



**AYDIN ADNAN MENDERES UNIVERSITY**  
**GRADUATE SCHOOL OF SOCIAL SCIENCES**  
**ECONOMICS AND FINANCE**  
**ECONOMICS - FINANCE AND BANKING INTERDISCIPLINARY**  
**ECONOMICS - FINANCE AND BANKING INTERDISCIPLINARY MASTER'S**  
**WITHOUT THESIS**  
**COURSE INFORMATION FORM**

Course Title	Optimization								
Course Code	BFN565			Course Level		Second Cycle (Master's Degree)			
ECTS Credit	5	Workload	125 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The concept of optimization, fundamental principles related with the topic, teaching of standard level various optimization methods and dealing particularly with the application examples in structural engineering area proceeding from general expressions constitute the basic objectives of the course.								
Course Content	Classical Optimization Techniques, General view of mathematical programming techniques, Introduction to optimization, Optimization with Lagrange multipliers and its application								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion								
Name of Lecturer(s)	Lec. Yılmaz ERDEM								

#### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

#### Recommended or Required Reading

1	Lecture Notes Supplementary Book(s): Related publications
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Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to optimization. Basic descriptions and concepts.
2	Theoretical	Design space, constraint surfaces, objective function. Statement of an optimization problem.
3	Theoretical	General view of mathematical programming techniques.
4	Theoretical	Classical Optimization Techniques (Calculus methods), linear programming, non linear programming, quadratic programming, geometric programming, dynamic programming, integer programming, network methods (CPM, PERT) etc.
5	Theoretical	Classical Optimization Techniques: Single variable optimization techniques and its application
6	Theoretical	Classical Optimization Techniques: Multi variable optimization techniques with no constraints and its application
7	Theoretical	Various applications. Giving the term-assignment.
8	Intermediate Exam	Midterm Exam
9	Theoretical	Classical Optimization Techniques: Multi variable optimization techniques with equality constraints and its application
10	Theoretical	Classical Optimization Techniques: Multi variable optimization techniques with inequality constraints and its application
11	Theoretical	Optimization with Lagrange multipliers and its application.
12	Theoretical	Linear Programming: Simplex Method
13	Theoretical	Applications
14	Theoretical	General Assesment
15	Theoretical	General Assesment
16	Final Exam	Final Exam

#### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	3	70
Individual Work	7	2	2	28
Midterm Examination	1	10	1	11



Final Examination	1	15	1	16
			Total Workload (Hours)	125
			[Total Workload (Hours) / 25*] = ECTS	5
*25 hour workload is accepted as 1 ECTS				

### Learning Outcomes

1	To have a knowledge on optimization concept and fundamental principles
2	To be able relate engineering problems with mathematical modellings
3	To analyze engineering problems by using mathematical modellings
4	To recognize informed and suitable results with optimization techniques
5	To develop optimum solution from alternative solutions

### Programme Outcomes (*Economics - Finance and Banking Interdisciplinary Master's Without Thesis*)

1	To be able to use correctly the basic concepts in the field of economics, finance and banking
2	To be able to comprehend philosophical, social, historical and psychological principles influencing economics, finance and banking
3	To be able to analyze economical, financial and bank-related events theoretically and empirically
4	To be able to evaluate any economical, financial or banking-related problem in accordance with scientific principles
5	To be able to prepare solutions for an economical, financial or banking-related problem cooperatively in accordance with principles and criteria
6	To be able to follow contemporary implementations, and national and international academic publications in economics, finance and banking
7	To be able to prioritize scientific methods and ethical principles in economics, finance and banking while considering and implementing field specific professional issues
8	To be willing to do scientific research in the field of economics, finance and banking
9	To be able to create value for economics-finance and banking profession as an occupational identity

### Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	4	3	5	2	4
P2	5	3	4	4	4
P3	5	3	4	4	2
P4	2	5	4	5	5
P5	5	4	4	2	3
P6	4	4	2	5	3
P7	5	4	5	3	3
P8	5	5	3	3	5
P9	5	5	3	4	4

