**II.2.7 GENERAL PRINCIPLES OF DRUG DEVELOPMENT**

1. **Course description:**
2. **Credit points**: 3 ECTS
3. **Time commitment:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items | Lecture | Tutorial/Exercise | Practice/Assignment | Lab-work | **Total** |
| No. of hours | 26 | 4 |  |  | **30** |

 **3. Prerequisites**:

 - Basic Chemistry.

 - Basic Biology.

**4. Recommended background knowledge**:

 - Knowledge of organic chemistry, biology.

 - Essential knowledge of pathology

**5. Subject description:**

Understand the methods to discover and develop the drug:

* Definition and general principles (design structure, pharmacokinetics, QSAR).
* New techniques in drug development (combinatorial chemistry, high throughput screening-HTS, virtual screening)

**6. Objectives & Outcome:**

* Theorical knowledge of drug development.
* Apply for the case studies in fact.
1. **Assessment/ Evaluation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Component | Attendance | Exercises | Assignments | Reports | Midterm | Final |
| Percentage % | 20 | 20 | 0 | 0 | 0 | 60 |

1. **Prescribed Textbook(s)**

 Graham. L. Patrick; A introduction to medicinal chemistry, 4th edition, 2009, Oxford University Press**.**

1. **Course content & schedule:**

Topic 1: Pharmacodynamics and pharmacokinetics: enzyme, receptor and nucleic acid as drug targets.

Topic 2: Process of drug development

Topic 3: Drug design: optimizing target interactions

Topic 4: Drug design: optimizing access to the target (pharmacokinetic)

Topic 5: Prodrugs

Topic 6: Quantitative structure –activity relationship (QSAR)

Topic 7: Some new techniques in drug development (combinatorial and parallel synthesis, computer in drug development)

1. **Reference Literature:**

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| [1]. Camille G.W; The practice of medicinal chemistry; 3rd edition, 2008. |
| [2].Joel C.Barrish; Accounts in drug discovery- Case studies in Medicinal Chemistry, Royal Society of Chemistry, 2011. |
| [3]. Nguyễn Hải Nam; Nghiên cứu phát triển thuốc mới; Trường Đại học Dược Hà nội, 2010 |