**II.2.5 VIROLOGY**

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

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

1. **Prerequisites**:
2. **Recommended background knowledge**: Biochemistry; Biology; DNA structure; Protein Biology; Microbiology.
3. **Subject description:**

There are following lectures delivered in Virology course:

i) History, definition and concepts of virus;

ii) Generalization, morphology and size of viruses; Virus structure;

iii) Composition of viruses;

iv) Classification of viruses;

v) Replication of viruses (class I-IV);

vi) Replication of viruses (class VI-VII);;

vii) Physico-chemical and pharmacological factors on viruses;Viral therapy;

viii) Viral vaccines and application;

ix) Viral interference and host’s resistance mediated by interferon;

x) Tutorial lecture: Diagnostic methods in virology;

xi) Practical commitment in Lab: Virus propagation in eggs.

Emphasis is placed on developing understanding of the classification, virus structure, replication and host’s resistance to viruses. Tutorial diagnostic methods and practical method(s) of viral propagation (for exp., in embryonated eggs) are also introduced/demonstrated in the lecturer’s laboratory.

1. **Objectives & Outcome:**

Students will gain knowledges about:

(1) The structure and replication strategies of viruses and particular viruses of classes I-VII, including the processes of entry into cells, control of gene transcription and where relevant translation and gene product stability, mechanism(s) of genome replication, virion assembly and release process from the infected cell.

(2) The main compositions and properties viruses have, and factors impact on viruses including chemical, physical, biological and pharmalogical plus interferon induced by the host.

(3) Getting concepts of viral vaccines, vaccinology and application to protect animals and humans.

(4) Sharing to get approaches to viral diagnostic methods and some practical propagation of virus (one among three types of viral propagation: hosts; cells/tissues and embryonated eggs).

(5) Overall, the students will be provided knowledges about viruses; as such, they can gain basic understandings of virology and pathogenicity caused by viruses; and how preventative and protective strategies applied against viral infections.

1. **Assessment/ Evaluation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Component | Attendance | Exercises | Practical | Reports | Midterm | Final |
| Percentage % | 10 | 10 |  |  | 20 | 60 |

1. **Prescribed Textbook(s):**

[1] Flint editor (2008) Textbook: “Principles of Virology”. ASM Press (ISBN: 1555814794)

[2] [John Carter](http://as.wiley.com/WileyCDA/Section/id-302477.html?query=John+Carter), [Venetia Saunders](http://as.wiley.com/WileyCDA/Section/id-302477.html?query=Venetia+Saunders) (2013) Textbook: Virology: Principles and Applications, 2nd Edition

[3] <http://pathmicro.med.sc.edu/book/virol-sta.htm>

[4] Goura Kudesia, Tim Wreghitt (2009) Textbook: “Clinical and Diagnostic Virology”. **Cambridge University Press** 265 pages **(**ISBN: 0521694671 / ISBN-13: 9780521694674**)**

**II. Course content & schedule:**

[1] Topic 1: History, definition and concepts of virus

[2] Topic 2: Generalization, morphology, size and structure of viruses;

[3] Topic 3: Composition of viruses;

[4] Topic 4: Classification of viruses;

[5] Topic 5: Replication of viruses (class I-IV);

[6] Topic 6: Replication of viruses (class VI-VII);

[7] Topic 7: Physico-chemical and pharmacological factors on viruses; Viral therapy

[8] Topic 8: Viral vaccines, development of vaccines and application

[9] Topic 9: Viral interference and interferon;

[10] Topic 10: Tutorial lecture: Diagnostic methods in virology;

[11] Topic 11: Practical commitment in Lab: Virus propagation in eggs and Viral Test.

**III. Reference Literature:**

[1]. Flint editor (2008) Textbook: “Principles of Virology”. ASM Press (ISBN: 1555814794)

[2]. John Carter, Venetia Saunders editors (2013) Textbook: Virology: Principles and Applications, 2nd Edition. John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England