



**AFYON KOCATEPE UNIVERSITY**  
**GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES**  
**DEPARTMENT OF MINING ENGINEERING**



**DOCTOR OF PHILOSOPHY (PhD) PROGRAM**

**FIRST YEAR**

FIRST SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6501	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6601	THESIS PREPARATION	C	0	1	1	0	1	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
<b>TOPLAM</b>			<b>20</b>	<b>1</b>	<b>21</b>	<b>12</b>	<b>30</b>	

SECOND SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6502	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6602	THESIS PREPARATION	C	0	1	1	0	1	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
<b>TOTAL</b>			<b>20</b>	<b>1</b>	<b>21</b>	<b>12</b>	<b>30</b>	



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**SECOND YEAR**

THIRD SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6503	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6603	THESIS PREPARATION	C	0	1	1	0	1	
MAD-6701	SEMINAR	C	0	2	2	0	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
	ELECTIVE COURSE	E	3	0	3	3	5	
<b>TOTAL</b>			<b>17</b>	<b>3</b>	<b>20</b>	<b>9</b>	<b>30</b>	

FOURTH SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6504	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6604	THESIS	C	0	1	1	0	21	
<b>TOTAL</b>			<b>8</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>30</b>	



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**THIRD YEAR**

FIFTH SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6505	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6605	THESIS	C	0	1	1	0	21	
<b>TOTAL</b>			<b>8</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>30</b>	

SIXTH SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6506	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6606	THESIS	C	0	1	1	0	21	
<b>TOTAL</b>			<b>8</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>30</b>	

**FOURTH YEAR**

SEVENTH SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6507	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6607	THESIS	C	0	1	1	0	21	
<b>TOTAL</b>			<b>8</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>30</b>	

**EIGHTH SEMESTER**

EIGHTH SEMESTER								
COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*					
			TH	AP	TO	CR	EC	
MAD-6508	DIRECTED FIELD STUDIES	C	8	0	8	0	9	
MAD-6608	THESIS	C	0	1	1	0	21	
<b>TOTAL</b>			<b>8</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>30</b>	



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**GRADUATE PROGRAMS**

**ELECTIVE COURSES**

COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*				
			TH	AP	TO	CR	EC
FBE-5001	SCIENTIFIC RESEARCH AND METHODS	E	3	0	3	3	5
MAD-5001	GEOLOGY OF MARBLE DEPOSITS OF TURKEY	E	3	0	3	3	5
MAD-5002	SOLID/LIQUID SEPARATION METHODS	E	3	0	3	3	5
MAD-5003	CHEMISTRY OF FLOTATION	E	3	0	3	3	5
MAD-5004	PLANNING AND COST CALCULATION	E	2	2	4	3	5
<del>MAD-5005</del>	<del>ANALYSIS METHODS AND LABORATORY PRACTICES</del>	E	2	2	4	3	5
MAD-5006	FIZIBILITY STUDIES IN MARBLE FACTORIES	E	2	2	4	3	5
MAD-5007	OPEN PIT MACHINES	E	3	0	3	3	5
MAD-5008	STABILITY OF CLAY-WATER COLLOIDAL SYSTEMS	E	3	0	3	3	5
MAD-5009	ADVANCED EXCAVATION MECHANICS	E	3	1	4	3	5
MAD-5010	INTRODUCTION AND PRODUCTION METHODS OF NATURAL STONES	E	3	0	3	3	5
<del>MAD-5011</del>	<del>METAMORPHIC ROCKS PETROGRAPHY</del>	E	3	0	3	3	5
MAD-5012	STORING AND UTILIZATION OF MINERAL PROCESSING PLANT WASTES	E	3	0	3	3	5
<del>MAD-5013</del>	<del>DEPOSITS OF INDUSTRIAL MINERAL AND ROCK AND EVALUATION</del>	E	3	0	3	3	5
MAD-5014	INVESTIGATION OF THE SURFACE PROPERTIES OF MINERALS	E	3	1	4	3	5
MAD-5015	QUARRY DESIGN IN SURFACE MINING	E	3	0	3	3	5
<del>MAD-5016</del>	<del>ADVANCED ROCK MECHANICS</del>	E	3	0	3	3	5
MAD-5017	INSTRUMENTAL ANALYSIS TECHNIQUES	E	2	2	4	3	5
<del>MAD-5018</del>	<del>QUALITY CONTROL</del>	E	3	0	3	3	5
MAD-5019	MINING PLANNING	E	3	0	3	3	5
MAD-5020	INDUSTRIAL RAW MATERIALS AND BENEFICIATION METHODS	E	3	0	3	3	5
MAD-5021	ADVANCED MARBLE CUTTING AND PROCESSING TECHNOLOGIES	E	3	0	3	3	5
MAD-5022	WIRE CUTTING MECHANIZATION IN MARBLE QUARRIES	E	3	0	3	3	5
<del>MAD-5023</del>	<del>INVESTIGATION OF INDUSTRIAL MINERAL AND ROCKS USING MINERALOGICAL ANALYSIS METHODS</del>	E	3	0	3	3	5
MAD-5024	PROCESSING METHODS OF BUILDING NATURAL STONES	E	3	0	3	3	5
MAD-5025	NANO-TECHONOLOGY APPLICATIONS IN MINERAL PROCESSING	E	3	0	3	3	5
MAD-5026	TREATMENT METHODS FOR THE METALLIC ORES	E	3	0	3	3	5
MAD-5027	CHEMICAL MINING	E	3	0	3	3	5
MAD-5028	PRENCIPLES AND APLICATIONS OF INDUSTRIAL CLASSIFICATION	E	3	0	3	3	5



