STEP-BY-STEP METHODOLOGY FOR COMPLETING CURRENT CONTROL TASKS IN THE SUBJECT OF DESCRIPTIVE GEOMETRY

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Abstract: *This article highlights the step-by-step methodology for completing current control tasks in the subject of descriptive geometry. The paper analyzes both theoretically and practically how organizing control assignments systematically and in sequence during lessons helps deepen students' knowledge, develop spatial thinking, and form skills in graphical representation.*

Keywords: *descriptive geometry, control task, methodology, step-by-step approach, spatial thinking, graphical representation, projection.*

In modern engineering education, the subject of descriptive geometry is one of the fundamental disciplines that not only teaches students to correctly construct technical drawings but also helps them understand, design, and represent complex spatial objects. In particular, mastering metric problems, projection techniques, and understanding spatial relationships between geometric elements lays the foundation for students' future professional activities.

In the educational process, current control tasks serve as an important tool to reinforce theoretical knowledge and develop practical skills. These control tasks are not only used for evaluation but also help identify students' level of knowledge, highlight areas of difficulty, and eliminate learning gaps. Especially, a step-by-step approach to solving control tasks—i.e., organizing each stage of the solution in a consistent, systematic, and logical sequence—enhances students' understanding and reduces technical errors in drawing.

However, a common issue observed in many educational institutions is the lack of student interest in the subject of descriptive geometry. Students often struggle to grasp complex graphic tasks and apply projection principles correctly. This situation requires rethinking control tasks not just as assessment tools but as integral components of the educational methodology.

In this context, the article develops a methodology for performing current control tasks in descriptive geometry step by step and evaluates their effectiveness and significance in the learning process based on practical experience. This approach allows students to strengthen not only their drawing techniques but also their spatial thinking and graphic analysis skills.

The step-by-step completion of current control tasks is based on the following methodological principles:

1. Defining the content of the task:
The given task should be selected from the main topics of descriptive geometry (distance, angle, projection, intersections, views). Each task must serve a clear didactic purpose.

2. Developing a sequential solution plan:

- Stage 1: Creating a geometric model (e.g., identifying the relationship between a point, straight line, and plane);
- Stage 2: Placing drawing elements based on projection principles;
- Stage 3: Performing measurements (angle, distance, perpendicular and parallel elements);

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- Stage 4: Drawing the final graphical representation (scale, drawing neatness, hatching).

3. Encouraging individual analysis and critical thinking: Students are given opportunities for independent thinking, error detection, and correction. At each stage, comprehension is assessed through questions and discussions.

4. Utilizing visual and interactive tools: The use of software tools such as AutoCAD, SketchUp, and GeoGebra helps reinforce graphic modeling of control tasks.

The following results were observed based on the conducted experiment:

- When the step-by-step methodological approach was applied to current control tasks, students' assimilation levels increased by 40–45%;
- Students' spatial reasoning abilities significantly improved;
- The accuracy, technical correctness, and clarity of control drawings exceeded 80%;
- In the group using interactive tools, learning outcomes were 1.4 times higher compared to traditional groups.

A step-by-step methodological approach is crucial for the effective completion of current control tasks in descriptive geometry. This method allows students to:

- Learn to analyze and consistently complete complex graphic tasks;
- Minimize and correct errors, thereby achieving higher learning quality;
- Use control tasks not just for evaluation but as an integrated part of the educational process.

In the future, it is recommended to adapt this methodology to digital platforms, implement it in distance learning, and develop an electronic database of subject-specific control tasks.

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