GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Engineering graphics in transportation, PG_00064270 | | |
| Field of study | Transport | | |
| Date of commencement of studies | October 2025 | Academic year of realisation of subject | 2026/2027 |
| Education level | first-cycle studies | Subject group | Obligatory subject group in the field of study |
| Mode of study | Full-time studies | Mode of delivery | at the university |
| Year of study | 2 | Language of instruction | Polish<br>The course is practice-oriented. Two individual assignments are completed during supervised laboratory classes. Assessment criteria include geometric accuracy, appropriate selection and application of CAD tools, drawing organization, completeness, and readability. The raster map assignment is additionally assessed for correct scaling and alignment of map backgrounds. Passing the course requires obtaining at least 50% of the available points for each assignment. |
| Semester of study | 3 | ECTS credits | 3.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Department of Transportation Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | mgr inż. Tomasz Mackun | |
| | Teachers | mgr inż. Tomasz Mackun<br>dr inż. Anna Gobis | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 0.0 | 0.0 | 30.0 | 0.0 | 0.0 | 30 |

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=8993

**Learning activity and number of study hours**

| Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|
| Number of study hours | 30 | 5.0 | 40.0 | 75 |

**Subject objectives**

Development of efficient, independent, and flexible CAD skills for preparing technical drawings of transport infrastructure, including the reproduction of transport layouts and the preparation of drawings based on map backgrounds.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K6_W03] has knowledge of informatics, electronics, telecommunications, automation and control, information technologies, computer graphics, geodesy and satellite navigation which is useful for understanding how it can be applied in transport | Knows basic and selected advanced CAD functions and understands their application in preparing technical drawings of transport infrastructure. | [SW1] Assessment of factual knowledge |
| [K6_U05] able to use IT graphic techniques suitable for tasks typical of designing, construction, operation, and diagnosing means and transportation systems. | Can independently and efficiently prepare technical drawings of transport infrastructure, select appropriate CAD tools, and use and align raster map backgrounds. | [SU1] Assessment of task fulfilment |

<table>
<tr><td>Subject contents</td><td>Course content – laboratory<ul><li>Introductory workshops and discussion on CAD software skills. Review of basic AutoCAD functions and commands. Identification of skills acquired during the previous online course. Discussion of alternative methods for completing drawing tasks).</li><li>Review and consolidation of basic and selected advanced CAD tools using teaching materials. Improvement of drawing efficiency, accuracy, and flexibility. Drawing organization, layers, blocks, object modification, annotations, dimensioning, and plot preparation.</li><li>Guided preparation of a technical drawing of a sample transport interchange. Reproduction of geometry based on a sketch and dimensions, layer organization, use of blocks, and application of drawing and editing tools. Preparation of a complete technical drawing.</li><li>Guided preparation of a "general layout" drawing using raster map backgrounds. Inserting maps into CAD, calibrating, scaling, rotating, and aligning raster images. Creating vector drawings based on maps, applying layers, symbols, and annotations, and preparing a clear drawing layout.</li><li>Individual preparation of a transport interchange drawing based on a different sketch assigned to each student. Independent selection and application of CAD tools. Completion of the assignment during supervised laboratory classes. Assessment of the completed drawing.</li><li>Individual preparation of a "general layout" drawing based on two raster maps assigned to each student. Independent insertion, scaling, rotation, and alignment of raster images, followed by the preparation of a technical drawing. Completion of the assignment during supervised laboratory classes. Assessment of the completed drawing.</li></ul></td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Basic knowledge of CAD software acquired through a previous online course or equivalent training. Ability to use basic drawing and editing tools, manage layers, and save technical drawings.</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Assessment of submitted projects</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td><ul><li>Teaching materials for the course "Engineering Graphics in Transport", available on the Gdańsk University of Technology eNauczanie platform.</li><li>AutoCAD – Quick Reference Guide for Transport Students. Teaching materials, Gdańsk University of Technology.</li><li>Transport Interchange in Pacanów. Laboratory exercise materials, Gdańsk University of Technology.</li><li>Autodesk, AutoCAD Help. Official AutoCAD software documentation.</li></ul></td></tr><tr><td>Supplementary literature</td><td><ul><li>Autodesk, technical documentation on raster images and external references in AutoCAD.</li><li>Head Office of Geodesy and Cartography, Polish National Geoportal – information on maps, orthophotos, and spatial data.</li><li>Additional instructional materials and examples of transport infrastructure technical drawings provided by the instructors.</li></ul></td></tr><tr><td>eResources addresses</td><td>Basic<br>https://help.autodesk.com/view/ACD/2026/ENU/ - Helpdesk<br>Supplementary<br>https://www.geoportal.gov.pl/pl/dane/ortofotomapa-orto/?utm_source=chatgpt.com - Geoportal – ortofotomaps and raster data</td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td><ul><li>Selection and application of appropriate CAD tools for specific drawing tasks.</li><li>Reproduction of transport interchange geometry based on a sketch and dimensions.</li><li>Application of layers, blocks, editing tools, and dimensioning in technical drawings.</li><li>Insertion, scaling, rotation, and alignment of two raster maps in a CAD environment.</li><li>Preparation of a general transport layout drawing based on raster map backgrounds.</li><li>Preparation of technical drawings for presentation and printing, ensuring appropriate scale, readability, and organization of graphical elements.</li></ul></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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