**II.2.20  ENVIRONMENTAL TOXICOLOGY**

**A. Course description**

**1. Credit points: 2 ECTS**

**2. Time commitment**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items | Lecture | Tutorial/  Exercise | Practice/  Assignment | Lab-work | Total |
| No. of hours | 16 | 4 |  |  | 20 |

**3. Prerequisites:** None

**4. Recommended background knowledge**: None

**5. Subject description**

This course is designed to provide an overview of environmental toxicology, including an examination of the major classes of pollutants, their fate in the environment, their disposition in organisms, and their mechanisms of toxicity. An emphasis will also be placed on assessing the toxicity of pollutants in biological and environmental systems

**6. Objectives & Outcome**

* On completion of the course students should be able to demonstrate knowledge of methods used to evaluate effects of environmental pollutants in nature.
* Students will be able to understand the fundamentals of toxicology and ecotoxicology
* Students will be able to apply toxicology principles to the fate of toxicants and contaminants in the environment.
* Students will be able to compare and contrast toxicokinetics and toxicodynamics.
* Students will able to critically evaluate environmental toxicology topics in the media and the science behind these studies.
* Students will be able to calculate the deterministic risk of a contaminant.

**7. Assessment/ Evaluation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Component | Attendance | Exercises | Assignments | Practicals | Midterm | Final |
| Percentage % | 10 |  | 20 |  | 20 | 50 |

**8. Prescribed Textbook(s)**

**B. Course content**

Introduction to Environmental Toxicology

Environmental contaminants

Fate of contaminants in environmental media

Toxicokenetics and Toxicodynamics

How do we determine if a chemical is harmful

Distribution and Storage of Toxicants

Risk assessment I: Hazard identification – Dose-reponse assessment

Risk assessment II: Exposure assessment and Absorption of Toxicants

Effects of contaminants to individual (sub-lethal, acute and chronic effects) and population

Effects of contaminants to communities and ecosystems

Landscape to Global effects

**C. Reference Literature**

- A Textbook of Modern Toxicology. Third Edition. 2004. E. Hodgson (Ed.). John Wiley & Sons, Inc.

- Principles and Practice of Toxicology in Public Health (2nd Edition). Ira S. Richards. 2013, 522 pages