

# BUS107 Quantitative Methods

**Level:** 1

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY JAN

## Synopsis:

BUS107 Quantitative Methods introduces management science techniques and their potential applications in various business challenges. Students will learn and practise the use of quantitative methods for various purposes, such as linear programming for optimisation problems and simulation for estimating performance measures. This course will cover linear programming, forecasting, decision analysis, simulation, and network flow problems. In addition to manual methods, this course also presents software tools for performing computing tasks. At the end of the course, students will learn how to transform data into better decisions.

## Topics:

- An overview of management science techniques and their applications in business operations
- Linear programming models
- Linear programming: A graphical solution procedure and a computer solution
- Linear programming: Sensitivity analysis
- Time series analysis
- Forecasting methods
- Decision analysis tools
- Approaches to decision making with or without probabilities
- Monte Carlo simulations
- Discrete-event simulations
- Network flow problems
- Network optimisation algorithms

## Learning Outcome:

- Apply linear programming models for optimisation problems.
- Use historical data to build forecasts for future business developments.
- Identify a recommended decision alternative in uncertain settings.
- Interpret software output for business insights.
- Demonstrate the use of a simulation model to estimate measures of performance of operational situations.
- Implement iterative algorithms to find the solutions for network flow problems.

## Assessment Strategies (Daytime Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PRE-CLASS QUIZ 1	2
	PRE-CLASS QUIZ 2	2

Overall Continuous Assessment	PRE-CLASS QUIZ 3	2
	PARTICIPATION 1	6
	TUTOR-MARKED ASSIGNMENT 1	18
	GROUP BASED ASSIGNMENT 1	20
Overall Examinable Components	Written Exam	50
<b>Total</b>		<b>100</b>

**Assessment Strategies (Online Class):**

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PRE-CLASS QUIZ 1	2
	PRE-CLASS QUIZ 2	2
	PRE-CLASS QUIZ 3	2
	DISCUSSION BOARD 1	10
	GROUP BASED ASSIGNMENT 1	10
	PARTICIPATION 1	6
	TUTOR-MARKED ASSIGNMENT 1	18
Overall Examinable Components	Written Exam	50
<b>Total</b>		<b>100</b>