

## Course Description Form

<b>1. Course Name:</b>					
Breeding and improving forest trees					
<b>2. Course Code:</b>					
FOPL301					
<b>3. Semester / Year:</b>					
Second Semester / 2023-2024					
<b>4. Description Preparation Date:</b>					
25 / 4 / 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. omar mudhafer omar Email: dr.omar77mudhafer@uomosul.edu.iq					
<b>8. Course Objectives</b>					
<p><b>Theory :</b> Preparing and qualifying specialized engineers in the field of forestry to meet the requirements of labor market in the private and public sectors, through the use of many learning and teaching methods and training students to apply the acquired knowledge and skills to solve the obstacles that limit the spread of forests. Providing distinguished academic programs in the field of forest sciences from a theoretical and practical perspective, so that they comply with international standards of academic quality and meet the needs of the labor market</p>			<p><b>Practical :</b> The practical aim of the Education and Improvement of Forest Trees course is for students to become familiar with and see the types of forest trees, methods of breeding that can be carried out, and types of pollination of forest trees</p>		
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ul style="list-style-type: none"> <li>-Interactive lecture, Brainstorming,</li> <li>- Dialogue and discussion,</li> <li>- Assigning tasks and reporting</li> <li>- Assigning group work to reveal leadership skills</li> </ul>			
<b>10. Course Structure</b>					
<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 Pract.	My theory: A1: Learn about the principles and foundations of education and improvement practical :	General principles for breeding and improving forest trees	Lectures and discussion	Discussion

		A6: Learn about the types of trees and their importance			
2	2Theory 3 Pract	My theory: A2: He is aware of the importance of seed sources practical : A7: Learn about seed dispersal methods and seedling planting methods	Provinces, sources of seeds and imported species	Lectures and discussion	Discussion
3	2Theory 3 Pract	My theory: E1: Identify the importance of hybridization and what the strength of the hybrid practical: A8: Learn about the types of forest tree seeds and methods of treating them	Hybrid, hybrid vigor, natural hybrid - artificial hybridization	Lectures and discussion	Discussion
4	2Theory 3 Pract	A3: Identify the necessary procedures to improve trees practical : B2: Students document the types of forest trees and calculate the distances between trees	Quantitative factors for improving forest trees	Lectures and discussion	Discussion
5	2Theory 3 Pract	My theory: A4: Learn about selection methods practical : d1: Application in the nursery to the selection process My theory: C1: Identifying the requirements of education programs practical : A9: Identify the types of forest trees suitable for planting in Iraq	Selection and breeding of species resistant to diseases, insects and environmental factors	Lectures and discussion	Discussion
6	2Theory 3 Pract	My theory: A5: Learn about vegetative propagation its types, importance, and application conditions	Objectives, requirements and obstacles of education and improvement programmes	Lectures and discussion	Discussion

		practical : C6: Practical application on vegetative reproduction			
7	2Theory 3 Pract	My theory: B1: Identify methods of reproduction practical : A10: Identify the abundant forest trees	Sexual and asexual methods of propagation collecting seeds - storing and extracting seeds	Lectures and discussion	Discussion
8	2Theory 3 Pract	My theory: C2: Explains the reasons for variation and difference practical : A11: How can genetic variation be distinguished?	Vegetative propagation	Lectures and discussion	First semester exam for one hour
9	2Theory 3 Pract	My theory: e2: The importance of genetic mutation practical : A12: How can a genetic mutation be caused?	Variation in forest trees and its uses	Lectures and discussion	Discussion
10	2Theory 3 Pract	My theory: C3: The importance of chromosome replication practical : C7: How can chromosome duplication occur?	Genetic mutations	Lectures and discussion	Discussion
11	2Theory 3 Pract	My theory: C4: Explains the types of DNA practical : a13: recognizes the DNA chain	Chromosomal duplication	Lectures and discussion	Discussion
12	2Theory 3 Pract	My theory: e3: How can forests be improved? practical : c8: practical application	DNA and RNA	Lectures and discussion	Discussion
13	2Theory 3 Pract	My theory: E4: Determines the criteria and basis for selection practical :	Improving natural forests	Lectures and discussion	Discussion

		C9: Practical application of the election method			
14	2Theory 3 Pract	A1: Learn about the principles and foundations of education and improvement practical : A6: Learn about the types of trees and their importance	Election	Lectures and discussion	A second semester exam for one hour
15	2Theory 3 Pract	My theory: C5: Explains the most important types of pollination in trees and shrubs practical : C10: Practical application on vaccination	Self and cross pollination	Lectures and discussion	Discussion

#### 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)	
Main references (sources)	Genetics and Improvement of Forest Trees
Recommended books and references (scientific journals, reports...)	Many articles and research published in publishing houses such as Springer + Elsevier + SPRINGER NATURE)
Electronic References, Websites	Various sites on the Internet

Teacher of Theory : Dr. Omar mudhafer Omar

Teacher of Practical : Mr. Mohammed Samer Edres

Chairman of the Scientific Committee : Dr. mohammed younes Al – alaf

Head of the Dept. of Forestry Sciences: Dr. Mozahim Said Younes