**BİRUNİ UNİVERSİTY**

**“The Future of Science”**

**FACULTY OF PHARMACY**

**………………….….. DEPARTMENT**

 **COURSE INFORMATION PACKAGE**

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| **Course Code** | **Course optic Code**  |  **Theory****hours/week** | **Application****hours/week** | **Credit** | **ECTS** |
| **ECZ228** |  | **0** | **3** | **2** | **2** |
| **Course Name** | **Pharmaceutical Mıcrobıology-Immunology Laboratory** |
| **Semester** | **2016-2017 Fall** |
| **Course Type** | **Obligatory**  |
| **Course Language** | **Turkish** |
| **Prequisites** | **None** |
| **Mode of Delivery** | **In Laboratory** |
| **Disabled Students** | **Disabled students, they need information about their own status submitted to the faculty may request the provision of necessary convenience.**  |
| **Instructor(s)** | **Yrd. Doç. Dr. Derya DOĞANAY** |
| **Course Assistant** | **None** |
| **Course Objective** | **The introduction of laboratory tools and equipment, the use of the microscope, microbial nutrition and media preparation, sterilization and disinfection, microbial acculturation, methods of staining of microorganisms, the application of the biochemical properties of microorganisms. Application of techniques of analysis, quality control, and microorganism / disease diagnosis in microbiology laboratory.** |
| **Teaching Methods:**  | **1: Lecture, 2: Demonstration, 3: Guided Practice, 4: Study Group, 5: Lab/Workshop/Field Practice** |
| **Assessment Methods:** | **A: Pre- and Post-Testing, B: Performance Task** |
| **Learning Outcomes** | **The students will be able;**1. Be able to define the hazards and biosafety rules and regulations that should be followed in a diagnostic laboratory
2. Be able to use devices, equipment, tools and materials used in the microbiology laboratory
3. Be able to make the valid sterilization-disinfection
4. Be able to list microbiological analysis methods and to chose the appropriate one for any material
5. Learning of isolation and diagnosis of bacterial cultures
6. Learning about the methods of identification of different groups of bacteria
7. Be able to explain the principles of the diagnostic tests used in the clinical bacterology laboratory
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|  **Week** **1.****2.****3.****4.****5.****6.****7.** **8.****9.****10.****11.****12.****13.****14.****15.****16.** | **Course Contents and Learning Activities** Microbiology Laboratory RulesMicrobiology laboratory for materials and devicesMicroscope Sterilization and disinfectionMedium and medium preparationMethods isolation and culture of bacteriaEnvironmental Conditions That Affect The Growth Of Microorganisms***Midterm***Staining of BacteriaSimple and negative stainingGram StainingBiochemical Tests IBiochemical tests IIMethods of Enumeration of Microorganisms Antibiotic susceptibility testsSerological Tests |

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| **Assessment Methods**  | **Number** | Percentage % |
| **Attendance(a)** | 16 | 10 |
| **Laboratory** | 0 | 0 |
| **Application** | 0 | 0 |
| **Field Activities** | 0 | 0 |
|  **Specific Practical Training**  | 0 | 0 |
| **Assingments and Pre- Post-tests** | 0 | 0 |
| **Presentation** | 0 | 0 |
| **Projects** | 0 | 0 |
| **Seminar** | 0 | 0 |
| **Midterm exam** | 1 | 40 |
| **Final exam** | 1 | 50 |
| **Total** |  | **100** |

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| **Textbook/****References** |  ***Different texts from various sources*** |
|  | 1. ***Lecture Notes***
2. ***Farmasotik Mikrobiyoloji, Prof. Dr. Ufuk ABBASOĞLU ve Prof. Dr. Adile ÇEVİKBAŞ, Efil Yayin evi, 2015.***
3. ***Endüstri’de ve Farmasötik Ürünlerde Mikrobiyoloji. Doç. Dr. Emir TAN ve Ecz. Harika Çapan, İstanbul Tıp Kitabevi, 2015.***
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| No | **Competencies of Pharmacy Program** | Katkı |
| 1 | 2 | 3 | 4 | 5 |
| 1 | Implements skills in all areas of occupations obtained from pharmaceutical basic and professional sciences within the scope and framework of rules of ethics, religion, language, race, gender and socio-economic discrimination in collaboration with the relevant professional administrators and regulatory authorities. |  |  | X |  |  |
| 2 | Communicates effectively with community members, health care professionals, policy makers and administrators to transfer informations of professional pharmacy applications and usage of pharmaceutical products. |  |  |  | X |  |
| 3 | In the frame of pharmaceutical care and clinical applications, evaluates accuracy and cost-effectiveness of medication treatment, solve the problems and give decisions. |  |  |  | X |  |
| 4 | Acquire the current and evidence-based information by using relevant information technologies to apply the rational use of natural, synthetic and biotechnological drugs and give education, information and consultation to community members, other health-care providers and constitutions.  |  |  |  | X |  |
| 5 | Experienced the basic and professional knowledge to manage, apply and make decision of the entire process related to design, handling and consumption of natural, synthetic and biotechnological pharmaceuticals. |  |  |  |  | X |
| 6 | Possess cultural competency and consciousness to design, implement, and monitor patient-oriented pharmacy practice for the improvement of the quality of heath care by making joint cooperation. |  |  |  |  | X |
| 7 | Raise consciousness to application of modern scientific and technological developments in pharmaceutical field by the awareness of lifelong learning. |  |  |  | X |  |
| 8 | Experienced to research and development, quality control, good manufacturing practices and has knowledge to manage and apply the license process of pharmaceutical products.  |  |  |  | X |  |
| 9 | As a pharmacist with the universal norms, has foreign language proficiency to follow professional developments, conduct research and developments and competent to communicate patients and other healthcare professionals. | X |  |  |  |  |
| 10 | Gather patient histories, determine needs and priorities of patients, prevent individual diseases, know, define and apply the planning and management process of treatment.  |  | X |  |  |  |

WORKLOAD AND ECTS CALCULATION

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| **Activities** | **Number** | **Duration (hour)** | **Total Work Load** |
| **Course Duration (x16)** |  |  |  |
| **Laboratory** |  |  |  |
| **Application** | 16 | 3 | 48 |
| **Specific practical training** |  |  |  |
| **Field activities** |  |  |  |
| **Presentation / Seminar Preparation** |  |  |  |
| **Project** |  |  |  |
| **Homework assignment** |  |  |  |
| **Pre-post Test (Study duration)** |  |  |  |
| **Midterms (Study duration)** | 1 | 6 | 6 |
| **Final Exam (Study duration)**  | 1 | 6 | 6 |
| Total Workload | **18** | **15** | **60** |
| **ECTS Credit of Course (Total WorrkLoad/25)** |  |  | **2,4** |