

Course Description Form

1. Course Name:					
Wood Preservation					
2. Course Code:					
WOPR402					
3. Semester / Year:					
Spring semester / 2023-2024					
4. Description Preparation Date:					
1 / 2 / 2024					
5. Available Attendance Forms:					
Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 Theoretical + 3 practical /3.5 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Karam Ali Younus ALtaee Email: karam.youns@uomosul.edu.iq Name: Hanan Ghanem Saadallah					
8. Course Objectives					
theoretical: - Developing the student's ability to deal with scientific and technical means - Developing the student's ability to deal with the Internet - Developing the student's ability to deal with multiple media. - Developing the student's ability to dialogue and discuss Developing the student's ability to deal economically in the field the job.			Practical : -Developing the student's ability to deal with multiple media. - Developing the student's ability to dialogue and discuss		
9. Teaching and Learning Strategies					
Strategy		-Interactive lecture, Brainstorming, - Dialogue and discussion, - Assigning tasks and reporting - Assigning group work to reveal leadership skills			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical 3 Pract.	theoretical: a1: Definition of wood preservation (what is the definition of wood preservation, what are the methods used in the wood preservation process, what are the reasons leading to wood deterioration) b1: Number of distinct features of rot wood	theoretical: : wood preservation practical : Wood preservation	theoretic -Auditor methods, -Style of writing on The blackboard -Direct	Exams, Homework, Reports

		<p>practical :</p> <p>a14: What does the science of wood preservation know and what are causes that lead to wood deterioration?</p> <p>a15: What are the types of fungi that infect wood?</p> <p>a16: What do we mean by boring insects and what is their effect on wood?</p>		<p>dialogue style</p> <p>Practical Assignments tasks and reports</p>	
2	2 theoretical 3 Pract	<p>theoretical:</p> <p>a2: Familiar with drawing standards, types, and methods of using them</p> <p>practical :</p> <p>b4: apply (use tape)</p> <p>b5: Use (the measuring wheel)</p> <p>b6: Explains (the use of signs) A2: Explains the fungi that cause wood rot (explain the distinctive features of rotting wood, number the distinctive features of rotting wood)</p> <p>b2: Number (the fungi's needs that must be met in order for them to be active and able to infect wood)</p> <p>a3: Explains the conditions or needs that must be met in order for the fungi to become active and be able to infect wood</p> <p>practical :</p> <p>a17: What distinguishes termites compared to ordinary ants?</p> <p>A18: How many types of borers infect forest trees?</p> <p>a19: What is the difference between wood ants, carpenter ants, and honey ants?</p>	<p>Theoretical:</p> <p>Fungi causing rot</p> <p>practical :</p> <p>Wood deterioration due to biological causes</p>	<p>Theory :</p> <p>-Auditor methods,</p> <p>-Style of writing on the blackboard</p> <p>-Direct dialogue style</p> <p>Practical Assignments tasks and reports</p>	Exams, Homework, Reports
3	2 theoretical 3 Pract	<p>theoretical:</p> <p>a4: Explains wood decay (types of wood decay - number of specifications of wood decayed by white rot fungi and their effect on the durability of infected wood)</p> <p>a5: Explains the decay of wood (what are the specifications of wood decayed by brown rot fungi - the effect of rot (decay) on the durability of infected wood)</p> <p>practical</p> <p>a20: How can we prevent wood from deteriorating by fire?</p> <p>a21: How is wood affected by temperature differences?</p> <p>a22: What is the effect of increasing or decreasing moisture content on wood?</p>	<p>theoretical:</p> <p>Wood rotting</p> <p>practical :</p> <p>Deterioration of wood due to physical reasons</p>	<p>theoretical</p> <p>-Auditor methods,</p> <p>-Style of writing on the blackboard</p> <p>-Direct dialogue style</p> <p>Practical Assignments tasks and reports</p>	Exams, Homework, Reports
4	2 theoretical 3 Pract	<p>theoretical:</p> <p>c1: Compare (the permeability of decayed wood and its ability to absorb - what</p>	<p>theoretical:</p> <p>Permeability of rotting wood</p> <p>practical :</p>	<p>theoretical</p> <p>-Auditor methods,</p>	Exams, Homework, Reports

