

# COMBINATORIAL GEOMETRY

<b>1</b>	Course Title:	COMBINATORIAL GEOMETRY	
<b>2</b>	Course Code:	MAT6309	
<b>3</b>	Type of Course:	Optional	
<b>4</b>	Level of Course:	Third Cycle	
<b>5</b>	Year of Study:	1	
<b>6</b>	Semester:	1	
<b>7</b>	ECTS Credits Allocated:	6.00	
<b>8</b>	Theoretical (hour/week):	3.00	
<b>9</b>	Practice (hour/week):	0.00	
<b>10</b>	Laboratory (hour/week):	0	
<b>11</b>	Prerequisites:	None	
<b>12</b>	Language:	Turkish	
<b>13</b>	Mode of Delivery:	Face to face	
<b>14</b>	Course Coordinator:	Prof. Dr. BASRİ ÇELİK	
<b>15</b>	Course Lecturers:	Prof.Dr.Atilla AKPINAR Doç.Dr.Fatma ÖZEN ERDOĞAN	
<b>16</b>	Contact information of the Course Coordinator:	Prof. Dr. Basri ÇELİK E-posta: basri@uludag.edu.tr Telefon: +90 224 2941762 Adres: Bursa Uludağ Üniversitesi Fen-Edebiyat Fakültesi Matematik Bölümü 16059 Görükle-Bursa-TÜRKİYE	
<b>17</b>	Website:		
<b>18</b>	Objective of the Course:	The course which will be given foundations of the numerical calculations founded in an important part of last studies in geometry, will be benefit the students who will study on synthetic and projective geometry	
<b>19</b>	Contribution of the Course to Professional Development:	Having the ability to investigate the combinatorial properties of finite geometric structures.	
<b>20</b>	Learning Outcomes:		
		<b>1</b>	Can make basic applications of combinatorial calculations
		<b>2</b>	Can apply counting theory on problems
		<b>3</b>	Knows and applies the permutation concept on finite and infinite sets
		<b>4</b>	Knows the equivalents of the concepts of subset, power set and partition on finite and infinite sets
		<b>5</b>	Knows the Stainer triples and their special forms
		<b>6</b>	Knows the properties of Latin squares
		<b>7</b>	
		<b>8</b>	
		<b>9</b>	
		<b>10</b>	
<b>21</b>	Course Content:		
		<b>Course Content:</b>	
Week	Theoretical	Practice	
<b>1</b>	What is combinatorics?		

<b>2</b>	Numbers and on numbering	
<b>3</b>	Subsets, partitions and permutations	
<b>4</b>	Reducing relations and generate functions	
<b>5</b>	Additional and subtraction functions	
<b>6</b>	Latin squares	
<b>7</b>	Set theory	
<b>8</b>	Steiner triple theory	
<b>9</b>	Finite geometry	
<b>10</b>	Theorem of Ramsey, graphs	
<b>11</b>	Graphs ve posets	
<b>12</b>	Lattices and matroids	
<b>13</b>	Advanced informations on partitions and permutations	
<b>14</b>	Automorphism groups and permutation groups	
<b>22</b>	Textbooks, References and/or Other Materials:	<p>1) Combinatorics Topics Techniques, Algorithms, Peter J. Cameron, Cambridge University Pres, ISBN: 0521457610, 1998</p> <p>2) Combinatorics of Finite Geometries, L.M. Batten, Second edition, Cambridge Univ. Press, 1997.</p> <p>3) Finite geometry and combinatorics, Edited by F.De Clerck et al., Cambridge Univ. Press,1993.</p>
<b>23</b>	Assesment	
<b>TERM LEARNING ACTIVITIES</b>		<b>NUMBE R</b>
Midterm Exam		0
Quiz		0
Home work-project		0
Final Exam		1
Total		1
Contribution of Term (Year) Learning Activities to Success Grade		0.00
Contribution of Final Exam to Success Grade		100.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Homeworks and online exams
<b>24</b>	<b>ECTS / WORK LOAD TABLE</b>	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	9.00	126.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	12.00	12.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	4	4	1	0	1	2	2	1	3	2	0	0	0	0	0	0
ÖK2	3	4	1	0	1	1	1	1	2	1	0	0	0	0	0	0
ÖK3	3	4	2	0	2	1	1	2	2	1	0	0	0	0	0	0
ÖK4	4	4	2	0	2	1	1	2	2	1	0	0	0	0	0	0
ÖK5	4	4	1	0	2	2	2	1	3	2	0	0	0	0	0	0
ÖK6	3	4	2	0	1	1	2	1	2	1	0	0	0	0	0	0
<b>LO: Learning Objectives    PQ: Program Qualifications</b>																
<b>Contribution Level:</b>	<b>1 very low</b>			<b>2 low</b>			<b>3 Medium</b>			<b>4 High</b>			<b>5 Very High</b>			