|  |  |
| --- | --- |
| **Course Title:** | Pharmaceutical Microbiology-1 |
| **Course Code:** | **MICR 387** |
| **Program:** | **Pharmaceutical Sciences** |
| **Department:** | **Pharmaceutics** |
| **College:** | **Pharmacy** |
| **Institution:** | **Najran University** |

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# A. Course Identification

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1. Credit hours:** | | | | **3 (2+1)** | | | | | | | | | | | | |
| **2. Course type** | | | | | | | | | | | | | | | | |
| **a.** | University | |  | | College | | | **x** | Department | | | |  | Others |  |  |
| **b.** | | Required | | | | **x** | Elective | | |  |  | | | | | |
| **3. Level/year at which this course is offered:** | | | | | | | | | | | | **5th level / 3rd year** | | | | |
| **4. Pre-requisites for this course** (if any)**:**  None | | | | | | | | | | | | | | | | |
| **5. Co-requisites for this course** (if any)**:** | | | | | | | | | | | | | | | | |
| None | | | | | | | | | | | | | | | | |

## 6. Mode of Instruction (mark all that apply)

| **No** | **Mode of Instruction** | **Contact Hours** | **Percentage** |
| --- | --- | --- | --- |
| **1** | **Traditional classroom** | 30 | 80% |
| **2** | **Blended** |  |  |
| **3** | **E-learning** |  | 20% |
| **4** | **Correspondence** |  |  |
| **5** | **Other** |  |  |

**7. Actual Learning Hours** (based on academic semester)

|  |  |  |
| --- | --- | --- |
| **No** | **Activity** | **Learning Hours** |
| **Contact Hours** | | |
| **1** | **Lecture** | 30 |
| **2** | **Laboratory/Studio** | 30 |
| **3** | **Tutorial** |  |
| **4** | **Others** (specify) |  |
|  | **Total** | 60 |
| **Other Learning Hours\*** | | |
| **1** | **Study** | 30 |
| **2** | **Assignments** | 10 |
| **3** | **Library** | 15 |
| **4** | **Projects/Research Essays/Theses** | 5 |
| **5** | **Others** (specify) |  |
|  | **Total** | 60 |

**\*** The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

# B. Course Objectives and Learning Outcomes

|  |
| --- |
| 1. Course Description Topics of this course cover the fundamentals of bacteria, viruses, fungi, and parasites regarding their structure, classification, and genetics of medically important pathogens. In addition, the course include enumeration of preventive and control measures of infectious diseases by sterilization, disinfection and antiseptics with special concern on antimicrobial, antiviral and antifungal agents. |
|  |
| 2. Course Main Objective |
| 1. What is the main purpose for this course?  Upon successful completion of this course the students are expected to:  Able to prepare media and solutions properly. Able to work according to the aseptic rules. Able to carry out antibiotic susceptibility tests. Able to carry out environmental sampling procedures from microbiological aspect  Possess the adequate knowledge about the types and application areas of antimicrobial drugs. Possess the adequate knowledge about sterilization, disinfection and asepsis and carry out them. Possess the adequate knowledge about the formation of an infection, pathogenesis and treatment. Able to carry out microbiological quality control procedures in the Pharmaceutical Industry. |

## 3. Course Learning Outcomes

| **CLOs** | | **Aligned****PLOs** |
| --- | --- | --- |
| 1 | **Knowledge:** |  |
| 1.1 | Recognize how to isolate bacteria on specific media. | K1 |
| 1.2 | Identify fungi under microscope, know the general characters of the different groups of microorganisms | K1 |
| 1.3 |  |  |
| 1... |  |  |
| **2** | **Skills :** |  |
| 2.1 | Communicate with Pharmaceutical microbiology concepts. | S4 |
| 2.2 |  |  |
| 2.3 |  |  |
| 2... |  |  |
| **3** | **Competence:** |  |
| 3.1 | Work independently and as part of a team | C1 |
| 3.2 | Use of advanced techniques in developing solutions to complex issues in field of work |  |
| 3.3 |  |  |
| 3... |  |  |

