

## Course Description Form Wood Science

<b>1. Course Name:</b>	
Wood Science	
<b>2. Course Code:</b>	
WOSC303	
<b>3. Semester / Year:</b>	
2nd Semester / 2023-2024	
<b>4. Description Preparation Date:</b>	
1 / 2 / 2024	
<b>5. Available Attendance Forms:</b>	
Attendance	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
2 Theory + 3 practical / 3.5 units	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Dr. Haees Sayel Jarjes Email: <a href="mailto:haees_sayel@uomosul.edu.iq">haees_sayel@uomosul.edu.iq</a> Name: Hanan Ghanem Saadallah	
<b>8. Course Objectives</b>	
<p><b>Theory :</b> The learner should be able to define the concept of wood science and wood quality</p> <ul style="list-style-type: none"> <li>•Choose the appropriateness of the factors affecting the anatomical properties of wood</li> <li>•Differentiating between soft woods and hardwoods</li> <li>•Understand the basics of wood installation</li> <li>•Distinguishing between the composition of soft and hardwoods</li> <li>•Familiarity with the chemical composition of wood - preparing agricultural cadres and forestry engineers capable of forest management and wood technology science</li> </ul> <p>Preparing qualified agricultural cadres to scientific programs that contribute to...</p> <ul style="list-style-type: none"> <li>•Treating wood deterioration and disease and contributing to the exploitation of wood on scientific grounds</li> <li>• Improving the quality of wood, making optimal use of it, knowing its natural and unnatural defects, wood composition, and exploiting quantities of wood that may be damaged.</li> </ul>	<p><b>Practical :</b></p> <ul style="list-style-type: none"> <li>•Enable the student to practically examine wood composition and address wood problems and defects</li> <li>•Preparing qualified cadres to use scientific programs, following up on the performance of graduates in the field of wood uses, and raising the economic value of local wood</li> <li>• learner's awareness of the factors affecting the properties of wood</li> <li>•Determine the appropriate type of wood for construction and other making uses</li> <li>•Comprehensive study of various types of wood and their reference in industries according to their structural, anatomical and physical properties</li> <li>• The student should be able to separate wood cells by mechanical and chemical methods</li> </ul>
<b>9. Teaching and Learning Strategies</b>	

<b>Strategy</b>	<ul style="list-style-type: none"> <li>-Interactive lecture</li> <li>-Brainstorming</li> <li>-Dialogue and discussion</li> <li>- Assigning tasks and reporting</li> </ul>
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### 10. Course Structure

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1	2Theory 3 Practical.	Theory: A1: Knows the general characteristics of wood - learns about hardwoods - softwoods - learn about the types of woody plants Practical: B8 Apply the method of preparing samples and preparing them for microscopic examination	Theory: Introduction- Characteristics of wood practical : The Wood	Theory : In-person lectures Practical : In-person lectures with clarification of the sections with pictures and using wood samples in the laboratory	Discussions and interaction in the lecture and a short test
2	2Theory 3 Practical	Theory: A2 Identify soft woods and hardwoods. B2 shows what is the wood of the branches and the wood of the stem practical : B9 examines slides of xylem cells separated by a chemical method using an optical microscope	Theory: General appearance of wood - softwood and hardwood: practical : Wood, its properties uses and types	Theory : In-person lectures Practical : In-person lectures with field visits	Quotes and interaction in the lecture Short test
3	2Theory 3 Practical	Theory: A3 Explains the vascular cambium Explains the stages of growth of vascular cambium cells	Theory: Characteristics of wood - vascular cambium: practical : Practical lesson in	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing

		practical: B10 examines sli of mechanically separated xylem cells using an optical microscop	laboratory		
4	2Theory 3 Practical	Theory: A4Distinguishes trees according to the formation of heartwood - distinguishes - distinguishes sapwood and heartwood practical : C1 Enumerates the uses of wood	Theory: Origin of wood- producing plants  practical : Wood features	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Field evaluation Direct drawing
5	2Theory 3 Practical	Theory: A5 Explain how the stem is formed - Explain how heartwood is formed practical : B6Distinguish between spring and autumn wood B6	Theory: Tree growth and wood formation Phenotypic practical : characteristics of wood	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing
6	2Theory 3 Practical	Theory: A6 Understands types of cells that make up soft wood mortises - crassulae spiral thickening trabeculae practical : A13 Learn about wood, its characteristics and chemical composition	Theory: Anatomical structure of soft wood 1 practical : Phenotypic characteristics of wood	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing
7	2Theory 3 Practical	Theory: A7 Understands resinous longitudinal bronchioles - the striped longitudinal	Theory: Anatomical structure of soft wood 2  practical : Practical lesson in	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing

