

Forms and Methods of Teaching in Higher Education Institutions

Basic forms of teaching:

Lecture, seminar, laboratory training and practical training;
Field study;
Course paper/project;
Bachelor's, Master's, and Doctoral Theses;
Consultation.

The lecture is a creative process in which both a lecturer and a student take part. The basic aim of the lecture is to help students to comprehend the major notions of the subject taught which implies creative and active perception of the material. In addition, attention should be paid to basic concepts, definitions, designations, assumptions. A critical analysis of main issues, facts and ideas is necessary. The lecture should provide for scientific and logically consistent cognition of basic concepts without going into unnecessary details. Therefore, it should be logically complete. Moreover, facts, examples, schemes, drafts, experiments, and other visual aids should help explain the idea conveyed by the lecture.

The lecture should ensure the correct analysis of the scientific dialectical process and should be based on the ability of the students to perceive and understand main scientific problems.

The material studied at the lecture makes for the formation of a whole system of knowledge by means of students' **independent work**. The students should get interested in books and other information sources and be stimulated to study independently which is the basis for independent thinking, analyzing and conclusion-making.

Considering the main purpose of the lecture, only experienced professors should be allowed to deliver them since their theoretical knowledge, practical experience and pedagogical skills guarantees delivering high-quality lectures. While working at the methodological issues the lecturer should pay special attention to the consistency of the material taught, the style of the lecture and the contact with the audience. The lecturer should make ample use of visual aids so that students take an active part in it.

The theoretical material given at the lecture is better perceived by means of seminars, laboratory training and hands-on training.

The aim of the **seminar** is to enable students to deepen their knowledge of the themes studied at the lecture. Under the supervision of a professor or an experienced teacher a student or a group of students find and perceive additional information, prepare presentations, write essays, etc. At the seminar reports are presented and discussed, conclusions are made. The supervisor of the seminar coordinates these processes.

The laboratory training is more demonstrable and helps students to better perceive processes and phenomena. In a laboratory a student learns how to conduct experiments. During the laboratory training a student learns how to handle, regulate and fix the laboratory equipment. The skills acquired at experimental-training laboratories help to better comprehend the theoretical material studied at the lecture.

The aim of **practical training** is the gradual learning of the theoretical material by means of solving concrete problems; this is the basis of developing skills for its independent use. The teacher should pay special attention to problem-solving methods, making drafts, sketches and schemes, using appropriate techniques for calculations, etc.

Field study helps students to deepen and consolidate the acquired knowledge. It develops the skills of implementing their theoretical knowledge in practice, using the methods characteristic of the subject in question for problem-solving.

Working on a **course paper/project** is a creative process. Every new construction, machine, instrument, automatic device, etc. are designed according to a project. The projecting process comprises both theory and practice. During the period of training a student makes course projects by applying graphical data; the projects are, in fact, the first results of their independent work though they are performed under the teacher's supervision.

Bachelor's, Master's, and Doctoral Thesis is the final stage of a separate step of the teaching process at a higher educational institution. Its aim is to systematize the theoretical and practical knowledge which students have received as well as to reach the substantiated solution of concrete scientific, technical, economic or industrial problems. The thesis should reveal the level of mastering research methods and conducting experiments connected to the questions posed as well as the student's readiness to work independently in the sphere of his future profession. An experienced teacher supervises the fulfillment of the project.

During **consultations** a teacher should help the students to acquire independent working skills, to learn how to use academic books and other sources properly and to solve the problems that arise during their independent work.

Teaching and learning methods.

In the process of learning it is impossible to learn any concrete issue by using only one method. The teacher has to use different methods during the teaching process; also a combination of methods is frequently used. In the process of teaching methods often supplement one other.

The most widely spread teaching and learning methods as well as their definitions are given below. A teacher should choose the proper method according to the concrete aim and problem.

