THE USE OF DIFFERENTIAL EDUCATION IN THE ORGANIZATION OF PRACTICAL TRAINING IN PHYSICS

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Abstract. *In this article, the principles of development of professional competences of future engineers of higher educational institutions by developing project models of training based on a differential approach in practical training in physics are presented. During the practical lessons, the methodical model of building non-linear learning trajectories is explained and systematically described.*

Key words: *paradigm, didactic principle, synergetic principle, methodology, concept, non-linear educational trajectories, differentiated education, innovative education.*

Self-organization and self-development of future engineers is carried out throughout the physics course.

Self-organization is one of the key concepts of synergy, and we know the synergistic approach to building non-linear learning trajectories, in which differential teaching in practical and laboratory classes with lecture materials and the implementation of educational project activities will form the professional competencies of future engineers.

Methodical model of construction of non-linear learning trajectories during practical training defines a number of competencies that are formed within the framework of a differentiated model. The process of competence formation can be organized in both active and interactive forms of cognitive activity of undergraduate students, i.e. for the active form it is:

- ✓ ability to self-organize and self-educate;
- ✓ written communication skills in interpersonal cooperation.
- ✓ The organization of practical training in an interactive form is aimed at the formation of the following general cultural competences:
- ✓ the ability to communicate verbally to solve problems of mutual cooperation;
- ✓ ability to work in a team.

In actively structured classrooms, students who choose higher levels of difficulty may choose to solve physics problems individually, often before recess. Students who choose the basic level of difficulty analyze the solution of the problems with the help of the teacher or stronger students.

In practical training, educational activities are carried out in small groups in an interactive form, where problem solving is carried out together. At the same time, more prepared students teach less prepared ones, since all participants in a small group receive the same grade, and stronger students, interested in higher scores for teamwork, are forced to catch up with weaker ones.

Current supervision of both forms of organization of practical training is carried out using multi-level didactic materials, the level of complexity of which is independently selected by undergraduates based on individual characteristics. Students may move from one level to another based on their training level or for other reasons.

Simultaneous presentation of tasks of all levels of complexity allows students to master the learning material at any convenient level. Thus, the individual characteristics of students are taken into account, which makes it possible to realize the nonlinearity of educational trajectories within the framework of physics.

The methodical model of building nonlinear learning trajectories during practical training is presented in Fig. 1.

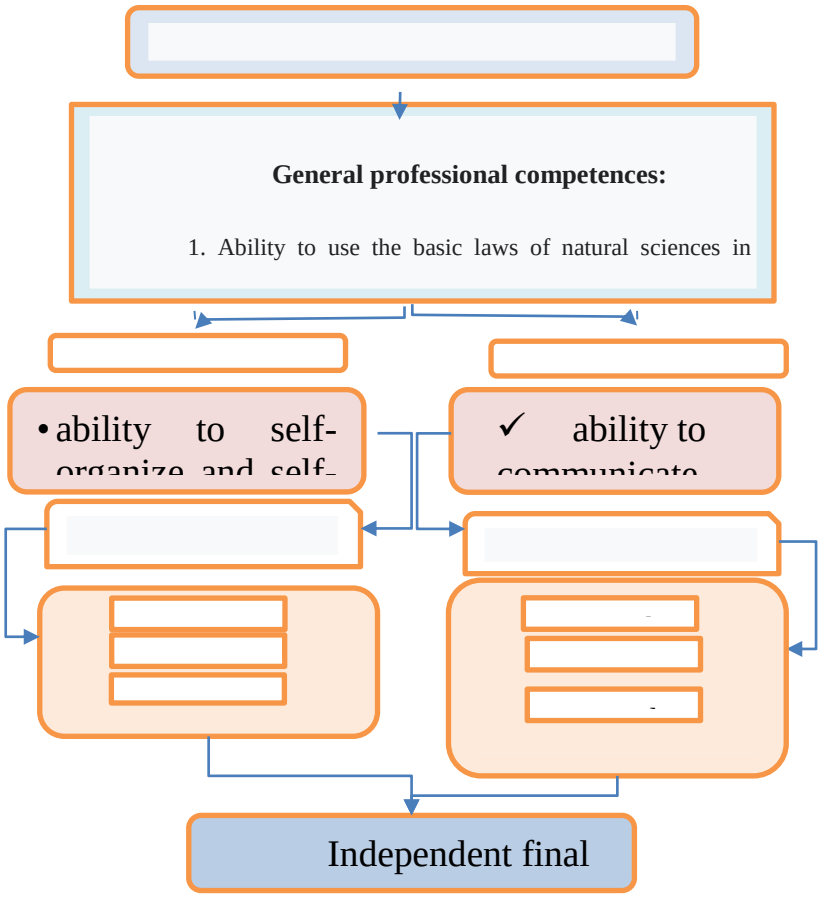

Figure 1. A methodical model of building a non-linear learning trajectory in practical training.

The analysis of Fig. 1 shows that the nonlinearity of the educational process during the practical sessions is realized both when working with tasks from physics (learning material) and when performing current control tasks - bifurcation points are created everywhere, providing an opportunity to freely choose the level of complexity based on the individual characteristics of students, that is, a non-linear educational trajectory of teaching students is built.

The purpose of the recommended methodological system is to take into account the individual abilities of students based on the formation of general cultural and general

professional competencies, deep and solid mastering of the general physics course, and the construction of non-linear educational trajectories.

REFERENCES:

1. 1. Imomov Obidjon Elamonovich. A methodological model of building non-linear learning trajectories during practical lessons. American Journal of Pedagogical and Educational Research.ISSN (E): 2832-9791. Volume 8, |Jan., 2023(https://americanjournal.org/index.php/ajper/article/view/349)

2. Obidjon Elamonovich Imomov. (2021). METHODOLOGICAL MODEL OF DIFFERENTIAL EDUCATION IN TEACHING PHYSICS. World Bulletin of Management and Law, 5, 31-35. Retrieved from https://www.scholarexpress.net/index.php/wbml/article/view/360

3. Турсунов К.Ш., Эшмирзаева М.А., Имомов О.Э. Роль метода аналогии при формировании личностно-ориентированного подхода в преподавании физики в вузах. Проблемы науки Научно-методический журнал. № 4 (52), 2020.-85-88 стр.

4. Эшмирзаева М.А.,Имомов О.Э., Шаминова С. К., Компетентностный подход при подготовке будущих специалистов по физики в технических Вузах. Образование и наука в России и за рубежом, 2020, №10 (Vol.74).-98-101стр.

5. Imomov Obidjon Elamonovich, (2021). Training For Future Engineers In Physics On The Differential Approach To Laboratory Activities. The American Journal of Social Science and Education Innovations, 3(02), 396-399.

6. Obidjon Elamonovich Imomov. Methodological model of differential education in teaching physics. World Bulletin of Management and Law (WBML).Available Online at: https://www.scholarexpress.net.Volume-5, December-2021.ISSN: 2749-3601