TECNIA INSTITUTE OF ADVANCED STUDIES

Grade 'A' Institute

Department of Information, Communication & Technology

Master Of Computer Applications (MCA)

Scheme and Syllabus (w.e.f. Academic Session 2020-21 onwards)

Course Code: MCA-251 **L T C**
Course Name: Numerical and Scientific Computing **3 1 4**

LEARNING OBJECTIVES

In this course, the learners will be able to develop expertise related to the following: -

1. Formulation of various real-life problems as Operations Research models and study of

methodologies to solve these problems.

2. Introduce Linear Programming, Transportation and Assignment problems and discuss

methods to find optimum solutions.

3. Study the theory of duality and sensitivity analysis in linear programming.

4. Learn Project management techniques and their solution.

5. Explore Queuing models and its applications.

PRE-REQUISITES

Basic Knowledge of Mathematics, Statistics, Information Technology & Economics

COURSE OUTCOMES (COs)

After completion of this course, the learners will be able to:

CO#	Detailed Statement of the CO	BT Level	Mapping to PO #
CO1	Demonstrate linear programming problems and appreciate their limitations	BTL2	PO1, PO2
CO2	Solve linear programming problems using appropriate techniques and optimization solvers, interpret the results obtained and translate solutions into directives for action.	BTL3	PO1, PO2, PO3
CO3	Solve different queuing situations and find the optimal solutions using models for different situations.	BTL3	PO1, PO2, PO3, PO4, PO5
CO4	Apply these techniques constructively to make effective business decisions.	BTL3	PO1, PO2, PO3, PO4, PO5, PO6, PO10
CO5	Examine different models of queuing theory and game theory.	BTL4	PO1, PO2, PO3, PO4, PO5, PO6, PO10
CO6	Develop mathematical skills to analyse and solve integer programming and network models arising from a wide range of applications.	BTL6	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO9, PO10, PO11