**BİRUNİ UNİVERSİTY**

**“The Future of Science”**

**FACULTY OF PHARMACY**

**…Pharmaceutical and Medicinal Chemistry….. DEPARTMENT**

 **COURSE INFORMATION PACKAGE**

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| --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course optic Code**  |  **Theory****hours/week** | **Application****hours/week** | **Credit** | **ECTS** |
|  **……ECZ335……** |  |  4 | …. |  …4… |  **…4……** |
| **Course Name** | **Pharmaceutical and Medicinal Chemistry I** |
| **Semester** | **2016-2017 Fall** |
| **Course Type** | **Obligatory**  |
| **Course Language** | **Turkish** |
| **Prequisites** | **Organic Chemistry** |
| **Mode of Delivery** | **In class, interactive.** |
| **Teaching Methods:**  | 1: Lecture, 2: Question-Answer, 3: Discussion, 4: Demonstration, 5: Study Group, 6: Brain Storming, 7: Case Study, 8: Self Study |
| **Assessment Methods:** | A: Pre- and Post-Testing, B: Exam, C: Homework Assignment, D: Performance Task |
| **Disabled Students** | **Disabled students, they need information about their own status submitted to the faculty may request the provision of necessary convenience.**  |
| **Instructor(s)** | **Prof. Dr. Süreyya Ölgen** |
| **Course Assistant** | **None** |
| **Course Objective** | This course aims to teach drug design and discovery methods, structure activity relationships, pharmacokinetic properties including ADME, metabolism and structure relationship, receptor and enzyme drug interactions, ilaç metabolizması, farmakogenomic, genomic, proteomic, metabolimic, transcriptomic concepts, biotechnological drugs and in-depth look at how novel, pharmacologically active molecules are designed to treat human diseases and give information about adrenergic and seratonergic drugs, cardiovascular drugs, chemotherapeutics, antiviral and anticancer drugs |
| **Learning Outcomes** | **The students will be able;****1-** Students gain knowledge about the concept of pharmaceutical and medicinal chemistry, drug design and development methods and take the initiative for research projects.**2.** Students gain informations about the pharmacogenetic, pharmacodynamic, pharmacokinetic, toxic properties and metabolism of compounds and also understand the role of these concepts on drug design as well as the behaviours of drugs in the body and their impacts on the treatment and transform informations to the patients.3. Students will gain basic knowledge on the drugs which are used in infections diseases, cancer, adrenergic and seratogenic receptors, cardio-vascular drugs and drugs affecting adrenergic neurotransmission and transform information to the patients |

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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 Medicinal Chemistry-Methods of Discovery of New DrugsPrinciples of Drug Discovery, Design and Development MethodsThe Role of Physicochemical and Biopharmaceutical Properties in Drug DiscoveryDrug Metabolism and Drug Design Based on MetabolismPharmaceutical Biotechnology Concept and Drug Design Through Enzyme Inhibition and Receptor as TargetsDrug Receptors Affectıng Neurotransmission and Enzymes as Catalytıc Receptors-Drug Affecting Cholinergic NeurotransmissionAdrenergic Receptors and Drugs Affecting Adrenergic NeurotransmissionSeratonin Receptors and Drugs Affecting Seratonergic NeurotransmissionCardio-Vascular System Drugs-Antianginals and AntiarrytmicsAntihypertansive Drugs***Midterm,*** Pharmacodynamic Agents-Chemotherapeutic Agents-Antibiotics and Antimicrobial AgentsAntifungal AgentsAntimicrobacterial and Antiparastic AgentsAntiviral AgentsAnticancer Drugs |

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| **Assessment Methods**  | **Number** | Percentage % |
| **Attendance(a)** | 16 | 10 |
| **Laboratory** | 0 | 0 |
| **Application** | 0 | 0 |
| **Field Activities** | 16 | 5 |
|  **Specific Practical Training**  | 0 | 0 |
| **Pre-and post-tests** | 16 | 15 |
| **Assingments** | 1 | 5 |
| **Projects** | 0 | 0 |
| **Seminar** | 0 | 0 |
| **Midterm exam** | 1 | 25 |
| **Final exam** | 1 | 40 |
| **Total** |  | 100 |

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| **Textbook/****References** |  ***Different texts from various sources*** |
|  | 1. *The Organic Chemistry of Drug Design and Drug Action,* by Richard B. Silverman, 2nd Edition. Elsevier Academic Press, 2004, ISBN 0-12-643732-7.
2. *Foye's Principles of Medicinal Chemistry*, 7th Edition, by David A. Williams and Thomas L. Lemke, Lippincott Williams & Wilkins, 2013.
3. Wilson’s and Gisvold’s, Organic Medisinal and Pharmaceutical Chemistry, 12th Edition, John M. Beale, John H. Block, Walters Kluwer, 2011.
4. *Hacettepe Üniversitesi Eczacılık Fakültesi Ders Kitabı, Taş Yayınevi, Ankara*
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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, solves the problems and gives decisions. |  |  | X |  |  |
| 4 | Acquires the current and evidence-based information by using relevant information technologies to apply the rational use of natural, synthetic and biotechnological drugs and gives education, information and consultation to community members, other health-care providers and constitutions.  |  |  | X |  |  |
| 5 | Experiences 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 monitors patient-oriented pharmacy practice for the improvement of the quality of heath care by making joint cooperation. |  |  |  |  | X |
| 7 | Raises consciousness to application of modern scientific and technological developments in pharmaceutical field by the awareness of lifelong learning. |  |  |  | X |  |
| 8 | Experiences 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, conducts research and developments and competent to communicate patients and other healthcare professionals. | X |  |  |  |  |
| 10 | Gathers patient histories, determines needs and priorities of patients, prevents individual diseases, knows how to 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 |  4 | 64  |
| **Laboratory** |  |  |  |
| **Application** |  |  |  |
| **Specific practical training** |  |  |  |
| **Field activities** |  |  |  |
| **Presentation / Seminar Preparation** |  |  |  |
| **Project** |  |  |  |
| **Homework assignment** | 1 | 10 | 10 |
| **Pre-post Test (Study duration)** | 16 | 1 | 16 |
| **Midterms (Study duration)** | 1 | 10 | 10 |
| **Final Exam (Study duration)**  | 1 | 10 | 10 |
| Total Workload | **35** | **35** | **110** |
| **ECTS Credit of Course (Total WorrkLoad/25)** |  |  | **4.4** |