# C. Course Content

|  |  |  |
| --- | --- | --- |
| **No** | **List of Topics** | **Contact Hours** |
| 1 | Bacterial structure | 3 |
| 2 | Bacterial physiology and metabolism | 3 |
| 3 | Bacterial genetics | 3 |
| 4 | Antimicrobial agents | 3 |
| 5 | Sterilization and disinfection | 3 |
| 6 | General properties of viruses | 2 |
| 7 | Antiviral agents | 2 |
| 8 | General properties of fungi | 2 |
| 9 | Antifungal drugs | 2 |
| 10 | Introduction to parasitology | 2 |
| 11 | Appropriate therapy for parasitic diseases | 2 |
| **Total** | | 30 |

# D. Teaching and Assessment

## 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| **Code** | **Course Learning Outcomes** | **Teaching Strategies** | **Assessment Methods** |
| --- | --- | --- | --- |
| **1.0** | **Knowledge** | | |
| 1.1 | Recognize how to isolate bacteria on specific media. | Lecture  Assignment | Mid Term Exam  Final Term Exam  Assignment |
| 1.2 | Identify fungi under microscope, know the general characters of the different groups of microorganisms | Lecture  Assignment | Mid Term Exam  Final Term Exam  Assignment |
| … |  |  |  |
| **2.0** | **Skills** | | |
| 2.1 | Communicate with Pharmaceutical microbiology concepts. | Lecture  Assignment | Mid Term Exam  Final Term Exam  Assignment  Practical Exam |
|  |  |  |  |
| … |  |  |  |
| **3.0** | **Competence** | | |
| 3.1 | Work independently and as part of a team | Data interpretation exercises and successful completion of experiments | Practical Exam  Observation cards |
| 3.2 | Use of advanced techniques in developing solutions to complex issues in field of work | Data interpretation exercises and successful completion of experiments | Practical Exam  Observation cards |
| … |  |  |  |

## 2. Assessment Tasks for Students

| **#** | **Assessment task\*** | **Week Due** | **Percentage of Total Assessment Score** |
| --- | --- | --- | --- |
| **1** | 1st Mid- Exam | 3rd week | 15% |
| **2** | 2nd Mid- Exam | 5th week | 15% |
| **3** | Assignment | 12th week | 5% |
| **4** | Observation card | 12th week | 5% |
| **5** | Final term Examination (practical) | 14th week | 20% |
| **6** | Final term Examination | 15th week | 40% |
|  | Total |  | 100% |

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

# E. Student Academic Counseling and Support

|  |
| --- |
| **Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :** |
| Each the member staffs responsible for theoretical and practical parts will be available for 2 hours in a day per a week for individual student counselling and advice. This should include the time allocation and schedule for teaching staff to meet with students |

# F. Learning Resources and Facilities

## 1. Learning Resources

|  |  |
| --- | --- |
| **Required Textbooks** | 1. Medical Microbiology, Jawetz, Melnick and Adelberg’s. Latest edition. 2. General Microbiology 7th edition Hans G. Schlege |
| **Essential References Materials** | 1. Medical Microbiology, Jawetz, Melnick and Adelberg’s. Latest edition. 2. General Microbiology 7th edition Hans G. Schlege. |
| **Electronic Materials** | * 1. Saudi Digital Library.   2. [www.who.int](http://www.who.int)   3. [www.cdc.gov](http://www.cdc.gov) |
| **Other Learning Materials** |  |

## 2. Facilities Required

| **Item** | **Resources** |
| --- | --- |
| **Accommodation**  (Classrooms, laboratories, demonstration rooms/labs, etc.) | Classroom and Laboratory (30 Seats lecture room and laboratory ) |
| **Technology Resources**  (AV, data show, Smart Board, software, etc.) | 1. Data show power point projector. 2. Availability of internet access in the class room & lab is requested. |
| **Other Resources**  (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | Autoclave, Hot air oven, Incubator, Microscope, Refrigerator, Centrifuge, pH meter, Distiller |

# G. Course Quality Evaluation

| **Evaluation**  **Areas/Issues** | **Evaluators** | **Evaluation Methods** |
| --- | --- | --- |
| Effectiveness of teaching and assessment | Program Leader | Direct |
| Extent of achievement of course learning outcomes | students | Indirect |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

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

**Assessment Methods** (Direct, Indirect)

# H. Specification Approval Data

|  |  |
| --- | --- |
| **Council / Committee** | Approved by the Department Committee |
| **Reference No.** | Department meeting No.1 |
| **Date** | 10/09/2019 |