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COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*				
			TH	AP	TO	CR	EC
MAD-5029	NOVEL TECHNOLOGIES IN MINERAL PROCESSING	E	3	0	3	3	5
MAD-5030	ENRICHMENT METHODS FOR THE GOLD ORES	E	3	0	3	3	5
MAD-5031	ENVIRONMENTAL PROBLEMS INDUCED BY BLASTING AND CONTROLLED BLASTING	E	3	0	3	3	5
MAD-5032	COMPUTER APPLICATIONS IN MINING	E	3	0	3	3	5
MAD-5033	MECHANIZATION IN UNDERGROUND MINE OPERATIONS AND ITS EVOLUTION	E	3	0	3	3	5
MAD-5034	OCCUPATIONAL HEALTH AND SAFETY IN UNDERGROUND MINING FACILITIES	E	3	0	3	3	5
MAD-5035	OHS APPLICATIONS AND RISK ANALYSIS IN MINING'S (UNDERGROUND AND OPEN PIT MINING	E	3	0	3	3	5
MAD-5036	MINING MACHINES RELIABILITY AND MAINTANCE PLANING	E	3	0	3	3	5
MAD-5037	CLASSIFIATION AND EVALUATION OF MINERAL RESOURCES	E	3	0	3	3	5
<del>MAD-5038</del>	<del>MAGMATIC ROCKS PETROGRAPHY</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-5039	MODELING AND SIMULATION OF MINERAL PROCESSING	E	2	2	4	3	5
<del>MAD-5040</del>	<del>CARBONATE ROCKS PETROGRAPHY</del>	<del>E</del>	<del>2</del>	<del>2</del>	<del>4</del>	<del>3</del>	<del>5</del>
<del>MAD-5041</del>	<del>ADVANCED X-RAY DIFFRACTION</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
<del>MAD-5042</del>	<del>PROPERTIES AND USES AREAS OF CLAY MINERALS</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
<del>MAD-5043</del>	<del>WEATHERING IN MARBLES AND NATURAL STONES</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
<del>MAD-5044</del>	<del>STRUCTURAL ANALYSIS</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
<del>MAD-5045</del>	<del>ACTIVE TECTONICS</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-5046	MINE MACHINERY AND EQUIPMENT SELECTION	E	3	0	3	3	5
MAD-5047	WATER PROBLEMS IN MINING	E	3	0	3	3	5
MAD-5048	FINANCIAL ANALYSIS IN NATURAL STONE SECTOR	E	3	0	3	3	5
MAD-5049	ARTIFICIAL INTELLIGENCE APPLICATIONS IN ENGINEERING	E	3	0	3	3	5
MAD-5050	MARBLE CUTTING AND PROCESSING WITH WATERJET	E	3	0	3	3	5
MAD-5051	ADVANCED COMPUTER APPLICATION IN MINING	E	3	0	3	3	5
MAD-5052	MODERN/ADVANCED TUNNEL SHAFT CONSTRUCTION METHODS	E	3	0	3	3	5
MAD-6001	DESIGN AND PRODUCTIVITY IN UNDERGROUND COAL MINING	E	3	0	3	3	5
MAD-6002	ADVANCED FLOTATION TECHNIQUES	E	3	0	3	3	5
MAD-6003	SLOPE STABILITY AND ANALYSIS IN OPEN PIT OPERATION	E	3	0	3	3	5
MAD-6004	GRINDABILITY CHARACTERISTICS OF SOLID MATERIALS AND KINETICS OF COMMINATION	E	3	0	3	3	5
MAD-6005	ROCK FRAGMENTATION BY EXPLOSIVES AND APPLICATIONS IN MINING	E	3	0	3	3	5



