

OBE based Teaching Lesson Plan 2019-20

Program: BBA (CIMA)

Course Name: Quantitative Techniques

Course Code: (M4 17 MC 604)

Semester: VI

Lecture hours: 60

Faculty in-charge: Mr. Vinay Pradeep C

Course Outcome No.	Course Outcomes	T level Indicator
CO1	Describe the nature and scope of OR Models and its applications for Business decision making.	T2
CO2	Develop a Linear Programming model and maximization or minimization of objective function by using graphical method.	T6
CO3	Solve a Linear Programming problem by using simplex or Big-M method for business decision making.	T3
CO4	Solve a Transportation problem for business decision making using various methods	T3
CO5	Solve an assignment problem for business decision making by using Hungarian method	T3
CO6	Develop a project network diagram and analysis by Pert or CPM method for project management.	T6

Module	Course	No. of	Pre-Class	Instructional	Assessment	T level
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No. & Topics Covered	Outcome No.	Lecture Hours	Activity	techniques		
Module - 1 : Introduction to OR: Origin, Definitions, features, methodology, OR Models & Techniques, scope, limitations.	CO1	4	Youtube video (NPTEL)	<ul style="list-style-type: none"> • Online Videos • Lecture with the help of power Point presentation • Discussion 	Evaluation through MCQs	T2
Module 2 - Introduction to Linear Programming : Basic Concepts, Construction of Linear Program Model, Problems on Formulations, Graphical Solutions, Solution of Maximization and Minimization Problems (Simple Problems).	CO2	12	Youtube video	<ul style="list-style-type: none"> • Lecture • Case Study • Discussion • Problem solving 	Evaluation through tests and MS excel	T6
Module 3 - Simplex Method	CO3	12		<ul style="list-style-type: none"> • Lecture • Discussion • Problem 	Evaluation through	T3

Introduction, Simplex method, Maximization and Minimization Problems, Slack, surplus and artificial variables, Big M method, Duality.				solving	tests	
<p>Module 4 - The Transportation Problem :</p> <p>Introduction to Transportation Model, Methods of finding out initial solution- NWCR, LCM, Vogel's Approximation method, Test for Optimality- MODI method.</p>	CO4	10		<ul style="list-style-type: none"> • Lecture • Case Study • Discussion • Problem solving 	Evaluation through tests and MS Excel	T3
<p>Module 5 - The Assignment Problem :</p> <p>Introduction, Methods of solving Assignment Problem- Enumeration</p>	CO5	10		<ul style="list-style-type: none"> • Lecture • Discussion • Case study • Problem solving 	Evaluation through tests and MS Excel	T3

on, Simplex and Transporta tion						
Module 6 - Network Analysis : Introduction - Network Analysis - Guidelines for construction of network diagram - Deterministic Time Estimates - Developing a Project Network - Project Duration & Critical Path - Forward Pass- Backward Pass - Float - Probabilistic Time Estimates - Difference between PERT & CPM	CO6	12		<ul style="list-style-type: none"> • Lecture • Discussion • Problem solving • Case Study 	Evaluation through MCQs, group activity and tests	T6

Continuous Internal Assessment

- Class test 1 (before midsem exam):First week of January
- Assignment
- Class test 2 (before end sem exam):Last week of February.

Books for Reference:

- *Anderson Sweeney Williams: An Introduction to Management Science Quantitative Approaches to Decision, Thomson.*
- *Chacko, George K: Applied Operations Research/Systems Analysis in Hierarchical Decision Making, North Holland Publishing Co.*
- *Taha, Hamdy A: Operations Research, Prentice Hall, India.*
- *Hiller/Lieberman: Introduction to Operations Research, Tata McGraw Hill.*
- *Sharma S D: Operations Research, Kedarnath Ramnath & Co.*

Approved by: