Description course of Forest Physiology

1. Course Name :
Forest Physiology
2. Course Code :
FRPH304
3. Semester/Year:
Second semester / third stage / 2024 – 2025
4. The date this description was prepared
1-2-2025
5. Available attendance forms
blended learning
6. Number of study hours (total)/number of units (total):
2 theoretical hours / 3 practical hours (5 hours) / 3.5 units
7.Name of the course administrator (if more than one name is mentioned)
M. Munther Younis Muhammad/ theoretical M.M. Mohammad Samer Edres/ practical
8.Course objectives
• The student learns about the plant cell, its types and components • Understands water relationships and distinguishes between solutions and their types • Understanding the process of water absorption in forest trees as well as the process of water loss • He is familiar with the mineral nutrition that the plant needs and the symptoms of its deficiency • Learn about the phloem sap and the mechanism of transport of nutrients within the plant • He is familiar with the process of photosynthesis and respiration • Learn about the growth and development of trees • He is familiar with plant hormones, their types, and their physiological effects • Identify enzymes and vitamins and their benefits for plants • Distinguish the physiology of dormancy in seeds and buds
9.Teaching and learning strategies
- Interactive lecture - presentations of anatomical models of tree parts - Brainstorming - assigning specific tasks and preparing reports about them - Dialogue and discussion - self-learning - Field training - practical exercises
10. Course structure

week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2 Theoretical	A1: plant cell	Types of cells and components of the plant cell	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A1: science Faslja the plant	Concept science PhysiologyPractical experiments on plant	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	A short practical test

			cells		
2	2 Theoretical	A2: Solutions and their types	aTypes of solutions, acids, bases and salts	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A2:Solutions the organization And acidity	types of solutions,Experiences practical in to prepare Solutions	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
3	2 Theoretical	A3: Water relations	Diffusion, osmosis, imbibition and permeability	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	B1: Effort Watery And how Measure it In the way Weight	Subdivisions Systems Colloids, properties of colloidal systems	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
4	2 Theoretical	B1: Water absorption	Water absorption by the roots,Types of absorption,Components of xylem,Mechanism of ascension of wood sap	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A3: phenomena Consequences on the pressure Radical	The importance of propagation for plants,Spread Gases And materials Solid And fluids	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
5	2 Theoretical	A4: Water loss	Ways of losing water,Transpiration and its types,Factors affecting the opening and closing of stomata	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A4: Importance Breathing With plants	The concept of water potential,Experiences To measure Effort Watery	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
6	2 Theoretical	B2: Mineral nutrition that the plant needs	Types of living organisms and their methods of nutrition,Divisions of nutrients,Ways to absorb nutrients	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A5: Systems Colloidal	Mineral elements found in the plant,Importance Elements Mineral And symptoms Its lack on the plant	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
7	2 Theoretical	A5: bast sap	ingredients Fabric Cortex, materials Movable in Tissue Cortex, mechanical	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test

			transition The juicer Food in Bark		
8	3 practical	A6: Transpiration And knock measurement Transpiration	The concept of breathing and its importance,fate energy Resulting from practical Breathing	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
9	2 Theoretical	B3:practicalPhotosynthesis	Chloroplasts, light, plant pigments, stages of the photosynthesis process	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A7: Permeability And the factors Influential on Permeability	microscope installation,Experiences practical To check some Slides	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
10	2 Theoretical	B4: Breathing process	The importance of breathing, Breathing mechanics	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	B2:feed the plant And the elements Mineral existing With plants	appreciation loss Content Al-Rutoubi Soil, saturation and its conditions	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
11	2 Theoretical	A6: Plant growth and development	Definition of growth, growth dynamics, types of growth, tree life stages	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	B3: Microscope And the microscope The compound	The concept of osmosis,an experience practical To clarify osmosis	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
11	2 Theoretical	B6:Plant hormones	Introduction to plant hormones, auxins, and cytokinins	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	B4:relationship the plant With water	to divide Solutions with regards To focus the juice CellularMethods for preparing the normal solution	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
12	2 Theoretical	A8: Plant hormones	Gibberellins and their physiological effects	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	B5:osmosis And the membrane The resemblance port	Concept The plasma And Its types In addition to Visit Scientific	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
13	2 Theoretical	A9: Plant hormones	Abscisic acid, ethylene gas	Interactive lecture, brainstorming, dialogue and discussion, self-	Semester test Final test

				learning	
	3 practical	A8: Species Solutions with regards To focus the juice Cellular To plant what	Concept Permeability And factors Influential on herA practical experiment on permeability	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
14	2 Theoretical	B5: Enzymes and vitamins and their benefits for plants	Benefits of enzymes, properties of enzymes, classification of enzymes, vitamins	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A9: The plasma And its types In addition to Visit Scientific	Transpiration and methods of measuring it,an experience practical around Importance Stomata	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test
15	2 Theoretical	A10: Physiology of dormancy in seeds and sprouts	Dormancy in seeds, dormancy in buds	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test Final test
	3 practical	A10: By spreading And its importance For plant	tears,an experience practical Show phenomenon Tears	Interactive lecture, brainstorming, dialogue and discussion, self-learning, practical training	Semester test practical test

11.Course evaluation

Relative weight %	Class	Calendar date (week)	Calendar methods	T
2.5	2.5	fourth week	Report 1	1
2.5	2.5	The fifth week	Report 2	2
2	2	the sixth week	short test (1)Quiz	3
2	2	The fourteenth week	Short test (2)Quiz	4
1	1	The fifteenth week	Short test (3)Quiz	5
7.5	7.5	the sixth week	Semester test (1)	6
7.5	7.5	The eleventh week is difficult	Semester test (2)	7
40	40	Final semester exams	Final theoretical test	8
5	5	The fifteenth week	Practical field drawing	9
2	2	The third and fifth week	Laboratory evaluation	10
1	1	The first week	Practical short test (1)Quiz	11
0.5	0.5	fourth week	Practical short test (2)Quiz	12
1	1	The fourteenth week	Practical short test (3)Quiz	13
5.5	5.5	Weeks 6, 8, 9, 10, 11, 12 and 13	Live drawings and homework	14
20	20	Final semester exams	Final practical test	15
100%	100%	100	the total	

12.Learning and teaching resources	
Plant Physiology Book - Dr. Abdul Azim Kazem Muhammad - 1985 **Practical experiments in plant physiology - Dr. Abdul Azim Kazem Muhammad – 1985**	Required textbooks (methodology, if any)
Physiology of Woody Plants3rd Edition - October 17, 2007 Author: Stephen G. Pallardy	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

Practical subject teacher
M.M. Mohammad Samer Edres

Theoretical subject teacher
M. Munther Younis Muhammad

Chairman of the Scientific Committee

Dr. Sumod Husain Ali

Head of the Department of Forestry Sciences

Dr. Sumod Husain Ali

قسم علوم الغابات