Mathematics for Management

Course Name	Course type (credit/hours)	전선(3/3)	Course code	I067
	Target students Division/major/grade	경영학부/교양 1학년	Openning semester	2019 1ST SEMESTER
	Class time and classroom	화E(다310) 금E(다310)(다310)	English Grade	A(100%English)

Reference to this course	Prerequisite courses			
	Related basic courses			
	Recommanded concurrent courses			
	Related advanced courses	Management science		

Instructor	Name (title/division)		김선교 (교수/경영대학 경영학과)		
	Office Room Number	다528	Office phone Number	2841	e-mail
	Office hours	TBA		Homepage address	
Teaching Assistant	Name (title/division)				
	Office Room Number		Office phone Number		e-mail

1. Introduction

This course introduces mathematical models and methods of quantitative business analysis. Various examples are used to explain and show how the decision-maker can apply quantitative methods to solve many different kinds of managerial problems. The objective of the course is to provide students with a basic understanding of the role that quantitative approaches play in the decision-making process.

Students will learn how to
-formulate various business problems as mathematical programming models and
-apply mathematical concepts and techniques to find an optimal solution/decision

2. Course Objectives

The objective of the course is to provide students with a basic understanding of the role that quantitative approaches play in the decision-making process.

Students will learn how to
-formulate various business problems as mathematical programming models and
-apply mathematical concepts and techniques to find an optimal solution/decision

3. Class types and activities

4. Teaching Method

- ☐ lecture
- ☐ team project(presentation and case studies)
- ☐ designing and production
- ☐ others
- ☐ discussion and debate
- ☐ experiments(role-playing,etc)
- ☐ on-site learning(on-site training)

5. Support Systems in Use

- ☐ e-class
- ☐ cyber lecture
- ☐ class behavior analyazing system
- ☐ automatic recording system
- ☐ blended learning(combination of online and offline teaching)
- ☐ others
- ☐ web-based assignment

6. Teaching Tools

- ☐ PBL(Problem Based Learning)
- ☐ TBL(Team Based Learning)
- ☐ CBL(Case Based Learning)
- ☐ others

7. Knowledge and ability required for taking this course

- Solving a system of equations
- Spreadsheet modeling

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance			
midterm exam	1	45	
final exam	1	45	
quiz	8	10	수업 참여도 포함
presentation			
discussion			
homework			
etc			
study hours	6		

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Introduction to Operations Research (9 th ed.)	Hillier and Lieberman	McGraw-Hill	2009
Sub	IntroductiontoMathematicalProgramming	W.Winston&M. Venkataramanan	Duxbury	2003
Ref.	경영과학 (Introduction to Operations Research 번역서)	김선교외4인역	McGraw-Hill Korea	2007

10. Class system and Class shedule

Linear programming formulation

-> Product mix and resource allocation
-> Profit maximization & cost minimization
-> Crew/work scheduling problem
-> Network flows problem
-> Dynamic Programming
-> Integer programming

Differential calculus

-> Unconstrained optimization of function of one variable: application to EOQ mdel
-> Unconstrained optimization of function of several variables: application to least square estimation

< Class Schedule >

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Linear programming: Product mix and resource allocation		김선교			
2	Linear programming: Network flows problem		김선교			
3	Linear algebra: system of linear equations		김선교			
4	Linear algebra: matrix inverse and Cramer's rule		김선교			
5	Linear programming: crew scheduling and blending problems		김선교			
6	Transportation Problems		김선교			
7	Assignment Problems		김선교			
8	Mid-Term Exam		김선교			
9	Network Optimization Models		김선교			
10	Network Optimization Models		김선교			
11	Project Management		김선교			
12	Differentiation		김선교			
13	Differentiation and optimization		김선교			
14	Differentiation and optimization		김선교			
15	Unconstrained optimization of several variables: partial differentiation		김선교			
16	Final Exam		김선교			

11. Other items of notification