



# Course Specification

— (Bachelor)

**Course Title:** Pharmaceutical Microbiology-2

**Course Code:** MICR 388

**Program:** Pharmaceutical Sciences

**Department:** Pharmaceutics

**College:** Pharmacy

**Institution:** Najran University

**Version:** 3

**Last Revision Date:** 18/08/2024

## Table of Contents

A. General information about the course: .....	3-4
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods .....	4
C. Course Content .....	5
D. Students Assessment Activities .....	6
E. Learning Resources and Facilities .....	6
F. Assessment of Course Quality .....	7
G. Specification Approval .....	7





## A. General information about the course:

### 1. Course Identification

1. Credit hours: 3 hours (2+1)

#### 2. Course type

A. ☐ University ☐ College ☐ Department ☐ Track ☒ Program  
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (Level 6th / 3rd year)

#### 4. Course general Description:

This course is in continuation to pharmaceutical microbiology-1 which include description of infectious diseases caused by bacteria, viruses, fungi and other parasites regarding their mode of transmission, clinical features, identification, management, and preventive measures.

#### 5. Pre-requirements for this course (if any):

Pharmaceutical Microbiology-1 (MICR 387)

#### 6. Co-requisites for this course (if any):

None

#### 7. Course Main Objective(s):

- I. To understand the basic concepts of human microbial infections and diseases; their modes of transmission, pathogenesis, clinical manifestations, prevention and control of infectious diseases.
- II. To acquire knowledge about management of human infectious diseases caused by bacteria, viruses, fungi, and other parasites for safe pharmaceutical practice.
- III. To understand the basic principles of laboratory diagnosis of bacterial, viral, fungal and parasitic infections in reference to clinical diagnosis.

### 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> <li>Traditional classroom</li> <li>E-learning</li> </ul>		
4	Distance learning		





### 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		60

### B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Demonstrate the concepts and knowledge related to infections/diseases caused by microorganisms	K1	Lecture, Laboratory work	Written exams (short-answer question, MCQ); Practical exam; Assignments
1.2	Demonstrate the understanding related to mode of infections and preventive measures for microorganisms	K3	Lecture, Laboratory work	Written exams; Practical exam; Assignments
...				
2.0	Skills			
2.1	Demonstrate ability to solve problems related to diagnosis, management, and preventive measures for infections caused by microorganisms	S3	Lecture, Group discussion, Laboratory work	Written exams; Practical exam; Assignments
2.2				
3.0	Values, autonomy, and responsibility			





Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
3.1	Demonstrate ability to confidence and independent thinking	V4	Group discussion, Problem-based learning	Observation card, Assignment
3.2				
...				

### C. Course Content

No	List of Topics (Theory)	Contact Hours
i.	Medically important fungi: Candida albicans, and Cryptococcus neoformans	3
ii	Gram positive cocci: Staphylococci, Streptococci, and Pneumococci	2
iii	Spore forming bacilli: Bacillus anthrax, and Clostridium tetani	1
iv	Gram negative bacilli: Pseudomonas, Vibrio, Helicobacter, and Campylobacter	2
	Enterobacteriaceae:	4
v	- <i>Lactose Fermenter</i> : E. Coli, Klebsiella, Enterobacter, and Citrobacter - <i>Lactose Non-fermenter</i> : Salmonella, Shigella, Proteus, and Yersinia	
vi	Miscellaneous: Neisseria, Treponema, Mycobacterium, and Corynebacterium	3
vii	Viruses: Myxoviruses, Paramyxoviruses, Rubella virus, Herpes viruses, Hepatitis viruses, and Retroviruses	4
viii	Protozoa and Helminthic infections of human	3
ix.	Sterility Testing: Pharmaceutical Products	4
x.	Microbiological (Microbial) Assays: Antibiotics, and Vitamins	4
Total		30

No	List of Topics (Practical)	Contact Hours
I.	Diagnostic methods of Enterobacteriaceae (E. coli, Klebsiella, Enterobacter and Citrobacter) infections	4
II.	Diagnostic methods of Enterobacteriaceae (Salmonella and Shigella) infections.	2
III.	Diagnostic methods of Proteus and Pseudomonas infections.	2
iv	Diagnostic methods of Vibrios, Campylobacter and Helicobacter infections.	4
v	Diagnostic methods of Brucella and Yersinia infections.	4
vi	Diagnostic methods of Haemophilus and Bordetella infections.	4
vii	Diagnostic methods of Legionella infection.	2
viii	Diagnostic methods of Mycoplasma infection.	2
ix	Diagnostic methods of Spirochetes infections.	2
x	Diagnostic methods of Rickettsia and Chlamydia infections.	4
Total		30



## D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz exam -I	5	05%
2.	Midterm exam	7-9	20%
3.	Quiz exam -II	12	05%
4.	Assignments	15	05%
5.	Laboratory note book and practical quiz	15	10%
6.	Observation card in lab	1-15	05%
7.	Final Practical exam	16	10%
8.	Final Theory exam	17	40%
	Total		100%

\*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

## E. Learning Resources and Facilities

### 1. References and Learning Resources

Essential References	<ol style="list-style-type: none"> <li>1. Medical microbiology, Jawetz, Melnick and Adelberg's. Latest edition.</li> <li>2. Power point slides/word file</li> </ol>
Supportive References	<ol style="list-style-type: none"> <li>1. Pharmaceutical Microbiology, Ashutosh Kar. NEW AGE INTERNATIONAL (P) LIMITED, PUBLISHERS.</li> </ol>
Electronic Materials	<a href="https://sdl.edu.sa/SDLPortal/en/Publishers.aspx">https://sdl.edu.sa/SDLPortal/en/Publishers.aspx</a> <a href="http://dlaf.nu.edu.sa/en/e-libraries">http://dlaf.nu.edu.sa/en/e-libraries</a>
Other Learning Materials	

### 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ol style="list-style-type: none"> <li>1. Suitable lecture room equipped with data show and internet and sufficient number of seats.</li> <li>2. Suitable laboratories equipped with health and safety tools, internet and sufficient number of seats.</li> </ol>
<b>Technology equipment</b> (projector, smart board, software)	Computers, data show, sound systems and internet
<b>Other equipment</b> (depending on the nature of the specialty)	Autoclave, Hot air oven, Incubator, Microscope, Refrigerator, Centrifuge, pH meter.

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students assessment	Examination committee	Direct
Quality of learning resources	Course coordinator and students	Indirect
The extent to which CLOs have been achieved	Course coordinator	Direct
Other		

**Assessors** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## G. Specification Approval

<b>COUNCIL /COMMITTEE</b>	Pharmaceutics Department Council
<b>REFERENCE NO.</b>	14460216-1060-00001
<b>DATE</b>	21/08/2024