		bronchioles - the longitudinal parenchyma cells the ray parenchyma medulla - and the intersection field practical : A14 Differentiate between woody and non-woody plants	laboratory		
8	2Theory 3 Pract	Theory: A8 Understands the types of hardwood cells - distinguish hardwood according to the size of the stomata and the way they are distributed within the growth ring practical : A15 Learn about the microscope, parts, and how to use it	Theory: Anatomical structure of hardwoods 1 practical : Using different technical methods in microscopic studies of wood	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing
9	2Theory 3 Practical	Theory: A9 is familiar with the structures found in vessel elements - the tracheids of hardwoods - and the types of longitudinal parenchyma. practical : A16 Learn about the method of cutting wooden models and preparing chemical solutions for the chemical maceration method	Theory: Anatomical structure of hardwoods 2 practical : Using different technical methods in microscopic studies of wood	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing
10	2Theory 3 Practical	Theory: D1 understands the structure of the cell wall	Theory: Cell wall composition in woody plants	Theory : In-person lectures with field visits	Short test Direct drawing

		wall - the structure of microfibrils - understands the secondary wall of the cell practical : A17 Familiar with the anatomical characteristics of wood and methods of measuring the	practical : Using different technical methods in microscopic studies of wood	Practical : In-person lectures with field visits	
11	2Theory 3 Practical	Theory: A10 Understands the chemical components of wood - the basic structural components of the wood cell wall - cellulose - hemicellulose - lignin B3 distinguishes between the cells that make up xylem under the microscope practical :	Theory: Chemical composition of wood practical : Practical lesson in the laboratory	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing
12	2Theory 3 Practical	Theory: A11 covers the physical properties of wood: color, luster, odor, taste, veining, weight and hardness. practical : B3 distinguishes between the cells that make up the xylem under the microscope	Theory: Distinguish between the cells that make up xylem under a microscope practical : Practical lesson in laboratory	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing
13	2Theory 3 Practical	Theory: B1 shows what is the wood of the branches and the wood of the stem practical:	Theory: Variation of anatomical, chemical and physical properties in stems and branches	Theory : In-person lectures with field visits Practical: In-person lectures with field visits	Short test Direct drawing

		4 B Distinguish between the apparent characteristics of wood	practical: Practical lesson in laboratory		
14	2Theory 3 Practical	Theory: A12 Recognizes natural defects in wood and natural growth phenomena  practical: B5Distinguish between annual growth rings	Theory: Natural defects in wood  Practical:: Anatomical features	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Short test Direct drawing
15	2Theory 3 Practical	Theory: A12 Recognizes natural defects in wood and natural growth phenomena  practical : D2 Calculates the dimensions of the wood cells that make up the wood tissue and the specific gravity of the wood sample	Theory: Natural growth phenomena Practical: Practical lesson in laboratory	Theory : In-person lectures with field visits Practical : In-person lectures with field visits	Semester exam 2, final exam

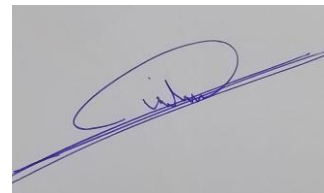
#### 11. Course Evaluation

	Evaluation Methods	Evaluation Date	Degree	Relative weight %
	Final report theory + pract. Report	Theory 15 weeks Pract. 1-15 week	7 Theory + 6 pract.	% 13
	Short exam (1)	Week (3)	4 Theory + 2 pract.	% 6
	Half exam ( theory + pract.)	Week (9)	10 Theory + 5 pract.	% 15
	Short exam (2)	Week (12)	4 Theory + 2 pract.	% 6
	Final exam (practical)	Exam pract.	20	% 20
	Final exam (theory)	Exam theory	40	% 40
			100	% 100

#### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The book Wood as a Raw Material, by George Tsumis, translated by Dr. Walid Aboudi Kassir and others - University Press Directorate - 1985
Main references (sources)	
Recommended books and references	Wood technology book - written by Dr. Latif Haji Dr. Samir

(scientific journals, reports...)	Fouad
Electronic References, Websites	



مدرس المادة النظري : د. هايس صايل جرجيس Dr. Haees Sayel Jarjes

رئيس اللجنة العلمية : ا.د. محمد يونس العلاف  
رئيس قسم علوم الغابات : م.د. مزاحم سعيد البك