

مادة بحوث العمليات الإدارية


مقدّم لك من قبل: رفال مدني

ملخص الفصل الأول

مقدمة عن بحوث العمليات الإدارية

رابط المقرر





Summary of Introduction To Operation Research

Operation Research (Management Science) is the application of a scientific approach to solve management problems in order to help managers make better decisions.

Management
Science
Process

1 Observation
Identifying a problem that is exist in a system

2 Problem Definition
Defining the problem clearly by showing factors that are related to the problem

Feedback

3 Model Construction
Developing the functional relationship between factors

4 Solution
Solving models using Operation Research Techniques

5 Implementation
Actual use of the solution


Model is an abstract representation of an existing problem, which consist of a set of mathematical relationships.

Parameter (constant) are known values, often derived from data.

Constraint (resource) are boundaries that limit the use of source, for example, time, certain amount, or effort.

Variable is a symbol that can represent any value.

- Dependent variable
- Independent variable



The Break-Even point is the point where total cost equals revenue. It illustrates how many units need to be sold to earn profit. At this point, profit is zero.

$$\text{volume (units)} = \frac{\text{fixed cost}}{\text{price} - \text{variable cost}}$$

Fixed Cost: constant costs during the production level or number of units produced.

Variable Cost: cost related to the production of one unit.

Volume (Units): the number of products produced.

Total Cost: fixed cost – total variable cost.

Profit: price (selling price) – total cost.

As a..	Variable Cost	Fixed Cost
product	Constant per unit	Decrease as units increase
money	Increase as units increase	Constant through the production level

Management Science Techniques

Linear
Mathematical
Programming

Probabilistic
Techniques

Network
Techniques

Other
Techniques

Computer
Website

Predetermined
set of
mathematical
steps, including
certain
parameters.

Results are
uncertain,
possibility of
alternative
solutions.

Models are
represented as
diagrams, could
be probabilistic
or
deterministic.

Including
forecasting,
simulation,
analytical
hierarchy
process (AHP).

Examples are:
- Spreadsheets
(Excel QM)
- QM for
windows*

* Click on it to download the program.