Birla Institute of Technology & Science, Pilani
Hyderabad Campus

INSTRUCTIO

N DIVISION
FIRST SEMESTER 2016-2017
Course Handout (Part II)

Dated: 01.08.2016

In addition to part I (general handout for all courses appended to the timetable) this portion gives further specific details regarding the course.

Course No : **BIO F312**
Course Title : **PLANT PHYSIOLOGY**
Instructor-In-Charge : **SRIDEV MOHAPTRA**
Instructor :

1. Course Description:
Basic functional processes in plants; Plant tissue system, Plant-water relations, Gaseous exchange, Stomatal regulations, Mineral nutrition and absorption, Transport of material, Growth and development, Hormones and PGRs, Photoperiodism, Vernalization, Plant defense mechanisms, Stress Physiology and related lab components.

2. Scope & Objective:
This course attempts to bring the awareness to the students of major features of physiology of plants. Emphasis will be given to function and adaptations as related to the survival of plants in their natural environment.

3. Text Book and Reference Book:
Text book (T1): Taiz, L. and Zeiger, E., Plant Physiology, 3rd Ed., Panima Publishing Corporation, Indian Reprint, 2003
Reference book (R1):
Taiz, L. and Zeiger, E., Plant Physiology, 6th Ed., 2010, Sinauer Associate Inc., Sunderland, USA
Web Topics: http://6e.plantphys.net/

4. Course plan:

Lect. No.	Learning objective	Topics to be covered	Ref. to Chapter
Part A	**Plant Physiology**		
1	Getting introduced to the subject and course	Orientation to the course, Introduction to Plant Physiology	Class Notes
2-4	Overview of Plant Structure	Plant Tissue System	Class Notes
5-7	Learning water and its interaction with plant body	Structure and properties of water, Diffusion, Osmosis and Water	TB-3, RB-3

		potential	
8-10	How do plants obtain water from the soil?	Water balance in plants: root absorption and transport through xylem	TB-4, RB-4
11-13	The transpiration / photosynthesis paradox	Transpiration and its compromise with photosynthesis, Stomatal regulations	TB-4, RB-4
14-15	Mineral requirement for plant growth	Mineral Nutrition: Essential elements and their function	TB-5, RB-5
16-17	How nutrients are absorbed and distributed in tissues	Mineral Nutrition: Absorption of minerals, Mycorrhizal fungi	TB-5, RB-5
18-19	How nutrients are absorbed and distributed in tissues	Transport of solutes and ions, Membrane transport processes	TB-6, RB-6
20-22	How do metabolic end products distributed in plants?	Transport of material in phloem	TB-10, RB-10
23-25	How plants grow?	Growth and development	TB-16, RB-16
26-29	What control growth?	Hormones and Growth regulators: Auxins and Gibberellins	TB-19, 20 RB-19, 20
30-32	What control growth?	Cytokinins, Abscisic acid	TB-21, 23 RB-21, 23
33-36	How do plants control the timing of flowering?	Phytochrome, Photoperiodism and Vernalization	TB-17, 24 RB-17, 25
37-39	How do plants defend themselves against adverse biotic factors?	Secondary metabolites and Plant Defense Mechanisms	TB-13, RB-13
40-42	How do plants defend themselves against adverse abiotic factors?	Stress physiology: Water, Heat, Chilling & Salinity stress	TB-25, RB-25

5. Evaluation scheme:

Component	**Duration**	**Weightage %**	**Date & Time**	**Venue**	**Remarks**
Test 1	60 Min.	15	9/9, 10.00--11 AM		CB
Test 2	60 Min.	15	24/10, 10.00--11 AM		CB
Tutorial tests	Variable	10			CB
Presentations/assignments	Variable	20			OB
Comprehensive	180 Min.	40	03/12 AN		CB (15%) +OB (25%)

6. Grading Policy:
Award of grades would be guided by the histogram of marks. Decision for cases on borderline of two grades will be based on the student's promptness and participation in classroom activities as well as satisfactory attendance in lecture and tutorial classes. If a student misses even a single component entirely or does not give sufficient opportunity for being assessed, he/she may be awarded 'NC' report regardless of his/her final total score in the course (see Clause 4.19 of *BITS Academic Regulations*).

7. Office Consultation:
By prior appointment obtained in person or by email (sridev.mohapatra@hyderabad.bits-pilani.ac.in).

8. Make-up Policy:
Only medical emergencies with evidence will be considered for make-up for Test-1, Test-2 and Comprehensive examination. For regulations about the make-up flexibility, students are advised to refer to Clause 4.07 of *BITS Academic Regulations*

9. Course Announcements and Notices:
Announcements pertaining to the course will be made in the lecture/tutorial class and/or on CMS. In some cases, printed notices shall be displayed in the notice board of only the Department of Biological Sciences.

INSTRUCTOR-IN-CHARGE
BIO F312