<table>
<tr><td>Course Code</td><td colspan="6">BYU4300</td></tr>
<tr><td>Level</td><td colspan="6">04</td></tr>
<tr><td>Course Title</td><td colspan="6">Plant Physiology</td></tr>
<tr><td>Credit value</td><td colspan="6">03</td></tr>
<tr><td>Core/Optional</td><td colspan="6">Core</td></tr>
<tr><td>Prerequisites</td><td colspan="6">BYU3301 Pass / valid OCAM , BOU1101 El/pass</td></tr>
<tr><td rowspan="2">Hourly breakdown</td><td colspan="2">Theory</td><td>Practical</td><td>Independent Learning</td><td>Assessment</td><td>Total</td></tr>
<tr><td>(20 Sessions X 2) 44 hrs</td><td>(4 DSs X 3)
12 hrs</td><td>(4 days Lab X 9)
36 hrs</td><td>(Sessions [60hrs) 3 x 20 sessions + Practical [2 hrs] independent / group learning for practical + Online [5 hrs] + Rec reading [5]
72 hrs</td><td>(2 CAT x 1hr) + (1 Practical test x 1 hr)
3 hrs</td><td>167 hrs</td></tr>
<tr><td>Course Aim/s.</td><td colspan="6">To provide insight into the functions of the plant and their regulation in response to changes in the environmental conditions.</td></tr>
<tr><td>PLOs addressed by course</td><td colspan="6">PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the degree.
PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and practical skills appropriately.
PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to present information, ideas and concepts to the scientific community as well as to the wider society.
PLO4: Individual Work, Team Work and Leadership: Demonstrate the competency in working independently and in groups in addressing issues in multi-disciplinary environments and completing the tasks on time through collaborative learning while exhibiting leadership.
PLO5: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualitative approaches using scientific methodology to provide valid conclusions.
PLO6: Adaptability and Flexibility: Demonstrate the ability to adapt to diverse working environments using flexible approaches and strategies.
PLO9: Lifelong Learning: Develop the capacity to foresee new trends and their impacts and continuously update knowledge and develop skills willingly to meet those future challenges.</td></tr>
<tr><td>Course Learning Outcomes (CLO)</td><td colspan="6">The students should be able to:

CLO1: Explain the principles of main physiological processes of plants and describe how they are regulated under different conditions. (PLO1, PLO5)
CLO2: Design simple experiments to determine the effects of external stimuli on the plant physiology (PLO2 , PLO5)
CLO3: Handle the laboratory equipment and apparatus used in plant physiology practicals effectively and safely (PLO2)
CLO4: Discuss practical applications of plant physiological research (PLO1, PLO2, PLO5, PLO6, PLO9)
CLO5: Record and report experimental data according to an accepted format (PLO3, PLO9)
CLO6: Work in the group for problem solving in plant physiology (PLO4)</td></tr>
<tr><td>Content (Main topics, sub topics)</td><td colspan="6">Plants and water; Free energy, chemical potential and water; Soil and water; Uptake and transport of water in plant Stomata and stomatal physiology; Transpiration ; Mineral nutrition of plants and hydroponics ; Absorption of mineral elements ; Phloem translocation ; Function and classification of Enzymes ; Introduction to photosynthesis ; Photochemical and biochemical reactions ; Different pathways of CO2 fixation ; Alternate pathways of respiration</td></tr>
<tr><td>Teaching Learning methods</td><td colspan="6">Independent learning of Self-
▪ study instructional material (IL)
▪ Online reading material (OL)
▪ Recommended readings (RE)

Compulsory contact sessions:
▪ Practical sessions (PR),
▪ Laboratory training (LT)
▪ Research project (RP): Group project (included in the LT)
▪ Assessments and Feedback: NBT and OBT (MCQ), Practical test (PT)

Non-compulsory contact sessions
▪ Day schools (DS)</td></tr>
<tr><td>Assessment</td><td colspan="3">Overall CA Mark (OCAM): 40%</td><td colspan="3">Final Assessment: 60%</td></tr>
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strategy	30% NBT +30% OBT+ 40% Practical Assessment (if PA >29) CA (1 hour) PA (1 hour)	Final evaluation Theory 100% (2 hours)
Recommended Readings:	• Taiz, L. and Zeiger, E. (2012). Plant Physiology. The Benjamin/Cummings Publishing Co. Inc., California. • Campbell, Neil A. , Reece, Jane B; (2011) Campbell Biology; 9th ed. ; Pearson Publishers,.	