

<b>Course Title</b>	:	Management Science
<b>Course Code</b>	:	BUS207/BUS2207
<b>No. of Credits/Semester</b>	:	3
<b>Mode of Tuition</b>	:	Sectional Approach
<b>Class Contact Hours</b>	:	3 hours per week
<b>Category in Major Prog.</b>	:	Foundational Core
<b>Prerequisite(s)</b>	:	BUS102/BUS1102 Statistics for Business

### **Brief Course Description**

With millions of users, computer software is quickly becoming a universal decision making tool in the business world. This course focuses on creating effective and efficient computerized business models. It will use cases and examples extensively to introduce the various techniques in computerized decision making and modelling.

The process of creating computerized models is not a spectator sport — it is like experience — it must be learnt not taught. Every study has shown that creating computerized models is much more fun, effective and less painful if it is based on a strong foundation backed up with numerous “real life” examples.

It is through a series of these examples that students will gain the experience of using computer software to make business decisions.

### **Aims**

This course is designed to focus on creating effective and efficient computerized business models. It will use extensive examples and cases to demonstrate the various computerized modelling approaches. Once completed, students will be comfortable with computerized modeling.

This course is also designed to enhance students' problem solving ability by making them aware of the interdisciplinary approach that all modeling is based on.

## **Learning Outcomes**

On completion of this course, students will be able to:

1. understanding the concept of management science,
2. create effective and efficient computerized business models, and use a computer software to solve the models,
3. apply the management science techniques in the decision making process,
4. enhance their problem solving ability by making them aware of the interdisciplinary approach that all modeling is based on.

## **Measurement of Learning Outcomes**

1. Questions require conceptual understanding, data base analysis and case study are covered in the assignments.
2. Questions require conceptual understanding and applications are assessed in both mid-term test and examination.

## **Indicative Content**

### Decision Analysis

Decision problem formulation, decision criteria, decision tree analysis, sensitivity analysis, EVPI, and EVPI.

### Forecasting

Overview of forecasting techniques, applying and evaluating forecasting methods.

### Queueing Models

Elements of queueing model, measures of performance for queueing systems, economic analysis of multi-server queueing systems.

### Linear programming

Properties of optimal solutions, sensitivity analysis, applications in different business areas such as marketing, human resources management, financial management, information systems, production and operations management.

### Network models

Transportation, assignment, and transshipment

### Multi-criteria decision making

Goal programming

### Project scheduling

Program evaluation and review technique (PERT) and critical path method (CPM)

## **Teaching Method**

Basic concepts and theories in terms of practical examples are discussed in classes.

Laboratory sessions may be used to introduce the computer software.

A software package is introduced in the course. Students are expected to be familiarized with the software to solve large-scale real-world decision problems.

Students are welcome to contact the course coordinator if they have questions concerning administrative matters. For learning difficulties, students should seek advice from their instructors.

## **Assessment**

Examination	60%
Continuous Assessment	40% (Assignments: 15%, Midterm test: 25%)

## **Required/Essential Readings**

Frederick S Hillier and Mark S. Hillier, *Introduction to Management Science*, 4<sup>th</sup> ed., McGraw Hill, 2008.

Software used: MS Excel

### **Recommended/Supplementary Readings**

Bernard W. Taylor III, *Introduction to Management Science*, 9<sup>th</sup> ed., Prentice Hall, 2006.

David R. Anderson, Dennis J. Sweeney, and Thomas A. Williams, *Quantitative Methods for Business*, 10<sup>th</sup> ed., West Publisher, 2005.

David R. Anderson, Dennis J. Sweeney and Thomas A. Williams, *An Introduction to Management Science - Quantitative Approaches to Decision Making*, 12<sup>th</sup> ed., South-Western College Publishing, 2007.