

## Description Course of Forest Engineering

1. Course Name:
Forest Engineering
2. Course code:
FOEN406
3. Semester/Year:
Second Semester /Fourth Stage/2023-2024
4.The date this description was prepared :
1-2-2024
5. 5-Available forms of attendance
In-Person
6. Number of study hours (total)/number of units (total)
2 hours theoretical/ 3 hours practical (5 hours)/3.5 units
7.Name of the course administrator (if more than one name is mentioned) :
Msc. Munther Younis Mohammed / Nazri Dr. Raghad Abdul Razzaq Jamal/ Practical
8 Course Objectives
<ul style="list-style-type: none"> <li>• Learn about the tasks performed by forest roads and the importance of the forest road network</li> <li>• Learn about the term primary transport , which are the factors that affect primary transport in forests</li> <li>• Determines the distance and costs of the initial transport in the forest</li> <li>• Enumerates the types of forest roads</li> <li>• Familiar with the density of roads in forests and the factors affecting them</li> <li>• Timing the construction of roads in the forest</li> <li>• Learn about the paths of the forest road network and how to choose them</li> <li>• Compares the basic principles and considerations in planning the routes of the road network in forests</li> <li>• Regulates road planning phases</li> <li>• Determines the information to be obtained before proceeding with road planning</li> <li>• Recognizes the design elements of forest roads</li> <li>• Explains the importance of drainage channels established on forest roads</li> </ul>
9    UNTRANSLATED_CONTENT_START   التعليم استراتيجيات
والتعلم   UNTRANSLATED_CONTENT_END
<ul style="list-style-type: none"> <li>- Interactive lecture</li> <li>- Brainstorming reports on them</li> <li>- Dialogue and Discussion</li> <li>-    UNTRANSLATED_CONTENT_START   التدريب</li> </ul>
<ul style="list-style-type: none"> <li>- Practical exercises</li> <li>- Assigning specific tasks and preparing</li> <li>- Self-learning</li> </ul>
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**10 10. Course Structure**

Week	Hours	Learning outcomes required for the program*	Unit or Topic Name	Learning method	Valuation Method
1	2 Theoretical 1	A1: Definition of forest engineering	Introduction to the tasks performed by the road network, the importance of the road network and its basic specifications	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	A1: Costs of machinery and equipment used In the work of forest roads "	The criterion of the trade-off between buying or renting the machine, the total costs of the machine Fixed and variable cost elements	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	"Little Things." Little taste. Yeah, let's run "Little Things."
2	2 Theoretical 1	A2: Initial Transportation	Terminology of the initial transfer , Primary means of transport and the factors affecting their selection	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	A2: Costs of machinery and equipment used In the work of forest roads "	Calculation Examples to Calculate Machine Costs	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test
3	2 Theoretical 1	A3: Initial transportation	Primary transportation costs , primary transportation distance , factors affecting primary transportation distance and methods of calculating distance	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	B1 : Costs of establishing forest roads	Components of forest road construction costs, Arithmetic examples to calculate the costs of forest road construction components	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test
4	2 Theoretical 1	B1 : Forest road divisions	Types of forest roads according to their standard and use, types of forest roads according to topography	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	A3: Costs of establishing forest roads for the timber production unit In the woods	Components of road construction costs for the timber production unit	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-	- A midterm? Practical Test

				on	
5	2 Theoretical 1	A4: Density of forest roads	Trends used in the study of forest roads, factors affecting the density of forest roads	Interactive lecture, brainstorming, dialogue and discussion, self-learning	- A midterm? A final test
	3 Practical	A4: Costs of establishing forest roads for the timber production unit In the woods the direct way "	"Accounting examples of the costs of establishing forest roads for the timber production unit in the forest in the direct way	Interactive lecture, brainstorming, dialogue and discussion, self-learning, hands-on	- A midterm? Practical Test
6	2 Theoretical 1	A5 : Ideal road density	Methods for calculating ideal road density, The effect of the difference in road density from the ideal case, the density of roads in small forest areas	Interactive lecture, brainstorming, dialogue and discussion, self-learning	- A midterm? A final test
	3 Practical	A5 : Costs of establishing forest roads for the timber production unit in the jungle in the interest-on-capital way	Accounting examples of the costs of establishing forest roads for the timber production unit in the forest by the method of interest on capital	Interactive lecture, brainstorming, dialogue and discussion, self-learning, hands-on	- A midterm? Practical Test
7	2 Theoretical 1	B2 : Ideal road density	Road density before planting, timing of road construction	Interactive lecture, brainstorming, dialogue and discussion, self-learning	- A midterm? A final test
	3 Practical	A6: Road costs for wood production unit in forests By the annual cost method	Examples of road costs for the timber production unit in forests by the annual cost method	Interactive lecture, brainstorming, dialogue and discussion, self-learning, hands-on	- A midterm? Practical Test
8	2 Theoretical 1	A6: Selection of road network routes	Methods used in the selection of road network paths, the foundations of forest road path planning	Interactive lecture, brainstorming, dialogue and discussion, self-learning	- A midterm? A final test
	3 Practical	B2 : The distance of the initial transport of roads in the first way	Calculating the initial transportation distance of the forest plots located directly on the road, Arithmetic examples to calculate the initial transport distance for cutting forests located directly on the road	Interactive lecture, brainstorming, dialogue and discussion, self-learning, hands-on	- A midterm? Practical Test
9	2 Theoretical 1	A7: Selection of road network routes	Economic and terrestrial considerations, Forest considerations, tourism considerations and	Interactive lecture, brainstorming, dialogue and	- A midterm? A final test

