# WELDED STRUCTURE DESIGN

# COURSE SYLLABUS ABSTRACT

**Specialty** 6-05-0714-03 Engineering and technical design and production of materials and products from them
**Profiling** Equipment and technology of welding production

| | **Study mode** | | |
|---|---|---|---|
| | **full-time** | **part-time** | **part-time (shortened program)** |
| Year | 3, 4 | 4 | 3, 4 |
| Semester | 6, 7 | 7, 8 | 6, 7 |
| Lectures, hours | 68 | 14 | 14 |
| Practical classes (seminars), hours | 68 | 14 | 14 |
| Course paper, semester | 7 | 8 | 7 |
| Exam, semester | 7 | 8 | 7 |
| Pass/fail, semester | 6 | 7 | 6 |
| Contact hours | 136 | 28 | 28 |
| Independent study, hours | 116 | 224 | 224 |
| Total course duration in hours / credit units | 252/7 | | |

**1. Course outline**

The purpose of the discipline is to develop students' ideas, knowledge and skills in determining the working conditions of various welded metal structures, modern methods of calculation and rational design, as well as ways to increase the efficiency of the production of structures, taking into account the requirements to reduce material and resource consumption.

**2. Course learning outcomes**

Upon completion of the course, students will be expected to

**know:**

– the main types and characteristics of materials used in the manufacture of welded metal structures;
– basic principles of construction of welded metal structures;
– the order of formation of a new production facility and the specific weight of structures in it;
– the procedure for identifying workloads affecting the product as a whole and the welded elements of the product.

**be able to:**

– choose materials based on the requirements for welded metal structures;
– apply standard calculations in the design;
– evaluate the manufacturability of the designed structure and the possibility of its manufacture in real production conditions.

**to possess a skill:**

– carry out standard calculations used at the design stage of welded metal structures;
– to form an optimal technological process that minimizes welding deformations and stresses;
– design choice of welding method depending on the nature of production.

**3. Competencies**

Master the methods of designing and calculating welding and assembly equipment using modern computer-aided design systems.

**4. Requirements and forms of midcourse evaluation and summative assessment**

The current certification is presented in the form of test tasks for control works, a list of questions for the protection of practical classes. Intermediate certification is the defense of a course project, pass/fail test and exam. The form of the intermediate assessment is oral/written.