	Course name: MATH 535 Combinatorics			**Department:** Mathematics		Semester
YILDIRIM BEYAZIT ÜNİVERSİTESİ ANKARA						1
	Methods of Education					Credit (ECTS)
	Lecture	Recitation/ (Etud)	Lab	Project/Field Study	Homework	Other	Total	8
	42	0	0	90	60	48	240	

Language	English
Compulsory/Elective	Departmental Elective
Prerequisites	None
Course Description	Generating functions, recurrence relations, extremal problems for graphs and set systems, probabilistic methods in combinatorics, algebraic methods in combinatorics.

Course Contents

Weeks	Subjects
1	Binomial Coefficients, Generating Function Models
2	Calculating Coefficients of Generating Functions
3	Partitions
4	Recurrence Relation Models
5	Divide-and-Conquer Relations
6	Solution of Linear Recurrence Relations
7	Solution of Inhomogeneous Recurrence Relations
8	Solutions with Generating Functions
9	Review, **Midterm Exam**
10	Extremal Problems
11	Basic Probability, Expected Value
12	Probabilistic Methods
13	Basic Linear Algebra, Dimension
14	Algebraic Methods

Course Objectives	This course will focus on some basic concepts in combinatorics and provide methods to solve combinatorial problems.
Learning Outcomes and Competences	By a successful completion of this course, students should be able to: 1. Understand basic concepts in combinatorics 2. Solve linear recurrence relations 3. Apply basic probabilistic and algebraic methods on combinatorial problems
Textbook and /or References	**References:** • Joy Morris, Combinatorics, 2017 • Alan tucker, Applied Combinatorics, Wiley, 2012 • Alon, Noga and Joel H. Spencer. The Probabilistic Method. Wiley, 2016

Assessment Methods and Criteria	In-Term Studies	Quantity	Percentage%
	Mid-terms	1	25
	Quizes	0	0
	Assignments	3	25
	Attendance	0	0
	Practice	0	0
	Project	1	20
	Final Examination	1	30
	Total	**6**	**100**

ECTS Allocated Based on Student Workload	Activities	Quantity	Duration	Total Work Load
	Course Duration	14	3	42
	Hours for off-the-c.r.study	14	5	70
	Assignments	3	20	60
	Mid-terms	1	20	20
	Project	1	20	20
	Final Examination	1	28	28
	Total	**34**	**96**	**240**

Instructors	