**II.2.4 PLANT PHYSIOLOGY**

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items | Lecture | Tutorial/  Exercise | Practice/  Assignment | Lab-work | **Total** |
| No. of hours | 24 | 2 |  | 4 | **30** |

1. **Prerequisites**: Basic biology, cell biology
2. **Recommended background knowledge**:Basic plant biology, cell biology, biochemistry.
3. **Subject description:**

Plant Physiology: basically is everything to do with how plants can function i.e., live in their environment

1. **Objectives & Outcome:**

- Aims and objectives:

+ To provide basic understanding of main processes that help plants function and interact with environments.

+ To focus on some current aspects of plant physiology research relevant to how plant cope with global warming (drought, heat, pathogen stress) and improving crop yield.

+ To motivate students with some recent case study and to provide self-learning skills so that students are able to find themselves in-depth information about any topics in plant physiology.

- Outcome: Students should be able to describe, to discuss the basic of the basic concept/keyword/terms used in plant physiology; the basic process in plants like water and nutrients uptake, photosynthesis, respiration, plant-biotic and abiotic interactions, plant hormones, and plant development. More importantly, students should acquire skills of self-study so that they can find detail information about any processes in plant physiology.

1. **Assessment/ Evaluation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Component | Attendance | Exercises | Practical | Reports | Midterm | Final |
| Percentage % | 10 | 20 |  | 0 | 10 | 60 |

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

N/A

**II. Course content & schedule:**

* Introduction of course
* Plant cell, tissues, organs basic structure and functions
* Plant and water
* Inorganic nutrient uptake
* Transport of solutes, allocation, translocation, partitioning
* Photosynthesis (C3,C4,CAM) and respiration
* Plant & light response: photoperiod, phototropism, circadian rhythm
* Plant hormones (auxin, cytokinine, gibberellins,ABA, ethylene, stringolactones)
* Plant tissue culture
* Plant growth & development
* Flowering
* Plant and changing environment, global warming
* Plant biotic stress: general and case study (disease in rice)
* Plant abiotic stress: drought, heat, flood
* Seed Formation
* Lab Practice

1. **Reference Literature:**

[1].Plant physiology; Lincoln Taiz, Eduardo Zeiger

[2]. Introduction to plant physiology; William G. Hopkins, Norman P. A. Hüner

[3].Taiz, Lincoln, and Eduardo Zeiger. *Plant Physiology*. Sunderland, Mass.: Sinauer Associates, 2010. Print.