



Quantitative Techniques For Management

ASSIGNMENT PROBLEM: Hours of Course

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ASSIGNMENT PROBLEM

Assignment model comes under the class of linear programming model, which looks alike with transportation model with an objective function of minimizing the time or cost of manufacturing the products by allocating one job to one machine or one machine to one job or one destination to one origin or one origin to one destination only.

It arises in a variety of decision-making situations. In general, the assignment problem includes n tasks that must be assigned to n workers where each worker has different competencies in completing each task. The purpose of the assignment problem is to assign each task appropriate to the worker so that the total expenditure of resources to complete all tasks can be optimized.

The mathematical model of the assignment problem in this case can be written as follows:

Objective Function Min
$$\sum_{i=1}^{10} \sum_{j=1}^{10} C_{ij} x_{ij}$$

Subject to Constraints

$$\sum_{j=1}^{10} x_{ij} = 1, i = 1, 2, \dots, 10$$
$$\sum_{i=1}^{10} x_{ij} = 1, j = 1, 2, \dots, 10$$

Feasibility condition $x_{ij} = 0, 1$