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MAD-6006	ENGINEERING DATA ANALYSIS	E	3	0	3	3	5
MAD-6007	MINE FIRES, GAZ OUTBURSTS AND EXPLOSIONS	E	3	0	3	3	5
<del>MAD-6008</del>	<del>NUMERICAL METHODS APPLICATIONS IN MINING AND TUNNELING</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-6009	HYDROMETALLURGICAL PROCESSES AND APLICATIONS	E	3	0	3	3	5
MAD-6010	ADVANCED AGGLOMERATION TECHNIQUES	E	3	0	3	3	5
<del>MAD-6011</del>	<del>WASTE DAM DESIGN</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-6012	COMPUTER APPLICATIONS IN ROCK MECHANICS	E	3	0	3	3	5
MAD-6013	DETAILED TENOR AND RESERVE ACCOUNTS	E	3	0	3	3	5
MAD-6014	GEOSTATISTICS IN MINING	E	3	0	3	3	5
MAD-6015	ROCK MASS CLASSIFICATION SYSTEMS AND FORTIFICATIONS DESIGN	E	3	0	3	3	5
<del>MAD-6016</del>	<del>ADVANCED FLOCCULATION TECHNIQUES</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-6017	THE ANALYSIS OF MINE VENTILATION AND GRIDS	E	3	0	3	3	5
<del>MAD-6018</del>	<del>THE MODERN METHODS OF OPENING TUNNEL AND SHAFT</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
<del>MAD-6019</del>	<del>ENVIRONMENTAL IMPACT ASSESSMENT IN MINING-</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-6020	ADVANCED DRILLING TECHNIQUES	E	3	0	3	3	5
MAD-6021	MARBLE AND NATURAL STONE PRODUCTION TECHNOLOGY	E	3	0	3	3	5
<del>MAD-6022</del>	<del>MARBLE AND NATURAL STONE PRODUCT CERTIFICATION</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
<del>MAD-6023</del>	<del>MARBLE AND NATURAL STONE PRODUCTION QUALITY CONTROL</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-6024	STRUCTURAL GEOLOGY IN MARBLE AND NATURAL STONE PRODUCTION	E	3	0	3	3	5
MAD-6025	SURFACE PROCESSING TECHNIQUES IN MARBLE AND NATURAL STONES	E	3	0	3	3	5
MAD-6026	COMPUTER CONTROLLED MARBLE MACHINES	E	3	0	3	3	5
MAD-6027	FEASIBILITY STUDIES IN MINING	E	2	2	4	3	5
<del>MAD-6028</del>	<del>ROCK/MINERALS OF LIGHTWEIGHT CONCRETE AND STRUCTURAL ELEMENTS</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
<del>MAD-6029</del>	<del>NEW DEVELOPMENTS IN GRAVITY RICH</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-6030	WORLD NATURAL STONE MARKET, PROJECTIONS AND STRATEGIES	E	3	0	3	3	5
<del>MAD-6031</del>	<del>BOR TECHNOLOGY AND USE</del>	<del>E</del>	<del>3</del>	<del>0</del>	<del>3</del>	<del>3</del>	<del>5</del>
MAD-6032	SURFACE PROPERTIES OF MINERALS	E	3	0	3	3	5
MAD-6033	LATEST TECHNOLOGIES AND APPLICATIONS IN SIZE REDUCTION	E	3	0	3	3	5
MAD-6034	FUZZY LOGIC APPLICATIONS IN MINING	E	3	0	3	3	5



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**ELECTIVE COURSES**

COURSE CODE	COURSE NAME	C/E	COURSE CREDIT*				
			TH	AP	TO	CR	EC
MAD-6035	OPTIMIZATION APPLICATIONS IN MINING	E	3	0	3	3	5
MAD-6036	OHS APPLICATIONS AND RISK ANALYSIS IN MARBLE QUARRIES AND FACTORIES	E	3	0	3	3	5
MAD-6037	STATISTICAL QUALITY CONTROL IN NATURAL STONE FACTORY	E	3	0	3	3	5
MAD-6038	DISCONTINUITY ANALYSIS IN ROCK MECHANICS	E	3	0	3	3	5
MAD-6039	ADVANCED RISK ASSESSMENT METHODS	E	3	0	3	3	5
MAD-6040	OCCUPATIONAL HEALTH AND SAFETY LEGISLATION	E	3	0	3	3	5
MAD-6041	CONTROL OF GAS, DUST AND NOISE IN UNDERGROUND MINING	E	3	0	3	3	5
MAD-6042	DESIGN OF UNDERGROUND MINE STRUCTURES	E	3	0	3	3	5
MAD-6043	MINING EFFICENCY ANALYSIS	E	3	0	3	3	5
MAD-6044	SPACE AND DEEP SEA/OCEAN MINING	E	3	0	3	3	5
MAD-6045	AUGMENTED-VIRTUAL REALITY IN MINING	E	3	0	3	3	5
EGT-6001	DEVELOPMENT AND LEARNING	E	3	0	3	3	5
EGT-6002	INSTRUCTIONAL PLANNING AND EVALUATION	E	3	0	3	3	5