Economic importance of plant disease 2.5) Control of plant disease	
3. Plant Pathogens 3.1) Pathogens entry into plant 3.2) Classification of plant pathogen 3.3) Vectors of plant pathogens 3.4) Plant pathogen control measure	
4. Controlling microbial growth 4.1) Physical methods of microbial control 4.2) Chemical methods of microbial control	
5. Microbial management of organic wastes 5.1) Detoxification of organic and inorganic pollutants 5.2) Water purification / water treatment 5.3) Waste water treatment and landfill waste management 5.4) Industrial microbiology, genetically modified microorganisms and biotechnology 5.5) Application of genetically modified microorganisms in agriculture	

6. Microbial control of crop pests and diseases

- 6.1) Relationship between microorganisms and insects
- 6.2) Techniques of application of microorganisms for control of microbial diseases
- 6.3) Microbial insecticides
- 6.4) Fermentation of microbial insecticides
- 6.5) Microbial control of root diseases and aerial pathogens

7. Biofertilizer

- 7.1) Role of microorganisms in soil fertility
- 7.2) Plant-microbe interactions
- 7.3) Effect of mycorrhizal interactions on nutrient uptake and pathogen resistance
- 7.4) Biofertilization processes

Assessment Breakdown	%
Continuous Assessment	70.00%
Final Assessment	30.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment	30%	CLO4
	Discussion	n/a	10%	CLO5
	Test	Test 1	30%	CLO1 , CLO2 , CLO3

Reading List	Recommended Text	<ul style="list-style-type: none"> Roberts, M. 1996, <i>Environmental Microbiology</i>, John Willey & Sons, USA
Article/Paper List	Recommended Article/Paper Resources	<ul style="list-style-type: none"> Burges, H.D. 1981, Microbial control of insect pests, mites and plant diseases, <i>Academic, London</i>
	Reference Article/Paper Resources	<ul style="list-style-type: none"> Somani, L.L., S.C. Bhandari, K.K. Vyas and S.N. Saxena. 1990, <i>Biofertilizers</i>, Scientific Publishers – Jodhpur Salle, A.J 2001, <i>Fundamentals & Principles of Bacteriology</i>, Tata McGraw-Hill, Davis
Other References	This Course does not have any other resources	