[Summary]

Assignment

Subject:	Business Economics
Course:	B.A., 4th Semester, Undergraduate
Paper No. & Title:	Paper – 403 Quantitative Techniques for Management
Unit No. & Title:	Unit - 2 Transportation & Assignment
Lecture No. & Title:	Lecture – 3 Assignment

Summary

- The assignment problem is the special case of the transportation problem in which the objective is to assign a number of origins to the equal number of destinations at a minimum cost, minimum time or maximum profit.
- It is a square matrix. The no. of rows must be equal to the no. of columns.
- The demand and requirement in each column or row is one.
- There should be only one allotment in each row and each column
- **General form of A.P.**

  The cost matrix can be shown as follows:

	D1	**D2**	⋯	**Dn**	Supply
O1	c_{11}	c_{12}		c_{1n}	1
O2	c_{21}	c_{22}		c_{2n}	1
⋮					
On	c_{n1}	c_{n2}		c_{nn}	1
Requirement	1	1		1	

- Here x_{ij} is the amount of commodity supplied from *i* to *j* and defined as

  $x_{ij} = 1$, if the *ith* origin is associated to the *jth* destination

  $x_{ij} = 0$, if the *ith* origin is not associated to the *jth* destination
- If the number of rows is equal to the number of columns then it is called a **balanced assignment problem**.
- But if the number of rows is not equal to the number of columns then it is called an **unbalanced assignment problem**.
- Unbalanced problem are converted into balanced assignment problem by adding a dummy row or column.