



**AMRITA**  
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**DEPARTMENT OF MANAGEMENT, KOCHI**  
**DATA ANALYTICS II (GM203C)**  
**MBA 2017 – 2019**  
**Trimester III (JAN – MAR 2018)**  
**COURSE OUTLINE & SESSION PLAN**

<b>Course Name</b>	<b>Data Analytics II</b>
<b>Course Code</b>	<b>GM203C</b>
<b>Term</b>	<b>II</b>

### **Course Plan**

#### **COURSE OBJECTIVE**

DA II deals with the study of management science. Today, the issue for managers is not the shortage of Information but how to use available information for better decision-making. Management science is a discipline that attempts to aid managerial decision making by applying a scientific approach to managerial problems that involve quantitative factors. Management science abstracts much and is from that traditional discipline called operations research.

Thus the objective of this course is:

1. To gain an appreciation for the relevance and power of management science. Therefore, we will give many examples of actual applications of management science and the impact they had on the organizations involved.
2. Learn to recognize when management science can and cannot be fruitfully applied. Therefore we will emphasize the kinds of problems to which the various management science techniques can be applied.
3. Learn how to apply the major techniques of management science to analyze a variety of management problems. Therefore we will focus on how spreadsheets enable many such applications with no more background in management science than provided by this book.
4. Develop an understanding of how to interpret the results of a management science study. Therefore we will present case studies that illustrate management science studies and how their results depend on the assumptions and data that were used.

You are expected to apply what you learn from this course (along with courses like research methodology, market research, financial model) in successfully conducting business research involving model building and data analysis, including practical field research work to write term papers, or for summer project at the end of your first year here. You will need to learn computing with laptop using Excel with add-on features.

Kindly **ensure** that you have Excel 2007 and the add-ons installed in your laptop.

#### **COURSE CONTENT**

The specific topics studied are linear programming, network optimization, integer programming, nonlinear programming, decision analysis, queuing models, and computer simulation.

## **RECOMMENDED READINGS**

One text book will be used for this course. The text used is:

Hillier, Frederick S. and Mark S. Hillier, *Introduction to Management Science*, 3<sup>rd</sup> Edition, Tata McGraw-Hill Edition, Special Indian Edition, New Delhi, 2009. (HH)

## **SESSION-WISE PLAN**

### **SESSION 1**

**Introduction: An illustration of management science approach**

### **SESSION 2 and 3**

**Linear programming: Basic concepts**

### **SESSION 4 and 5**

**Linear programming: Basic concepts (HH, Read Ch 2.5 to 2.8)**

### **SESSION 6 and 7**

**Linear programming: Formulation and applications**

### **SESSION 8 and 9**

**Linear programming: Formulation and applications**

### **SESSION 10 and 11**

**What-if analysis for linear programming**

### **SESSION 12**

**What-if analysis for linear programming**

### **SESSION 13 and 14**

**Network optimization problems**

### **SESSION 15**

**Network optimization problems**

### **SESSION 16 and 17**

**Using binary integer programming to deal with yes-no decisions**

### **SESSION 18**

**Using binary integer programming to deal with yes-no decisions**

### **SESSION 19 and 20**

**Nonlinear programming**

### **SESSION 21,22 and 23**

**Decision analysis**

### **SESSION 24,25 and 26**

**Queuing models (Session 24/25 and 26)**

### **SESSION 27 and 28**

**Computer simulation: Basic concepts**

### **SESSION 29**

**Computer simulation with Crystal Ball**

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**SESSION 30,31 and 32-Forecasting**

**Wrap-up and course review**