

Semester	6		
Course Code:	MIBI 33534		
Course Name:	Medical and Veterinary Microbiology, Microbial Technology ¹		
Credit Value:	4		
Core/Optional	Optional/ Core ¹		
Hourly Breakdown	Theory	Practical	Independent Learning
	60 hrs	-	140 hrs
Course Aim/Intended Learning Outcomes:			
Upon successful completion of this course student will be able to;			
<ul style="list-style-type: none"> Describe the functioning of the immune system, Describe the common microbial disease agents, methods of transmission and control, Apply principles of disease diagnostic methods, Describe the principles of microbial process development, Apply basic formulas in growth kinetics and bio-engineering parameters of fermentation technology, Apply principles of microbial process development in production of industrial chemicals, food-flavors, and health-care products. 			
Course Content:			
Microbial technology:			
The nature of biotechnology, historical evolution of biotechnology, Growth application and strategic planning in biotechnology. Safety in Microbiology laboratory. <i>Fermentation technology</i> : Basic principles of biochemical engineering and its role in the development of fermentation technology - Unit operations, unit processes, process design. Microbial growth kinetics, batch preservation and improvement of industrial microorganisms. Primary metabolites and Secondary metabolites. Bioreactors, Media design, Measurement techniques, Solid Substrate Fermentation (SSF). <i>Applications of microbial technology</i> : Microbial production of ethanol, wine, beer, lactic acid, vinegar, amino acids, antibiotics, enzymes soy sauce, bio-gas generation. <i>Cosmetic Microbiology</i> : Basic principles in cosmetic microbiology.			
Medical Microbiology:			
Host-microbe Interactions; Host defenses in vertebrates; non-specific and specific defense mechanisms. <i>Cellular and Humoral immune responses</i> : structure, formation and classes of immunoglobulins, Diagnostic Immunology, Disorders associated with the Immune system. Microorganisms and human diseases; microbial diseases of skin, respiratory, gastrointestinal, genitourinary and nervous. <i>Veterinary Microbiology</i> : Aetiology, transmission, pathogenesis and diagnosis of common microbial diseases of poultry in Sri Lanka.			
Teaching /Learning Methods: A combination of lectures, tutorials and small group discussions			
Assessment Strategy: End of the course unit examination			
Continuous Assessment		Final Assessment	
0%		100%	
Details:	Theory (%)	Practical (%)	Other (%)
N/A	100	-	-
Recommended Reading:			
<ul style="list-style-type: none"> Peppler, H.J. and Perlman D. (2014) <i>Microbial Technology: Fermentation Technology</i>. 2nd Ed. Elsevier Science. Cruger, W. and Cruger, A. (1990) <i>Biotechnology: A textbook of industrial microbiology</i>. Science Tech. Inc. Madison. Greenwood, D. Slack, R. Barer, M. and Irving, W. (2012) <i>Medical Microbiology</i>. 18th Ed. Churchill Livingstone. Actor, J. (2014) <i>Introductory Immunology: Basic Concepts for Interdisciplinary Applications</i>. 1st Ed. Academic Press. Barrow, G.I. and Feltham, R.K.A. (1993) <i>Cowan and Steel's Manual for the Identification of Medical Bacteria</i>. 3rd Ed. Cambridge University Press. 			

¹ Compulsory only for the students who follow B. Sc. (Honours) Degree in Microbiology