		<p>the specifications of the hygroscopic property of decayed wood)</p> <p>a6: What are (the types of fungi that infect wood)</p> <p>b3: How to (distinguish between types of fungi)</p> <p>practical :</p> <p>a24: What are (the types of fungi that infect wood) on flat lands?</p> <p>a25: What are the acids that cause wood to deteriorate?</p>	Deterioration of wood due to mechanical reasons	-Style of writing on the blackboard -Direct dialogue style Practical Assignments tasks and reports	
5	2 theoretical 3 Pract	<p>theoretical:</p> <p>b4: How to distinguish between pigmentary rot and bacterial corrosion</p> <p>b5: Distinguish (between direct and indirect fungal infections)</p> <p>practical :</p> <p>a25: What are the acids that cause wood to deteriorate?</p> <p>a26: What are the rules that cause wood to deteriorate?</p> <p>a27: What are the salts that cause wood to deteriorate?</p>	<p>theoretical:</p> <p>Diagnosis of decay in wood</p> <p>practical :</p> <p>Deterioration of wood due to chemical reasons</p>	<p>theoretical:</p> <p>-Auditor methods</p> <p>-Style of writing on the blackboard</p> <p>-Direct dialogue style</p> <p>Practical Assignments tasks and reports</p>	Exams, Homework, Reports
6	2 theoretical 3 Pract	<p>theoretical:</p> <p>a7: Learn about (the nature of wood that is resistant to fungal infections and wood that contains sapwood and heartwood)</p> <p>practical :</p> <p>b6: State (the factors that determine the effectiveness of extracts to protect wood)</p> <p>b7: Number of (factors affecting the speed of wood decay - What are the factors affecting the speed of wood decay)</p> <p>Explain the factors affecting the catabolism and breakdown of cellulose by microorganisms)</p> <p>practical :</p> <p>a28: How do mushrooms feed on wood and what are the appropriate conditions for that?</p> <p>a29: What is the optimum moisture content for fungi to feed on wood?</p> <p>a30: What is the optimum heat content for fungi to feed on wood?</p>	<p>theoretical:</p> <p>The natural resistance of wood against decay</p> <p>practical :</p> <p>Fungi causing wood rot</p>	<p>theoretical:</p> <p>-Auditor methods</p> <p>-Style of writing on the blackboard</p> <p>-Direct dialogue style</p> <p>Practical Assignments tasks and reports</p>	Exams, Homework, Reports
7	2 theoretical 3 Pract	<p>theoretical:</p> <p>a8: What are (the types of insect orders) and how to distinguish between the types of insect orders - compare the types of insect orders in terms of damage)</p> <p>Practical:</p> <p>a31: How can fungi obtain oxygen while feeding on wood?</p>	<p>Theoretical:</p> <p>Rank the insects</p> <p>practical :</p> <p>Fungi causing wood rot</p>	<p>theoretical:</p> <p>-Auditor methods</p> <p>-Style of writing on the blackboard</p>	Exams, Homework, Reports

		<p>a32: What is the ideal pH for fungi feed on wood?</p> <p>a33: How many types of rotted wood?</p>		<p>-Direct dialogue style</p> <p>Practical Assignin tasks and repo</p>	
8	2 theoretical 3 Pract	<p>theoretical:</p> <p>a9: Explain (the nature of the resistance of the cell wall to injury - the number of layers of the cell wall in terms of their resistance to injury)</p> <p>c2: How to distinguish (soil damage wood - who is responsible for wood damage - what are the characteristics of the ground) - a scientific visit to distinguish between infected and uninfected wood</p> <p>practical :</p> <p>a34: What do we mean by white rot?</p> <p>a35: What do we mean by brown rot?</p>	<p>theoretical:</p> <p>Wood boring insects</p> <p>practical :</p> <p>Types of rot or decomposition</p>	<p>theoretic</p> <p>-Auditor methods,</p> <p>-Style of writing o</p> <p>The blackboa</p> <p>-Direct dialogue style</p> <p>Practical Assignin tasks and repo</p>	Exams, Homework, Reports
9	2 theoretical 3 Pract	<p>theoretical:</p> <p>b8 State (the types of beetles that infest wood - what are the damages caused by wood-crushing, wood-eating, and round-headed beetles - how do infestations differ? distinguish between wood-crushing beetles and wood-eating beetles)</p> <p>practical</p> <p>a 36: How can we measure the durability of wood?</p> <p>a37: What is permeability in wood and how does it vary depending on the type of wood?</p>	<p>theoretica:</p> <p>Beetles</p> <p>practical :</p> <p>Rot damage</p>	<p>theoretic</p> <p>-Auditor methods,</p> <p>-Style of writing o</p> <p>The blackboa</p> <p>-Direct dialogue style</p> <p>Practical Assignin tasks and repo</p>	Exams, Homework, Reports
10	2 theoretical 3 Pract	<p>theoretical:</p> <p>a 10: Explains about (biological decay by carpenter ants, and carpenter bees. Explain the damage caused by carpenter ants and carpenter bees - Compare between carpenter ants and carpenter bees)</p> <p>practical :</p> <p>b11: Examine (microbiological corrosion by fungi (white and brown rot))</p> <p>b12: Compare (soft rot and pigmentation (pigmentation and discoloration))</p>	<p>theoretical:</p> <p>Beetles - carpenter ants and carpenter bees</p> <p>practical :</p> <p>Biocorrosion by fungi</p>	<p>theoretic</p> <p>-Auditor methods,</p> <p>-Style of writing o</p> <p>The blackboa</p> <p>-Direct dialogue style</p> <p>Practical Assignin tasks and repo</p>	Exams, Homework, Reports
11	2 theoretical 3 Pract	<p>theoretical:</p> <p>a11: Explains (wasps - what are the damages that wasps cause to wood) mention the most harmful insect wasp to wood - explain the corrosion of wood</p>	<p>theoretical:</p> <p>Wasps - erosion by marine borers</p> <p>practical :</p> <p>Biocorrosion by insects</p>	<p>theoretic</p> <p>-Auditor methods,</p> <p>-Style of writing o</p>	Exams, Homework, Reports

