Course description form

1. : Course Name	
Operations Research	
2. :Course Code code	
OPRE393	
3. : Semester/Year	
third stage/2023-2024/ semester	
4. : Date this description was prepared	
1/2/2024	
5. :Available forms of attendance	
My presence	
6. Number of study hours(total) /number of units (total):	
Theoretical hours: 30 hours / Practical hours: 45, number of units: 3.5 units	
7. Name of the course administrator(if more than one name is mentioned)	
Name: M.D. Ramya Amer Khalil Email: ramiaalalaf83 @uomosul.edu.iq **Name: M. Salah Fahmi Shaba Email: salahodesh@uomosul.edu.iq**	
8. objectives Course	

practical:	theoretical:
The student learns how to use operations research models and their stages How to formulate or build a linear programming model How to craft or build Mathematical model How to solve model programming Sin using road the solution The chart The student learns graphically and mathematically the special cases in linear programming You learn For the student there is a conversion method model programming Sin from Formulas Primary to Formula Typical Explains cases to the student And problems especially when the solution In a way Simplex How to solve Issue Transport In a mathematically balanced way How to solve Issue Transport In the mathematically balanced way of the Northwest method How to solve Issue Transport In a balanced way , in a mathematically less expensive way How to solve Issue Transport In the mathematically balanced Vogel way How to solve Issue Transport In a mathematically unbalanced way How to solve transportation problems: unequal supply and demand , the case of maximizing profits the presence of more than one optimal solution , and	The student learns about the concept of operations research and its historical development It shows the student the role and methods that operations research plays in decision-making The student learns about the concept of linear programming Explains to the student the requirements , assignments , and areas of use Linear programming How to install Linear programming model Shows the steps to find the optimal solution in linear programming The student learns about the mechanism of work of simplex Explains to the student the procedures for solving using the simplex method Explains to the student the general framework of transportation problems in a balanced manner Shows to the student problem Transport By the balanced method, the Northwest method Shows to the student problem Transport The balanced method is the lowest cost method Shows to the student problem Transport The balanced method is Vogel's method The student learns about the problem of transportation by unbalanced roads

the case of decomposition graphically and mathematically. He learns The student how to make decisions in situations of uncertainty. The student learns how to solve practical examples of simulation	The student learns about special cases when solving transportation problems. Unequal supply and demand and profit maximization situation There is more than one optimal solution and a state of decomposition. You know? The student is on The most important problems in administrative decision making. He learns The student how to make decisions in situations of uncertainty. The student is introduced to simulation and methods of studying it

9. Teaching and learning strategies

The strategy	Interactive lecture, brainstorming, dialogue and discussion, explaining the role of operations research in decision making
	Interactive lecture: Brainstorming, dialogue and discussion in the stages of quantitative analysis of operations research
	Interactive lecture, brainstorming, clarification of linear programming and its uses
	Interactive lecture and brainstorming to formulate and build a linear programming model
	Interactive lecture, brainstorming, dialogue, and participation in estimating the steps to find the optimal solution
	Interactive lecture, brainstorming, dialogue, and participation in the mechanism of operation of the simplex method
	Interactive lecture, brainstorming, dialogue and discussion, assigning tasks and reporting
	Interactive lecture, brainstorming, dialogue and discussion, assigning tasks and reporting
	Interactive lecture, brainstorming, dialogue and discussion, assigning tasks and reporting
	Interactive lecture, brainstorming, and comparison between balanced and unbalanced transportation problems
	Interactive lecture, brainstorming, dialogue and discussion
	Interactive lecture, brainstorming, dialogue and discussion, assigning tasks and reporting
	Interactive lecture, brainstorming, dialogue and discussion
	Assigned an assignment to draw the optimal region for linear programming
	He is assigned the duty of solving various transportation problem exercises using balanced and unbalanced methods

10 . Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Definition of operations research Historical development of operations research The role of operations research in decision making Operations research methods	The student learns about the concept of operations research and its historical development It shows the student the role and methods that operations research plays in decision-making	2 Theoretical	The first week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Operations research models Stages of quantitative analysis	The student learns how to use operations research models and their stages	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Concept of linear programming Requirements and assumptions of the linear programming model Journals of the use of linear programming	The student learns about the concept of linear programming Explains to the student the requirements , assignments , and areas of use Linear programming	2 Theoretical	second week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Formulate or build a linear programming model Formulating the mathematical model	How to formulate or build a linear programming model How to craft or build Mathematical model	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Installing a linear programming model Certainty cases in linear programming	How to install Linear programming model	2 Theoretical	the third week

Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Solution model programming Sin using road the solution The chart	How to solve model programming Sin using road the solution The chart	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	steps find the solution optimum	Shows the steps to find the optimal solution in linear programming	2 Theoretical	fourth week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	cases especially in the solution Al-Bayani	The student learns graphically and mathematically the special cases in linear programming	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	How the simplex method works	The student learns about the mechanism of work of simplex	2 Theoretical	The fifth week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	transformation model programming Sin from Formulas Primary to Formula Typical	You learn For the student there is a conversion method model programming Sin from Formulas Primary to Formula Typical	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks	procedures the solution in a way Simplex	Explains to the student the procedures for solving using the simplex method	2 Theoretical	the sixth week

Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks	cases And problems especially when the solution In a way Simplex	Explains cases to the student And problems especially when the solution In a way Simplex	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	the frame General For a problem Balanced transportation	Explains to the student the general framework of transportation problems in a balanced manner	2 Theoretical	Seventh week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Solution Issue Transport In a balanced way	How to solve Issue Transport In a mathematically balanced way	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	road the corner North Western	Shows to the student problem Transport In the balanced way, the Northwest method	2 Theoretical	The eighth week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Mathematical solution to the method the corner North Western	How to solve Issue Transport In the mathematically balanced way of the Northwest method	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	road Lowest costs	Shows to the student problem Transport The balanced method is the lowest cost method	2 Theoretical	Week nine

Assessment methods	Teaching methods	Content	Learning objectives	Hours	Week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Mathematical solution in a less expensive way	How to solve Issue Transport The balanced method is mathematically less expensive	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks	road Vogel	Shows to the student problem Transport The balanced method is Vogel's method	2 Theoretical	The tenth week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks	Mathematical solution using Vogel's method	How to solve Issue Transport In the mathematically balanced way of Vogel's method	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	the frame General For a problem Unbalanced transportation	The student learns about the problem of transportation by unbalanced roads	2 Theoretical	Week eleven
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Solution Issue Transport In an unbalanced way	How to solve Issue Transport In a mathematically unbalanced way	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Special cases when solving transportation problems Unequal supply and demand Profit maximization case	The student learns about special cases when solving transportation problems Unequal supply and demand Profit maximization case	2 Theoretical	The twelfth week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Exercises and diagrams For special cases when solving transportation problems Unequal supply and demand Profit maximization case	How to solve transportation problems Unequal supply and demand The case of maximizing profits graphically and mathematically	3 Practical	

Short exams / Assignment of duty / discussions	Auditory methods / Style of writing on the blackboard / Direct dialogue style / Assigning tasks and reporting	Topic	Learning objective	Hours	Week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Special cases when solving transportation problems There is more than one optimal solution state of dissolution	The student learns about special cases when solving transportation problems There is more than one optimal solution state of dissolution	2 Theoretical	The thirteenth week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Exercises and diagrams Special cases when solving transportation problems There is more than one optimal solution state of dissolution	How to solve transportation problems There is more than one optimal solution The state of dissolution is shown mathematically	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Problems of managerial decision making Decision-making situations Uncertainties	You know? The student is on The most important problems in administrative decision making	2 Theoretical	The fourteenth week
Short exams Assignment of duty discussions	Auditory methods Style of writing on the blackboard Direct dialogue style Assigning tasks and reporting	Models of decision making under uncertainty	The student learns how to make decisions in situations of uncertainty	3 Practical	
Short exams Assignment of duty discussions	Auditory methods Writing style on the blackboard Direct dialogue style Assigning tasks and reporting	Simulation: Methods of studying simulation	The student is introduced to simulation and methods of studying it	2 Theoretical	The fifteenth week
Short exams Assignment of duty discussions	Auditory methods Writing style on the blackboard Direct dialogue style Assigning tasks and reporting	Simulation: methods of studying it/practical examples	The student learns how to solve practical examples of simulation	3 Practical	

11 Course evaluation -

Relative weight %	Class	Calendar appointment - a week	Calendar methods	T
5	5	My theory week 1-15	Final theoretical + report	1
10	5 5	Week 3	Short test 1 Quiz	2
15	10 5	Week 9	Midterm test Theoretical and practical	3
10	5 5	Week 12	Short test 2 Quiz	4
20	20	Practical exam week	Final practical test	5
40	40	A week of theoretical exam	Final theoretical test	
100	100		the total	

12- Learning and teaching resources

1- Required prescribed books	Introduction to Operations Research / Adnan Shamkhi / Dhawiya Salman Operations research and decision making, Dr. Afaf Ali Hassan Al-Dash, 2012
2- Main references sources	Modern books on quantitative methods/decision making.
3- Recommended books and references (scientific journals, reports)	Building mathematical models // Local and international magazines specialized in the field of operations research and quantitative management.
...B - Electronic references, Internet sites	The Iraqi Virtual Library/and external Internet research.

Theoretical subject teacher: M.D. Ramya Amer Khalil

Practical subjectteacher: M .Salah Fahmi Shaba

Chairman of the Scientific Committee: Prof. Dr. Alaa Muhammad Abdullah

Head of the Agricultural Economics Department: Prof. Dr. Alaa Muhammad Abdullah

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