جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor

MNGT 204 – Introduction to Management Science

Proposed Academic Year	2021-2022	**Last Reviewed Academic Year**	2020-2021
Course Code	MNGT204	**Course Title**	Management Sciences
Credit hours	3 CR	**Level of study**	Under Graduate
College / Centre		**Department**	
Co-requisites		**Pre-requisites**	Business Mathematics

1. COURSE OUTLINE

Management in the current competitive and complex business environment calls for excellence in decision making. Decisions are made based on sound analysis of facts. The objective of the course is to enable the student to properly use common quantitative modeling tools to support business decision making. This introductory course covers fundamental quantitative methods for business decision making: problem formulation, analysis and use of management science tools: Optimization (including linear and integer programming), Monte Carlos emulation, and Decision analysis.

2. AIMS

The aim of the course is to build the skills including identification of the proper modeling tool for the business problem, conducting proper analysis using the tool and developing recommendations for the original business problem. While most of the course is focused on structured problem solving, the optional project provides an opportunity for students to develop their skills in identifying and structuring problems.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS (Indicative)

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
1. To be able to understand the characteristics of different types of decision-making environments and the appropriate decision making approaches and tools to be used in each type. Research, Actuarial Science, etc... Emphasis is placed on models and their solutions	Lectures, PowerPoint Presentations & Group Discussion Case Studies	Quizzes, Exams, Presentations

2.	To be able to build and solve Mathematical Models	Lectures, PowerPoint Presentations & Group Discussion Case Studies	Quizzes, Exams, Presentations
3.	To be able to design new simple models to improve decision-making and develop critical thinking and objective analysis of decision problems	Lectures, PowerPoint Presentations & Group Discussion Case Studies	Quizzes, Exams, Presentations
4.	To be able to implement practical case by the means of computes packages like Lips and Excel	Lectures, PowerPoint Presentations & Group Discussion Case Studies	Quizzes, Exams, Presentations

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Quiz1	10
Mid-term Examination	20
Quiz2	10
Assignment	10
Class Activities	10
Final Examination	40
TOTAL	**100%**

5. ACHIEVING A PASS

Students will achieve 3 credit hours for this course by passing a **minimum overall score of 50 %.**

6. COURSE CONTENT

Week	Lecture Topics	Time (Hours)
1	**PART1: Management Science** 1.1 Terminology 1.2 The Methodology of Management Science 1.3 History of Management Science	3
2-4	**PART2: Linear Programing Graphical Solution** 2.1.Formulating LP. 2.2.Solving LP (Graphical Solution).	9

5-9	**PART3: Linear Programing Computer Solution** 3.1 Excel & LIPS application. 3.2 Solving LP: The Simplex Algorithm. 3.3 The Big M Method	15
10-11	**PART4: Sensitivity & Duality Analysis** 4.1 Primal -Dual 4.2 Reduced Cost. 4.3 Shadow Price	6
12-15	**PART5: Additional Topics** 5.1. Transportation Problems 5.2. Queuing Analysis 5.3. Decision Analysis 5.4. Simulations	12
	Total Hours	45
	Plus RECOMMENDED INDEPENDENT STUDY HOURS	15
	TOTAL COURSE HOURS	60

7. RECOMMENDED READING

Core text/s:

1. Bernard W. Taylor, Introduction to Management Science, Pearson Custom Pub., 12th Edition 2015. ISBN 0-13-142439-4.
2. An Introduction to Management Science, David R. Anderson, Dennis J. Sweeney, and Thomas A. Williams. 9th 2000. ISBN 0-324-00321-8.