DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
EBT105	1			1
Title	**T**	**A**	**L**	**ECTS**
Technical Drawing and Computer Aided Design	2	0	4	6

Language	German					
Level	**Undergraduate**	**X**	**Graduate**		**Postgraduate**	
Department / Program	Energy Science and Technology					
Forms of Teaching and Learning	Face-to-face					
Course Type	**Compulsory**	**X**	**Elective**			
Objectives	The knowledge that students will acquire: - Fundamentals of Technical Drawing as a Source of Information for Design and Manufacturing - Planar and Spatial Drawing - Creation and Dimensioning of Parts - Dimensional and Geometric Tolerances - Harmony - Technical Surfaces - Basic Rules of Design - Introduction to Three Dimensional Computer Aided Design - Methodical Approach and Process in the Construction of Simple Parts Skills students will acquire: - Basic Knowledge of the Application of the Engineering Approach and Working Techniques in the Creation of Simple Designs Skill - Ability to create design drawings independently according to given boundary conditions Qualifications - Solution and Analysis of a Simple Technical Problem - Problem Solving Competence in the Field of "Technical Drawings"					
Content	Lecture: • Fundamentals of technical drawing as a means of information for construction and manufacturing • Create lines, circles, hatching, dimensions and text. • Information about drawing formats, scale lines and drawing head • Representation and dimensioning of components • Representation of parts using view sand sections • Use of tolerance information and fits • Information about surface marks and hardness information • Standard series • Introduction to standards Exercises: • Creation of a construction drawing by hand from given standard parts taking into account boundary and connection conditions • Modeling with a CAD system Laboratory: • Elaboration of a simple construction with all necessary drawings					

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Prerequisites	None
Coordinator	Dr. Öğr. Üyesi Mehmet İPEKOĞLU
Lecturer(s)	Prof. Dr. Hulusi BOZKURT
Assistant(s)	
Work Placement	None

Recommended or Required Reading	
Books / Lecture Notes	Frey, H. Herrmann, A. Kuhn, V. (1996). Bautechnik Technisches Zeichnen, Deutschland.
Other Sources	Schlecht, Berthold: Maschinenelemente 1. Pearson Studium,München, 2007 Roloff/ Matek; Maschinenelemente; Vieweg-Verlag Decker; Maschinenelemente; Hanser-Verlag Haberhauer/ Bodenstein; Maschinenelemente; Springer-Verlag Hoischen; Technisches Zeichnen; Verlag Cornelsen-Giradet Klein, Einführung in die DIN-Normen; Teubner-Verlag DIN-Normen; “Tabellenbuch Metall”, Europa-Verlag 2014 Ders Notları elektronik ortamda mevcuttur. Çizim araçları, Autodesk Inventor

Additional Course Material	
Documents	-
Assignments	-
Exams	-

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

Assessment		
Activity	**Count**	**Percentage (%)**
Midterm Exam	1	40
Quiz	-	-
Assignments	-	-
Attendance	-	-
Recitations	-	-
Projects	-	-
Final Exam	1	60
	Total	**100**

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ECTS Points and Work Load			
Activity	**Count**	**Duration**	**Work Load (Hours)**
Lectures	14	1	14
Self-Study	14	3	42
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	1	12
Recitations	14	2	28
Laboratory	14	1	14
Projects			
Final Exam	1	2	15
		Total Work Load	**125**
		ECTS Points (Total Work Load / Hour)	**6**

Learning Outcomes	
1	To have knowledge about the basics of technical drawing.
2	To have knowledge about dimensioning of elements and standards
3	Introduction to 3D Computer Aided Design
4	Procedures and methods for creating simple components
5	Application of engineering approaches and basic working techniques to create simple designs
6	Use of tolerance information and harmonizations
7	Fundamentals of technical drawing as a source of information for design and manufacturing.
8	Ability to create and interpret technical drawings for simple designs.
9	Creation of an element drawing according to given boundary conditions.

Weekly Content	
1	Fundamentals of technical drawing as an information tool for construction and manufacturing
2	Fundamentals of technical drawing as an information tool for construction and manufacturing
3	Representation and dimensioning of elements
4	Representation and dimensioning of elements
5	Introduction to design hierarchy and design methodology in the manufacturing process
6	Introduction to design hierarchy and design methodology in the manufacturing process
7	Introduction to Standard / Norm Information
8	Introduction to Standard / Norm Information
9	Midterm Exam

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10	Use of standards information and harmonizations
11	Use of standards information and harmonizations
12	Creation of manual technical drawings of the given elements considering the boundary and connection conditions
13	Detailing the design with all necessary drawings
14	Modeling with 3D computer-aided design
15	Modeling with 3D computer-aided design

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

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

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

P1 Working with modern scientific sources.
P2 Having modern scientific knowledge and scientific analysis abilities and being able to apply them to scientific problems.
P3 Having theoretical and practical skills in the area of Energy Science and Technology.
P4 Having foreign language skills to follow the worldwide advancements in the field of Energy Science and Technology and to be able to discuss them with foreign colleagues.
P5 Having computational skills for research data analysis purposes.
P6 Having appropriate skills for academic and industrial jobs, being ready to take responsibility in working life.
P7 Having knowledge about work occupational work and safety.

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