

Erasmus+ Programme Key Action 2 Cooperation Partnerships for Higher Education (KA220-HED)

Agreement number 2023-1-RO01-KA220-HED-000155412



European Network for Additive Manufacturing in Industrial Design for Ukrainian Context Multiplier Event 3 – Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine, 20 June 2024

AMAZE – Applied research methods for Additive Manufacturing in Architectural and Industrial Design/ CAD/CAM /CAE – e-book and e-toolkit

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module course 3 CAD/CAM/CAE design Drawings in the Revit software package using BIM technologies

Our team developed a project for the reconstruction of a brewery in Chernivtsi using Revit software and printed it on a 3D printer.













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This module describes the process and structure of work in Autodesk Revit software, using the example of the reconstruction of an industrial building in Chernivtsi.

The stages of project implementation using digital technologies are described, and a 3D model of the object under study is created and printed.







The current condition of the brewerv

Brief historical background

The first joint-stock brewery in Chernivtsi was built in 1869-1871.



It was founded by local entrepreneurs Heinrich Wagner, Markus Zucker, Isaac Rubinstein and architect Gregor.



- Die

in Czernowitz : BIERE :



Historical photographs of the brewery



Beer brands produced in Chernivtsi











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Nowadays, the factory is a closed and abandoned space. The decline of this industrial building due to a number of factors has turned it into a depressed and non-functional territory.

However, this building has historical and cultural value for the region.

The factory's territory is located at the intersection of all major transport routes - the main arteries of Chernivtsi, which connect the site with almost all districts of the city and border the historic part of the city.



Situation scheme. Location of the project site in Chernivtsi

Vokzal'na Street (formerly Gagarina Street), where the factory is located, has a large daily traffic of cars and public transport from/to the historic city centre.

There is a railway station, a bus station and public transport stops close to the research area. This indicates accessibility to the future public facility.



Situation scheme. Location of the project site in Chernivtsi











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Physical and architectural models of reconstruction

of an industrial building in Chernivtsi

The task in organising the reconstruction of this area was to create an environment that would combine and revive the surrounding existing buildings and be perceived as a single whole.

The main idea was to fit the new building into the silhouette of the old industrial neighbourhood, the chimney and the factory facade, which are present on the site.

The complex itself consists of two blocks, one historical and one modern, which contain two halls, united by a pavilion, which is a system of ramps.

For example, for large-scale conferences, presentations, and exhibitions, it is also a place for walking, with open areas with landscaping. There is also a brewery museum, which stretches over 5-floors and leads to an observation deck where visitors can enjoy the views of the city of Chernivtsi.



Reconstruction project

In general, the reconstruction of a brewery is a more environmentally friendly option for redeveloping territories than demolition and construction.

It helps to reduce the cost of reconstructing an industrial building, create the status of a cultural monument, attract additional investment in the project due to the "historical" object included in the complex, and preserve urban planning dominants.

Currently, this industrial area, which has a good location near the city centre, should be allocated for commercial facilities, office centres, residential real estate and the development of the necessary infrastructure.



Final rendering

Therefore, the reconstruction of the brewery's industrial building, and the factory's territory as a whole, in Chernivtsi, which was previously closed, is becoming a new place of attraction for the city's residents and opens up new opportunities for the reorganisation of the urban historical environment near the railway station.











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Module course 3 in IO2 - AMAZE e-toolkit manual for digital learning in producing complex design industrial parts Drawings in the Revit software package using BIM technologies





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Hidden line style



Realistic style





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Completed sheet





Printed 3D model









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Module course 3. Drawings in the Revit software package using BIM technologies

Task: Create an architectural design of a building.

Note. It is possible to use ideas and sketches for designing a building from already finished student works.

These guidelines are aimed at learning Autodesk Revit at the level that allows to build a 3D model of a building and create basic architectural and construction drawings – plans, facades, sections.

These guidelines can be used as supplementary documentation for practical training on following topics:

- 1. Description of the programme. Installation, interface, methods of work.
- 2. Setting up plan levels. Creating a grid of axes.
- 3. Description of walls, their characteristics.
- 4. Description of windows and doors, their properties. Create and configure types/styles.
- 5. Description of stairs and handrails, their properties. Custom shapes.
- 6. Description of floors and roofs. Building and editing.
- 7. Create a facade and section, flat and three-dimensional. Setting up the perspective view of the camera.
- 8. Visualisation styles, materials and light sources.
- 9. Create and design Sheets. Transfer of Views (plans, facades, sections, 3D views) to sheets.
- 10. Create and configure text types and sizes.









The project should provide for:

- development of the space-planning structure of a residential building taking into account a certain composition of premises, the author's concept, considerations of convenience, regulatory requirements for insolation, lighting, fire evacuation;
- selection of an appropriate structural system to ensure the stability of the building, reduce material consumption and heat loss during its operation;
- placement of the main and auxiliary buildings and organisation of the territory, taking into account the current planning and regulatory requirements.



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THANK YOU ! DZIĘKUJĘ ! MULŢUMESC ! GRACIAS ! ДЯКУЮ !











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