Detailed Course Description - Course Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-3.0E

Faculty	Pharmacy	Department	Pharmacy
Course number	0201237	Course title	Pharmaceutical Microbiology 2
Number of credit hours	2	Pre-requisite/co-requisite	Pharmaceutical Microbiology 1

Brief course description
The students should learn the methodologies of sterilization and disinfection, and how microorganisms spoil pharmaceutical products. The principles of sterility testing and pharmaceutical quality assurance.

	Course goals and learning outcomes
Goal 1	Elucidate the concepts of controlled environment, Quality Control, Good Manufacturing Practice and Quality Assurance as they apply to the pharmaceutical industry.
Learning outcomes	1. 1 Summarize the general principles of QA, GMP, and QC.
Goal 2	Acquire knowledge on the sources of microbial contamination and how to prevent product spoilage.
Learning outcomes	2. 1 Define different bacterial resistance mechanisms and the different chemical and physical methods used to control microbial contamination.
Goal 3	Review the current methods used for sterilization, disinfection, antisepsis and preservation of pharmaceutical products.
Learning outcomes	3. 1 Describe the concept and methods of sterilization, disinfection, antisepsis and preservation.
Textbook	1. Hugo, W.B and Russell, A.D. (2013); Pharmaceutical Microbiology, 8th ed. Blackwell Science, UK
Supplementary references	1. Winfield, A.J. and Richards, R.M.E. ed. (2009) Pharmaceutical practice 3rd. ed. Churchill Livingstone, U.K.

Course timeline				
Week	**Number of hours**	**Course topics**	**Pages (textbook)**	**Notes**
01	**1** **1**	Microbial spoilage of pharmaceutical products. Preservation using antimicrobial agents.	**Chapter 17**	
02	**1** **1**	Quality assurance and the control of microbial risk. Contamination of non -sterile pharmaceuticals in hospital and community environments.	**Chapter 17**	
Week	**Number of hours**	**Course topics**	**Pages (textbook)**	**Notes**
03	**1** **1**	Chemical disinfectants and antiseptics. Factors affecting choice of antimicrobial agent.	**Chapter 19**	
04	**2**	Types of compounds and disinfection policies.	**Chapter 19**	
05	**2**	Non -antibiotic antimicrobial agents: mode of	**Chapter 20**	

		action and resistance.		
06	**2**	Principles and practice of sterilization: Sensitivity of microorganisms, sterilization methods.	**Chapter 21**	
07	**1** **1**	Sterilization control and sterility assurance. Sterility testing: conditions and methods.	**Chapter 21**	
08	**2**	Sterile pharmaceutical products.	**Chapter 22**	
09	**2**	Pyrogens: nature of endotoxins, depyrogenation.	**Chapter 22**	
10	**2**	Principles of good manufacturing practice.	**Chapter 23**	
11	**2**	The manufacture and quality control of immunological products.	**Chapter 24**	
12	**2**	The manufacture and quality control of immunological products.	**Chapter 24**	
13	**2**	Recombinant DNA technology.	**Chapter 25**	
14	**2**	Recombinant DNA technology.	**Chapter 25**	
15	**2**	The wider contribution of microbiology to the pharmaceutical sciences.	**Chapter 26**	
16	**2**	The wider contribution of microbiology to the pharmaceutical sciences.	**Chapter 26**	

Theoretical course evaluation methods and weight	First exam 25% Second exam 25% Final exam 50%	**Practical (clinical) course evaluation methods**	Semester students' work = 50% Final exam = 50%

Approved by head of department		**Date of approval**	

Extra information (to be updated every semester by corresponding faculty member)

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