**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** |
| **ECZ226** |  | **3** | **0** | **3** | **4** |
| **Course Name** | **Pharmaceutical Mıcrobıology-Immunology** |
| **Semester** | **2016-2017 Fall** |
| **Course Type** | **Obligatory**  |
| **Course Language** | **Turkish** |
| **Prequisites** | **None** |
| **Mode of Delivery** | **In class, interactive.** |
| **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** | **It is aimed to provide students a knowledge and understanding of basic features of micro-organisms, micro-organism-host, micro-organism-drug relations, sterilization-disinfection processes, function and basic structure of immune system and to ensure that students use this knowledge in the related areas of pharmacy profession** |
| **Teaching Methods:**  | 1: Lecture, 2: Question-Answer, 3: Discussion, 4: Demonstration, 5: Self Study |
| **Assessment Methods:** | A: Pre- and Post-Testing, B:Exam, C: Homework Assignment |
| **Learning Outcomes** | **The students will be able;**1. Be able to list the basic features and differences of micro-organisms such as bacteria, fungi, viruses and parasites
2. Being capable of explaining the basic principles, conditions and equipments of sterilization and disinfection procedures
3. Understand the basic characteristics and importance of microorganisms.
4. Know the anatomy of a prokaryotic cell, the functions of the parts, and how it differs from a eukaryotic cell.
5. Know basic bacterial shapes and arrangements and differences between Gram negative and positive cell walls.
6. Know physiology of bacteria (growth requirements and terms: temperature, pH, and atmosphere).
7. Learn the artificial growth media of microorganisms.
8. Be able to comprehend that by using which properties and in what conditions bacteria cause disease and importance of the host organism in this process
9. Be able to classify the antimicrobials according to their mechanisms of action and spectrums
10. Being capable of listing the basic features and comprehending the functions of the elements constituting the immune system
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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** Introduction to Microbiology and history of MicrobiologyGeneral structure of microorganizmsand Taxonomy of microorganismBacterial Cell StructureReproduction in bacteria and culture methodsBacteria of Significance To Human HealthSterilization, Sterilization Methods and ControlsDisinfection and antisepsisMidterm exam Introduction to Virology. General Characteristics of VirusesViruses of Significance to Human HealthIntroduction to Mycology and MikozRickettsia and ParasitesChlamydia and MycoplasmaAntimicrobial Drugs. Antibiotics: Mechanisms of action and resistanceIntroduction to ImmunologyInfectious diseases and Pathogenesis |

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| **Assessment Methods**  | **Number** | **Percentage %** |
| ***Attendance(a)*** | ***0*** | ***0*** |
| ***Laboratory*** | ***0*** | ***0*** |
| ***Application*** | ***0*** | ***0*** |
| ***Field Activities*** | ***0*** | ***0*** |
|  ***Specific Practical Training***  | ***0*** | ***0*** |
| ***Assingments and Pre- Post-tests*** | ***17*** | ***10*** |
| ***Presentation*** | ***1*** | ***10*** |
| ***Projects*** | ***0*** | ***0*** |
| ***Seminar*** | ***0*** | ***0*** |
| ***Midterm exam*** | ***1*** | ***30*** |
| ***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)** |  16 |  3 | 48  |
| **Laboratory** |  |  |  |
| **Application** |  |  |  |
| **Specific practical training** |  |  |  |
| **Field activities** |  |  |  |
| **Presentation / Seminar Preparation** | 1 | 8 | 8 |
| **Project** |  |  |  |
| **Homework assignment** | 1 | 8 | 8 |
| **Pre-post Test (Study duration)** | 16 | 1 | 16 |
| **Midterms (Study duration)** | 1 | 10 | 10 |
| **Final Exam (Study duration)**  | 1 | 10 | 10 |
| Total Workload | **36** | **40** | **100** |
| **ECTS Credit of Course (Total WorrkLoad/25)** |  |  | **4** |