

Course Syllabus

Subject: Basics of Engineering Drawing	Course Code: BTEGAE2BNF	Types of Classes With Hours (weekly): Lectures Practice Lab. 1 3 0
ECTS: 5		
Classification: Compulsory core material	Language: English	Educational Character: Lectures Practice Lab. 25% 75% 0%
Assessment Method: Midterm grade		

Assessment and Evaluation Procedures

- Attendance at practical sessions
- Completion of practical tasks
- Completion of nine homework assignments
- Writing two midterm exams

Requirements for obtaining the midterm grade:

- Attendance at practical sessions is mandatory. In case of unjustified absence exceeding one-third of the total class hours, the semester is considered invalid (Blocked).
- Homework assignments offer scoring opportunities, where students can earn a minimum of 3 and a maximum of 6 points for each homework accepted by the instructor. This totals a minimum of 27 and a maximum of 54 points (One of the requirements for the midterm grade is the successful submission of all homework assignments).
- Completion of homework assignments and submission by the deadline set by the instructor:
 - Late submissions incur a penalty fee.
 - Homework assignments not meeting acceptable standards will be returned for revision by the instructor. If the revisions are not completed by the deadline specified by the instructor, these assignments will be considered not submitted, resulting in invalid semester (Blocked).
- Midterm exams: The exams provide scoring opportunities, with students able to earn 23 points each (total of 46 points). Only students with justified absence can make up missed exams during the last week of the semester. The combined minimum score of 23 points must be achieved in both exams. Students who fail to meet this requirement can attempt to reach the 23-point threshold once during the first 10 days of the exam period by taking a makeup exam. In this case, students will write a comprehensive makeup exam covering both topics, and successful completion will earn them 23 points.

Method of determining the midterm grade: The midterm grade is determined based on total points, with up to 49 points considered insufficient, 50-62 points sufficient, 63-75 points average, 76-88 points good, and 89-100 points excellent.

Curriculum Location:

2nd semester

Preconditions:

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Description of the Course Content

Lecture:

1. Introduction. Technical engineering design and drafting process. Standards in mechanical drawing. Drawing sheets, formats, lines, letters. Coordinate systems (3D - orthogonal, cylindrical, spherical, 2D - orthogonal, polar), absolute, relative, global, local.
2. Theory of projection, projection methods (pictorial representation - orthogonal axonometry, oblique projection, perspective. Representation with orthogonal view pairs. Basic views. Selection and placement of basic views. Visible and invisible edges, contour lines, symmetry and axis lines.
3. Representation of lines and planes in orthogonal views.
4. Transformation of viewing pairs.
5. True size of a straight segment, True size of a plane.
6. Auxiliary views. Sections, breakouts. Details.
7. Dimensioning. Line types - advanced.
8. Dimensional tolerances.
9. Surface roughness, shape tolerance.
10. Direction and position tolerance.
11. Types of drawings, tables.
12. Simplified representation of standard elements.
13. Welding designation.
14. Semester conclusion.

Practice:

1. Lines design (continuous thick, continuous thin, dashed thin, thin dotted). Basic planar constructions (with ruler and compass).
 - o Assignment of the first homework.
2. Writing printed letters (with thin line, with thick line). Freehand drawing and drafting of the six basic views based on an axonometric view - using freehand and ruler-compass.
 - o Assignment of the second homework, Submission and defense of the first homework.
3. Drawing the third view based on two basic views, freehand and with ruler-compass.
 - o Assignment of the third homework, Defense of the second homework.
4. Construction of the isometric view based on given views, freehand.
 - o Assignment of the fourth homework, Defense of the third homework.
5. Construction of auxiliary views based on two basic views, with ruler-compass.

- Assignment of the fifth homework, Defense of the fourth homework.
- 6. First midterm Exam (Freehand drawing of the six basic views based on an axonometric diagram, drawing of three basic views based on an axonometric diagram with ruler-compass, Drawing an isometric model based on given views, Construction of auxiliary views based on two basic views).
- 7. Construction of the two views and sections based on two views with ruler-compass.
 - Assignment of the sixth homework, Defense of the fifth homework.
- 8. Construction and dimensioning of the required number of views and sections based on the isometric model.
 - Assignment of the seventh homework, Defense of the sixth homework.
- 9. Giving tolerances, surface roughness, shape, direction and position tolerances based on the previous practice.
- 10. Part drawing design based on an isometric model.
 - Assignment of the eighth homework, Defense of the seventh homework.
- 11. Assembly drawing design based on a real product.
 - Assignment of the ninth homework, Defense of the eighth homework.
- 12. Preparation of technical documentation for a simpler product (assembly drawing, parts list, welded subassembly, part drawings).
- 13. Second midterm Exam (Simpler product consisting of 4-5 different components, with at least one standardized component. Preparation of assembly drawing with parts list and necessary part drawings).
- 14. Semester conclusion.
 - Defense of the ninth homework.

Literature

Horváth, S. Kósa, Cs-né.: Műszaki kommunikáció. ÓE jegyzet, 2014

Kovács, G-né., Kovács, M.: Műszaki ábrázolás, 2013 (ISBN 978-963-7175-99-2)

Fenyvesi T.: Műszaki táblázatok, NSZFI, 2008.

Bartha, M., Bándy, A., Cseke, J., Klementis, Cs., Nyitrai, J., Nyolcas, M., Török, I.: Műszaki ábrázolás I., 2012 (ISBN 978-963-279-637-6)

Giesecke, Frederick., Mitchell, Alva., Spencer, Henry., Hill, Ivan., Dygdon, John., Novak, James., Loving, R., Lockhart, Shawna., Johnson, Cindy. Technical Drawing with Engineering Graphics. United Kingdom: Pearson Education, 2016.

Giesecke, Frederick E.. Technical Drawing with Engineering Graphics. United Kingdom: Prentice Hall, 2012.

Acquirable Professional Competencies

1. Has a comprehensive understanding of the basic facts, directions, and boundaries of the technical field.
2. Understands the general and specific mathematical, natural, and social science principles, rules, relationships, and procedures necessary for practicing the technical field.

3. Familiar with the conceptual framework, key relationships, and theories related to the field.
4. Has a comprehensive understanding of the knowledge acquisition and problem-solving methods of the main theories in the field.
5. Can perform basic analysis of the disciplines constituting the knowledge system of the technical field, formulate synthetic statements of relationships, and engage in adequate evaluative activities.
6. Can apply the most important terminology, theories, and procedures of the given technical field in the execution of tasks related to them.
7. Capable of planning, organizing, and carrying out independent learning.
8. Capable of identifying routine professional problems, exploring the theoretical and practical background necessary for their solution, formulating and solving them (using practical applications of standard operations).
9. Capable of understanding and using the characteristic literature, computational, and library sources of their field.

<p>Name and Designation of the Course Responsible: Fürostner Igor Associate Professor</p>	<p>Role: Teacher</p>	<p>Organizational Unit: Donát Bánki Faculty of Mechanical and Safety Engineering Institute for Natural Sciences and Basic Subjects</p>
<p>Name and Designation of the Course Teacher: Fürostner Igor Associate Professor</p>	<p>Role: Teacher</p>	<p>Organizational Unit: Donát Bánki Faculty of Mechanical and Safety Engineering Institute for Natural Sciences and Basic Subjects</p>