

Quantitative Methods for Decision Making

Course Code: MTS 506

Course Description:

Business managers are faced daily with a variety of problems and opportunities in various elements of the supply chain such as: finance, marketing, human resources, operations management, transportation and distribution. In this course, participants explore typical business problems and use quantitative decision making models and problem solving strategies to resolve the issues. Quantitative models do not completely capture the reality of problem-situations, and, therefore, a solution to a model is not necessarily the solution for the real problems. If a model is properly built and its solution is critically analyzed, then it can provide a great deal of valuable information and insight to a decision maker.

Learning Outcomes

- To understand managerial decision-making processes in organizations and appreciate the use of various quantitative techniques in making decision;
- To understand and employ with ease the fundamental statistical and probabilistic measures and models;
- To employ quantitative tools in taking decisions under risk;
- To understand concepts and terminology of Linear Programming from formulation of mathematical models to their optimization using Simplex Method;
- To comprehend the concept of a Transportation Model and develop the initial solution for the same;
- To comprehend the Dynamic Programming model and its applications in industry;
- To independently employ a software package to formulate and solve Linear Programming problems.

Course Outline

- Quantitative Methods for Decision Making;
- Probability & Statistics: Measure of Central tendency, Mean Deviation, Standard Deviation, Moments, Moment generating function, Correlation, Scatter Diagram, Rank Correlation, Regression, Introduction to Probability, Binomial Distribution, Poisson Distribution, Normal Distribution, Area under the normal curve, Sampling, Hypothesis Testing;
- Decision Making under Risk: Expected Monetary Value (EMV); Decision Tree;
- Historical development of Operations Research;
- Linear programming: Model formulation, Graphical analysis & solution, Simplex Method, Big-M method, Duality theory, & Sensitivity Analysis;
- Special Types of LP Problems: The transportation problem, North-west corner rule, Vogel's approximation method, Russell's method, Transshipment problem, Assignment problem, Stepping Stone Method, MODI Method;
- Dynamic programming: Recursive nature of computations in DP, Forward and backward recursion, Applications;
- Simulation Models.

Schedule :

Total 12 classes (3 hour each week) on weekends from 25th April 2015 to 16th August 2015

Fees :

PKR 40,000/participant

Includes Mid-Terms & Final Exams, 3 Credits & IBA Certificate (Does not include Course Material)

Eligibility:

-16 Years education with three year's post qualification work experience

Or

-14 years education with six year's post qualification work experience

In any subject from HEC recognized university

For Registrations:

Center for Executive Education

Institute of Business Administration

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