



Learning Unit Modules
Focused in Integral Professional Competences

I. GENERAL LEARNING UNIT

1. Identification	2. Code	3. Semester	4. Training area
Tree Physiology	DFF14	Third	Discipline

5. Mode					
Compulsory	X	Elective			
Classroom	X	Non-Attendance		Mixed	
Laboratory	X	Field practices		Guided tours	

6. Class schedule (hours per week)				
Theory	Practice	Independent study	Total hours	Credits
2	2	2	6	6

7. Person responsible for the subject.
Jorge Armando Arámbula Salazar

II. DATA SPECIFIC LEARNING UNIT

8. Objectives
Understanding the changes that occur in the plan organisms.
Giving the necessary basis for understanding the life of plants.
Giving physiologic knowledge used in biological-forestry-agronomical.
Identifying plant regulation mechanisms.
Articulating the physiologic processes that intervene in the cellular metabolism.

9. Presentation.
Forestry physiology gives students basic knowledge about plants. Here phenomena like water excess and dryness is studied, reviewing metabolism in its different appearances, and the importance of hormones and climatic factors. Plants comprise about 99% of the biomass of our planet, they recycle about 1% of all the accessible carbon of the biosphere each year, and they are a source for many medicines and perform a strong impact in the weather and the meteorology systems because they are receptors and reflectors of the solar radiations. Plants are the main agents that purify the



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environment, although they are also hurt by pollution. Each plant is the product of its genetic information which is modified by its environment; each plant germinates, grows, reproduces and dies. This Learning Unit is related to other units such as: forest botany, forest soils, forest ecology, forest genetics and biochemistry.

10. Professional competences to develop in students.			
Knowledge	Skills	Attitudes	Values
<p>Trees and bushes constitute structures and applying an efficient use of their parts for human benefit.</p> <p>Complex ecosystem that provides environmental and economical benefits for society.</p> <p>Interaction between society and forest resources.</p>	<p>Knowing and handling the constitutive structures of trees and bushes, and promoting an efficient use of their parts for human benefit.</p> <p>Understanding the ecosystem as a complex that provides environmental and economical benefits for society.</p> <p>Perform investigation of forest aspects, using forest lands as laboratories.</p> <p>Promote the interaction between society and forest resources for proposing viable solutions for the benefit of both society and ecosystems.</p>	<p>Interest in preserving nature.</p> <p>Collaboration and participation in team works.</p> <p>Interest in self learning and continuous learning.</p> <p>Open to criticism and with availability to accept them.</p> <p>Participating in multidisciplinary scientific and technical teams aimed to the solution of problems that the forest sector has.</p>	<p>Respect</p> <p>Honesty</p> <p>Responsibility</p> <p>Commitment</p> <p>Ethics</p>

11. Course topics
<p>Unit I: Introduction to vegetable physiology</p> <p>Unit II: Hydric Potential</p> <p>Unit III: Process biophysics in plants</p> <p>Unit IV: Process biochemical in plants</p> <p>Unit V: Germination and fructification</p> <p>Unit VI: Growing and development</p>



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12. Evaluation criteria

Formative evaluation
Summative evaluation
Self assessment
Co-evaluation
Hetero-Evaluation

13. Information sources

Basic

Azcón-Bieto, J. y Talón, M. 2008. Fundamentos de Fisiología Vegetal. McGraw-Hill Interamericana. Madrid.

Lambers, Hans and Stuart Chapin III, F. 2008. Plant physiological ecology. Springer. USA.

Larcher, Walter and Huber-Sannwald, Elisabeth. 2003. Physiological plant ecology : Ecophysiology and stress physiology of functional groups. Springer. USA.

Lira-Saldivar, R.H. 2007. Fisiología Vegetal. Trillas. México. 237 pp.

Nieto Ángel, Raúl. 2003. Fisiología Vegetal: auxiliares didácticos. Universidad Autónoma Chapingo, Departamento de Fitotecnia, Academia de Fisiología Vegetal. Mexico.

Nobel, Park S. 2008. Physicochemical and enviromental : plant physiology.

Taiz, Lincoln and Zeiger, Eduardo. 2006. Plant physiology. Sinauer. USA.

Complementary

Barcelo-Coll, J., García, N.R., Sabater-García, B. y Sánchez-Tames, R. 2001. Fisiología Vegetal. Pirámide, Madrid. Esp.

Dickinson, W.C. 2000. Integrative Plant Anatomy. Academic Press. U.S.A.

Parker, Rick. 2000. La ciencia de las plantas. Paraninfo Thomson Learning. Madrid. Esp. 628 pp.

Salisbury, F.B. y Ross, C.W. 2000. Fisiología de las Plantas. Agua, soluciones y superficies. Vol. 1. Paraninfo Thomson Learning. Madrid. Esp. 305 pp.

Salisbury, F.B. y Ross, C.W. 2000. Fisiología de las Plantas. Bioquímica Vegetal. Vol. 2. Paraninfo Thomson Learning. Madrid. Esp. 523 pp.

Salisbury, F.B. y Ross, C.W. 2000. Fisiología de las Plantas. Desarrollo de las plantas y Fisiología Ambiental. Vol. 3. Paraninfo Thomson Learning. Madrid. Esp. 988 pp