ENERGY SCIENCE AND TECHNOLOGY BACHELOR PROGRAM

Course Details				
Code	**Academic Year**			**Semester**
EBT413	4			7
Title	**T**	**A**	**L**	**ECTS**
Coal Processing and Technology	2	0	2	6

Language	English					
Level	**Undergraduate**	**X**	**Graduate**		**Postgraduate**	
Department / Program	Energy Science and Technology					
Forms of Teaching and Learning	Formal					
Course Type	**Compulsory**		**Elective**	X		
Objectives	The aim of this course is to provide students with fundamental knowledge and technical skills related to the processes of coal processing and utilization; to teach industrial applications concerning the enrichment, preparation, and analysis of coal.					
Content	In this course, students are provided with both practical and theoretical knowledge by establishing a fundamental understanding of coal technologies. Starting with methods of coal sampling, the basic processes involved in coal preparation are examined in detail. Analytical techniques using washability curves and M-curves are explained within the enrichment process, and practical evaluations of crushing, screening, as well as wet and dry beneficiation methods are conducted. Furthermore, the course covers methods used to reduce the sulfur and moisture content in coal, auxiliary operations in coal preparation, process evaluation techniques in coal washing plants, and various coal analysis methods. Technologies aimed at the utilization of pulverized coal are also thoroughly investigated. In this way, students are expected to develop the ability to comprehend and evaluate coal preparation and processing operations on an industrial scale.					
Prerequisites						
Coordinator						
Lecturer(s)						
Assistant(s)						
Work Placement						

Recommended or Required Reading	
Books / Lecture Notes	Laskowski, J. (2001). Coal flotation and fine coal utilization. Elsevier. Franck, H. G., & Knop, A. (2013). Kohleveredlung: Chemie und Technologie. Springer-Verlag. Rao, D. S., & Gouricharan, T. (2016). Coal processing and utilization. London, UK: CRC Press/Taylor & Francis Group.
Other Sources	Ateşok, G. (2004). Kömür hazırlama ve teknolojisi. YMGV, 375s.

Additional Course Material	
Documents	

ENERGY SCIENCE AND TECHNOLOGY BACHELOR PROGRAM

Assignments		
Exams		
Course Composition		
Mathematics und Basic Sciences	20	%
Engineering	50	%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences	30	%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	30
Quiz		
Assignments	4	20
Attendance		
Recitations		
Projects		
Final Exam	1	50
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	12	2	24
Self-Study	14	5	70
Assignments	4	9	36
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14	2	28
Laboratory	2	3	6
Projects			
Final Exam	1	2	2
		Total Work Load	**168**
		ECTS Points (Total Work Load / Hour)	**6**

Learning Outcomes

ENERGY SCIENCE AND TECHNOLOGY BACHELOR PROGRAM

1	Students will learn coal sampling, preparation, and analysis methods.
2	Students will learn enrichment techniques and the equipment used in these processes.
3	Students will learn to analyze the processes involved in industrial-scale coal processing.
4	Students will gain knowledge about sulfur and moisture removal methods.
5	Students will learn about pulverized coal technologies and their areas of application.
Weekly Content	
1	Definition, formation, classification, and basic properties of coal
2	Coal resources and consumption areas in Turkey and worldwide
3	Coal sampling methods and sample preparation techniques
4	General overview of coal preparation; crushing and grinding processes
5	Screening operations and screen systems
6	Wet beneficiation methods (in aqueous medium) of coal
7	Washability curves and M-curve analysis
8	Midterm Exam Week
9	Dry beneficiation methods and technologies of coal
10	Desulfurization processes (biological, chemical, and physical methods)
11	Moisture reduction techniques and drying processes in coal
12	Auxiliary processes: additives, flocculants, and chemicals used in coal preparation
13	Process control and evaluation methods in coal washing plants
14	Pulverized coal utilization techniques and environmental impacts
15	Clean coal technologies
16	Final Exam

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1	4	3	4	3	3	3	3
2	4	3	4	3	3	3	3
3	4	3	4	3	3	3	3
4	4	3	4	3	3	3	3
5	4	3	4	3	3	3	3

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

Compiled by:	
Date of Compilation:	