			hiking requirements, engineering considerations	discussion , self-learning	
	3 Practical	B3 : The distance of the initial transportation of roads in the second way	Calculating the initial transport distance of forest plots that are not located directly on the road , mathematical examples to calculate the initial transport distance of forest plots that are not located directly on the road	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test
10	2 Theoretical	B3 : Road Planning Phases	Information to be obtained before proceeding with planning, exploration phase, initial planning phase	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	A7: Actual initial transport distance	Factors affecting the initial transportation distance, calculating the actual initial transportation distance, arithmetic examples to calculate the actual initial transportation distance	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test
11	2 Theoretical	A8 : Road planning phases	Road Testing Phase, Final Planning Phase	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	B4 : Forest Road Network Layout	Steps to plan the forest road network Planning the road network on a contour map with different slopes	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test
12	2 Theoretical	A9: Elements of forest road design	Kyphosis of the road surface, types of kyphosis of the road surface	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	A8 : Machinery and equipment used in the construction of forest roads	Drilling machinery and equipment , loading machinery and equipment, transport machinery and equipment	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test
13	2 Theoretical	B4: Longitudinal and lateral slopes in forest roads	Longitudinal slopes, lateral slopes	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	B5: Road Maintenance	Road maintenance objectives, types of road maintenance, road surface maintenance	Interactive lecture, brainstorming , dialogue and	- A midterm? Practical Test

				discussion , self-learning , hands-on	
14	2 Theoretical 1	A10: Road shoulders	The shoulders of the road in the forest	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	A9: Road maintenance	Shoulder Maintenance	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test
15	2 Theoretical 1	B5: Road Water Drainage Channels	Drainage channels for forest roads, The importance of drainage channels established on forest roads	Interactive lecture, brainstorming , dialogue and discussion , self-learning	- A midterm? A final test
	3 Practical	A10 : Maintenance of roads	Maintenance of Road Drainage	Interactive lecture, brainstorming , dialogue and discussion , self-learning , hands-on	- A midterm? Practical Test

## 11 Course Evaluation

This service allows customers to issue a permit	evaluation methods	Calendar Appointment ( Week )	Degree	Relative Weight%
1	Report I	Week 4	2.5	2.5
2	Weather Report - %1 - %2	Week 5	2.5	2.5
3	Quiz (1)	Week 6	2	2
4	Quiz 2 (Islamic Translation)	Week 4	2	2
5	Quiz (3)	Week 5	1	1
6	- A midterm?	Week 6	7.5	7.5
7	- A midterm?	Week 11	7.5	7.5
8	Final theoretical test	senior year	40	40
9	Practical Field Drawing	Week 5	5	5
10	Laboratory assessment	Week 3	2	2
11	Practical Quiz (1) Quiz	Week 1	1	1
12	Practical Quiz (2) Quiz	Week 4	0.5	0.5
13	Practical Quiz (3) Quiz	Week 4	1	1
14	Direct Drawings and Homework	Weeks 6, 8,9,10,11,12 and13	5.5	5.5
15	Final Practical Test	senior year	20	20
	Total	100	100%	100%

## 12 Learning and Teaching Resources

Required textbooks ( methodology if any )	<b>Forest Engineering Roads and Bridges – Riyadh Saleh Al-Khafaf - 1987</b>
Key References ( Sources)	Forest Road Engineering- Guidebook Authority

	Forest Practices Code of British Columbia Act Forest Road Regulation Operational Planning Regulation Second edition June 2002
Recommended supporting books and references (scientific journals, reports... )	
E-References , Websites	

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