

<b>Course Code: AGRO 506</b> <b>Course Title : Crop Physiology and Stress Agronomy (Compulsory)</b>	<b>Credit Hour: 03</b>	<b>Semester: July- December</b>	
<b>Rationale:</b> This course is designed to provide concepts on growth and developmental processes, different types of stresses & their management for crop production.			
<b>Course Outcomes:</b> <ul style="list-style-type: none"> <li>• Conceptualize growth &amp; developmental processes and different types of stresses.</li> <li>• Explain growth analysis and yield factors.</li> <li>• Enlighten different management practices to optimize growth and to combat different types of stress conditions.</li> </ul>			
<b>Intended Learning Outcomes (ILOs)</b> The students will be able to-	<b>Course Content</b>	<b>Teaching-Learning Strategies</b>	<b>Assessment Strategies</b>
<ul style="list-style-type: none"> <li>• Explain crop growth, what factors affect it and how it can be manipulated in favour of high yield production.</li> </ul>	Growth stages and growth curve, limiting factors of growth, interception of solar radiation, extinction coefficient	Lecture Visual presentation Discussion Assignment	Quiz/MCQ Short answer Essay type answer Report
<ul style="list-style-type: none"> <li>• Identify and describe crop developmental processes, what factors affect them and how the developmental processes can be manipulated in favour of achieving high yield.</li> </ul>	Developmental processes in plants, Induction of flowering, Switching mechanism, Reproductive growth, fruit and seed development, histogenesis.	Lecture Visual presentation Discussion Assignment	Quiz/MCQ Short answer Essay type answer Report
<ul style="list-style-type: none"> <li>• Apply knowledge on crop yield function, what are the components or attributes of crop yield, how the production technologies, soil and environmental factors can be manipulated in favour of achieving high yield.</li> </ul>	Yield functions, yield components and attributes, factors affecting seed yields, yield correlations.	Lecture Visual presentation Discussion Assignment	Quiz/MCQ Short answer Essay type answer Report
<ul style="list-style-type: none"> <li>• Exercise knowledge of different yield function and the physiological attributes such as photosynthesis, respiration, dry matter accumulation</li> </ul>	Physiological and biochemical basis of photosynthesis in C3 and C4 plants, Growth analysis, stem, leaf and root growth.	Lecture Visual presentation Discussion Assignment	Quiz/MCQ Short answer Essay type answer Report
<ul style="list-style-type: none"> <li>• Explain the concept and scientific basis of partitioning, thermal time,</li> <li>• Describe photothermal time, critical photoperiods for developmental processes, soil plant environment interaction, crop nutrition, harvest index,</li> </ul>	Harvest index and partitioning, plasticity of vegetative growth in respect of reproductive growth, duration of reproductive growth, population density, nutrition and other agronomic management for improving yield potential.		

partition factor, presenting yield functions, yield attributes correlations, minimum vegetative mass for reproductive development			
<ul style="list-style-type: none"> <li>• Conceptualize different types stresses.</li> <li>• Comprehend changes occur in soil and plants under deep water stress.</li> <li>• Acquaint with the management of deep water stress effects in plants.</li> </ul>	<p><b>Stress Agronomy: Deep water stress:</b> Concept, crop response to deep water stress, characteristics of flood water, factors affecting survival and morphological change of submerged plants, management of deep water stress in crops.</p>		
<ul style="list-style-type: none"> <li>• Conceptualize drought.</li> <li>• Comprehend nature, causes and kinds of drought.</li> <li>• Enlighten the basis of drought tolerance.</li> <li>• Exploit the existing technologies to reduce crop losses from drought.</li> </ul>	<p><b>Drought stress:</b> Concept, nature, causes and kinds of drought, effect of drought on crops, basis of drought tolerance, available technologies to reduce crop losses from drought.</p>		
<ul style="list-style-type: none"> <li>• Conceptualize light stress, its nature and causes.</li> <li>• Comprehend crop growth, development and yield mechanisms.</li> <li>• Elucidate the consequences of light stress on crop growth, development and yield mechanisms.</li> </ul>	<p><b>Light stress:</b> Nature and causes of light stress, crop growth, development and yield mechanisms due to light intensity and photoperiod.</p>		
<ul style="list-style-type: none"> <li>• Acquire knowledge about temperature stresses.</li> <li>• Recognize the injuries caused by different types of temperature stresses in plants.</li> <li>• Employ the management practices to combat different types of temperature stresses.</li> </ul>	<p><b>Temperature stress: High temperature stress:</b> Concept, high temperature injuries in plants, adaptation features in plants due to high temperature, agronomic manipulations to mitigate crop losses due to high temperature. <b>Cold stress:</b> Concept, types of cold shocks, symptoms of cold temperature injuries in plants, management of cold stress in crops.</p>	Lecture Visual presentation Discussion	Quiz/MCQ Short answer Essay type answer Report
<ul style="list-style-type: none"> <li>• Conceptualize salinity stress, its kinds, occurrence and nature.</li> <li>• Recognize the damages</li> </ul>	<p><b>Salinity stress:</b> Concept, kinds of salinity, occurrence, nature and extent of crop damage, salinity management.</p>	Lecture Visual presentation Discussion	Quiz/MCQ Short answer Essay type answer