		<p>borers - what are the damages result from corrosion of marine borers - how marine borers affected - what are means of protection from marine borer</p> <p>practical : b13: Examine the infestation (corrosion by ground insects and their types - wood crushing beetles - wood-eating beetles)</p>		<p>The blackboard -Direct dialogue style Practical Assignments tasks and reports</p>	
12	2 theoretical 3 Pract	<p>theoretical: b9 Non-pressure method for preserving wood - What are the materials: What (the methods used in the wood preservation process? Mention them explain the best method - Explain number of methods used to preserve wood - Which is more efficient, oil-borne preservatives or water-borne materials)</p> <p>practical: b14: Distinguish (round-headed beetles boring beetles))</p>	<p>theoretical: Methods of preserving wood practical : Biocorrosion by insects</p>	<p>theoretical: -Auditor methods, -Style of writing on The blackboard -Direct dialogue style Practical Assignments tasks and reports</p>	Exams, Homework, Reports
13	2 theoretical 3 Pract	<p>theoretical: c3: Distinguish between (compressive non-compressive methods for preserving wood - What are the working steps for wood preservation process - Number types of pressure methods - What is best compression method for preserving wood? Mention it with its advantages))</p> <p>practical : b15: Examine (carpenter ants, carpenter bees and wasps) b16: Identify (marine flukes))</p>	<p>theoretical: Methods of preserving wood practical : Biocorrosion by insects marine organisms</p>	<p>theoretical: -Auditor methods, -Style of writing on The blackboard -Direct dialogue style Practical Assignments tasks and reports</p>	Exams, Homework, Reports
14	2 theoretical 3 Pract	<p>theoretical: a 12: Select (materials that retard combustion - what are the specifications of materials that retard combustion) C4: How to differentiate between most important materials that hinder combustion - a scientific visit to the wood factory to distinguish between materials used in the wood preservation process)</p> <p>practical : c 5: Characterize (a practical application to identify samples of fungi and insects that infect wood)</p>	<p>theoretical: Combustion obstacles practical : Practical application in the laboratory</p>	<p>theoretical: -Auditor methods, -Style of writing on The blackboard -Direct dialogue style Practical Assignments tasks and reports</p>	Exams, Homework, Reports
15	2 theoretical 3 Pract	<p>theoretical: a13: Learn about (the materials used in</p>	<p>theoretical: Acetylation of wood</p>	<p>theoretical: -Auditor</p>	Exams, Homework,

	the wood acetylation process - what are the materials used in the preservation process) b10: Explain (the process of acetylation of wood - what is the importance of acetylation of wood - mention the advantages of the process of acetylation of wood) practical : c6: Identify injuries (field observation identify injured, rotten and deteriorated trees)	practical : Field observation	methods: -Style of writing o The blackboa -Direct dialogue style Practical Assignin tasks and repo	Reports
11. Course Evaluation				
	Evaluation Methods	Evaluation Date	Degree	Relative weight %
	Final report theoretical + pract. Report	theoretical 15 weeks Pract. 1-15 week	7 theoretical + 6 pract.	% ١٣
	Short exam (1)	Week (3)	4 theoretical + 2 pract.	% ٦
	Half exam (theoretical + pract.)	Week (9)	10 theoretical + 5 pract.	% ١٥
	Short exam (2)	Week (12)	4 theoretical + 2 pract.	% ٦
	Final exam (practical)	Exam pract.	20	% ٢٠
	Final exam (theoretical)	Exam theoretical	40	% ٤٠
			100	% ١٠٠
12. Learning and Teaching Resources				
Required textbooks (curricular books, if any)		Wood preservation - Dr. Latif Haji Hassan Al-Najjar - Dr. Sa Fouad Ali Tawfiq		
Main references (sources)		Books related to wood preservation		
Recommended books and references (scientific journals, reports...)		Scientific journals, reports and research related to wood preservation		

Theoretical subject teacher: Dr. Karam Ali Younus ALtaee

Practical subject teacher: M.M. Hanan Ghanem Saadallah

Chairman of the Scientific Committee: Prof. Dr. Muhammad Younis Al-Allaf

Head of the Department of Forestry Sciences: Prof. Dr. Muzahim Saeed Al-Bek