UNIVERSIDAD JUÁREZ DEL ESTADO DE DURANGO

FACULTY OF FORESTRY SCIENCES

Forestry Sciences Engineering

Learning Unit Modules

Focused in Integral Professional Competences

I. GENERAL LEARNING UNIT

1. Identification	2. Code	3. Semester	4. Training área
Anatomy and Wood Technology	DAT32	Sixth	Discipline

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

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

7. Person responsible for the subject.
José Rodolfo Goche Télles

II. DATA SPECIFIC LEARNING UNIT

8. Objectives

Knowing the history of anatomy, as well as branches that form, through exhibitions and literature reviews for the purpose of the student delve into the world of the anatomy of wood.

Identify the cutting planes and cellular components of the woods, through exhibitions, observations and research, in order that the student understands how wood is formed and cellular elements that compose.

Identify and recognize the elements of wood, macroscopically and microscopically in gymnosperms and angiosperms, by observation of samples and literature reviews, in order for the student to recognize the different types of wood.

Identify and evaluate the physical and mechanical properties of wood and identify acoustic, thermal and electrical properties.

Knowing the types and direction of cutting tools used in the forest industry as well as the implementation and evaluation of machining tests of wood.

9. Presentation.

The anatomy of wood can identify and characterize the most important timber species and the formation of wood in forest species through classroom presentations and laboratory, in order to provide the most

appropriate use of wood important forest species in Durango. The physical and mechanical properties of wood allow the classification according to the values found in their assessments with what appropriate use is identified.

10. Professional competences to develop in students.			
Knowledge	Skills	Attitudes	Values
Trees and bushes constituve structures and applying an efficient use of their parts for human benefit	Knowing and handling the constitutive structures of trees and bushes, and promoting an efficient use of their parts for human benefit.	Collaboration and participation in team Works. Interest in self learning and continuos learning. Open to criticism and with availability to accept them.	Respect. Honesty. Responsibility.

11. Course topics
Unit 1: Introduction to wood science. Unit 2: Constitution of the woods cell. Unit 3: Wood structure gymnosperms and angiosperms Unit 4: Physical and mechanical properties of wood Unit 5: Cutting process analysis

12. Evaluation criteria
Formative evaluation Summative evaluation Self assessment Co-evaluation Hetero-Evaluation

13. Information sources
Basic
1. Alba L., J., E. O. Ramírez G. y J. A. Santos S. 2005. Variación de la densidad de la madera de *Pinus gregii* Engelm de un ensayo genético establecido en Coatepec, Veracruz, México. Foresta Veracruzana. 7(1):37-40.

2. Downs, R. J. G. 2003. Estudio tecnológico de la madera de *Gmelina arborea* Roxb proveniente de plantaciones del estado de Campeche. Tesis de Licenciatura. División de Ciencias Forestales. Universidad Autónoma Chapingo. Chapingo, Texcoco, México.
3. Echenique, M. R. & F. Robles, F. 1993. Ciencia y tecnología de la Madera I. Textos universitarios. Universidad Veracruzana. 137 p.
4. Jhon Feirer. 2004. Wood Technology and Processes. McGraw-Hill. ISBN: 978-0078655418.
5. John R. Barnett, and George Jeronimidis. 2003. Wood Quality and its Biological Basis. Blackwell Publishing. ISBN: 0-8493—2819-5

Complementary

1. Goche T., J. R., M. Fuentes S., A. Borja R. y H. Ramírez M. 2000. Variación de las propiedades físicas de la madera en un árbol de *Abies religiosa* y de *Pinus ayacahuite* var. *veitchii*. Revista Chapingo: Serie Ciencias Forestales y del Ambiente. 6(1):83-92.
2. Fuentes–Salinas, M. 1995. Tecnología de la Madera II. Propiedades Físico-mecánicas. Mimeografiado. División de Ciencias Forestales. Universidad Autónoma Chapingo. Chapingo, Texcoco, México. pp 6-56.
3. Goche, T. R.; Velázquez, M. A.; Borja, R. A.; Terrazas, T.; Cervantes, M. C. y Trinidad, S. A. 2003. Densidad básica y ancho de anillos de la madera de *Pinus patula* antes y después de un aclareo. Interciencia. 28(12):705-709.
4. Goche, T, J. R.; A: Borja, R. Y D. A. Hernández V. 2002. Variación de la densidad básica de la madera de *Pseudotsuga macrolepis* Flous obtenida mediante tres métodos. Memoria de Ponencias. Cuarto Congreso Mexicano de Tecnología de Productos Forestales. Guadalajara, Jalisco. pp 25-26.
5. Martínez C., J. L. Y Martínez P., E. 1996. Características de maquinado de 32 especies de madera. Madera y Bosques. 2(1):45-61.