RESEARCH PROPOSAL

TITLE: DEVELOPMENT OF OPTIMIZATION TECHNIQUES FOR EFFECTIVE DECISION MAKING IN MANAGEMENT:

Introduction

In modern organizations, decision-making has become increasingly complex due to global competition, limited resources, and dynamic market conditions. Optimization techniques play a major role in solving managerial problems by providing mathematically optimal or near-optimal solutions.

Background and Need for the Study

Managers face challenges such as resource allocation, cost minimization, and process improvement. Optimization techniques help build systematic frameworks for managerial functions.

Problem Statement

How can optimization techniques be effectively integrated into managerial decisions to enhance performance and resource efficiency?

Objectives of the Study

- Study the role of optimization in management.
- Develop optimization models for managerial problems.
- Apply LP models.
- Propose an integrated optimization framework.
- Validate using case studies.

Research Questions

- Which optimization techniques suit modern managerial challenges?
- Do optimization models improve decision quality?
- What framework can help managers adopt optimization?

Scope of the Study

The study covers optimization applications in operations, supply chain, finance, HR, marketing, and project management.

Research Methodology

Includes analytical research, primary/secondary data, LP/IP/heuristics, and software tools such as Excel Solver, Python, MATLAB, and OR-Tools.

Expected Outcomes

Development of models to enhance efficiency, comparative studies of algorithms, and a framework for optimized decision-making.

Significance of the Study

Improves productivity, resource utilization, operational efficiency, and supports data-driven decision making.