1. **Discussion/debates.** This is the most widely spread method of interactive teaching. A discussion process greatly increases the quality of students' involvement and their activity. A discussion may turn into an argument and this process is not merely confined to the questions posed by the teacher. It develops students' skills of reasoning and substantiating their own ideas.
2. **Cooperative teaching** is a teaching strategy in the process of which each member of a group not only has to learn the subject himself, but also to help his fellow-student to learn it better. Each member of the group works at the problem until all of them master the issue.
3. **Collaborative work;** using this method implies dividing students into separate groups and giving each group its own task. The group members work at their issues individually and at the same time share their opinions with the rest of the group. According to the problem raised, it is possible to shift the functions among the group members in this process. This strategy ensures the students' maximum involvement in the learning process.
4. **Problem-based learning (PBL)** is a method which uses a concrete problem as the initial stage both for acquiring new knowledge and integration process.
5. **Heuristic method** is based on the step-by-step solving of a given problem. It is realized by means of independent fixing of the facts in the teaching process and determining the ties among them.
6. **Case study** – the teacher discusses concrete cases together with the students and they study the issue thoroughly. E.g., in the sphere of engineering safety it can be a discussion of a concrete accident or catastrophe, or in political science it can be a study of a concrete, e.g., Karabakh problem (Armenian-Azeri conflict).

7. **Brain storming** – this method implies forming and presenting as many radically different ideas and opinions on a given topic as possible. This method sets conditions for developing a creative approach towards a problem. This method is effective in a large group of students and consists of the following stages:
- using a creative approach for defining a problem/issue;
 - for a certain period of time listing (mainly on the blackboard) students' ideas on the problem without any criticism;
 - determining the evaluation criteria for stating the correspondence of the idea to the aim of the research;
 - evaluating the chosen ideas according to the previously determined criteria;
 - selecting the ideas that most of all correspond to the given issue by applying the method of exclusion;
 - revealing the best idea for solving the given problem.
8. **Role-playing games and simulations** – games played according to a previously prepared scenario enable students to estimate the problem from different standpoints. They help students to form alternative points of view. Such games as well as discussions help students to develop skills of independently expressing their own ideas and participating in discussions.
9. **Demonstration method** implies presenting information with the help of visual aids. It is quite effective in reaching the required result. It is frequently advisable to present the material simultaneously through audio and visual means. The material can be presented both by a teacher and a student. This method helps us to make different steps of perceiving the teaching material more obvious, specify what steps the students are supposed to take independently; at the same time this strategy visually shows the essence of an issue/problem. Demonstration can be very simple.
10. **Inductive method** determines such a form of conveying any kind of knowledge when in the process of learning the train of thought is oriented from facts towards generalization, i.e. while presenting the material the process goes from concrete to general.
11. **Deductive method** determines such a form of conveying any kind of knowledge which presents a logical process of discovering new knowledge on the basis of general knowledge, i.e. the process goes from general to concrete.
12. **Analytical method** helps us to divide the whole teaching material into constituent parts. In this way the detailed interpretation of separate issues within the given complex problem is simplified.
13. **Synthetic method** implies forming one issue from several separate ones. This method helps students to develop the ability of seeing the problem as a whole.
14. **Verbal or oral method** comprises a lecture, narration, conversation, etc. During the process the teacher conveys, explains the material verbally, and students perceive and learn it by comprehending and memorizing.
15. **Written method** implies the following forms of activity: copying, taking notes, composing theses, writing essays, etc.
16. **Laboratory method** implies the following forms of activity: conducting experiments, showing video materials, etc.
17. **Practical methods** unite all the teaching forms that stimulate developing practical skills in students. In this case a student independently performs different kinds of activity on the basis of the knowledge acquired e.g. field study, teaching practice, field work, etc.
18. **Explanatory method** is based on discussing a given issue. In the process of explaining the material the teacher brings concrete examples the detailed analysis of which is made in the framework of the given topic.
19. **Activity-oriented teaching** implies teachers' and students' active involvement in the teaching process, when practical interpretation of the theoretical material takes place.
20. **Designing and presenting a project.** While designing a project a student applies the knowledge and skills he has acquired for solving a problem. Teaching by means of designing projects increases students' motivation and responsibility. Working on a project involves the stages of planning, research, practical activity and presenting the results according to the chosen issue. The project is considered to be completed if its results are presented clearly, convincingly, and correctly. It can be carried out individually, in pairs or in groups; also,

within the framework of one or several subjects (integration of subjects); on completion the project is presented to a large audience.

21. **E-learning** implies using the Internet and multi-media means in the process of teaching. It comprises all the components of the teaching process (aims, content, methods, means, etc.); the realization of these components takes place through specific means. There are three types of e-learning:
- Full-time tuition; when the teaching process takes place during teachers' and students' contact hours, and conveying the teaching material occurs through an e-course;
 - Distant learning implies conducting the teaching process in the absence of a professor. The teaching course is conducted distantly; in the e-format.
 - Hybrid (full-time/distant) – teaching is mainly conducted distantly but a certain part of it is conducted during contact hours.