

Approved
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Coordinated*

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University consortium

Problem / Project-Based Learning

(PBL)

CURRICULUM

CHISINAU, 2018

I. PRELIMINARIES

The continuing professional training module *Problem / project-based learning* is addressed to teaching staff in higher education and aims to develop the competences needed to apply the philosophy and strategy of PBL to the professional training of students. Changes in the socio-economic environment also require dramatic changes in the professional training provided via higher education. The traditional, academic type paradigm succumbs to the challenges, but the novelty elements hardly penetrate university traditions. One of the reasons for the reluctance to change lies also in the way of teaching the didactic competences of the university teaching staff. The lack of the tradition of having a psycho-pedagogical training, the formation of teaching-evaluation competences by taking over the example from own pedagogues, has functioned in a more additional context. At the moment, when there is an emphasis on the prospective character of the students' professional training, when the training of new specialists must go beyond the existing realm of the economy and new competences to propel innovation, „reading the lessons from the desk” generates gaps in the qualifications system. Teaching technologies are advancing along with other technologies. The new achievements in the educational field, the diversity of approaches in the process of education, give the university teaching staff the opportunity to choose and adapt judiciously the formative approaches that best correspond to the training in a concrete professional field. PBL is also one of these approaches, which being applied for nearly a century, has proved its efficiency in the university environment, becoming, in recent decades, a true philosophy of the existence of some universities in the world. The essence of this model of educational intervention lies in the experiential learning, based on the active involvement of the student and the interaction between the university and the labor market. Such an approach favors the development of professional competences (those related to the knowledge of the professional field and specific technologies), as well as the positive attitude towards professional activity and the formation of social competences (teamwork, communication, interrelation, etc.).

The module *Problem / project-based learning* is addressed to all teaching staff, regardless of professional experience. The six constituent elements tend to provide the formation of a system of competences to ensure the implementation of the PBL strategy. The successful completion of the module allows for the accumulation of 10 ECTS. The configuration of the module allows the gradual formation of competences through the staggered accumulation of study credits.

Training is the educational form because it is consistent with the mission of this module. It would be paradoxical to provide theoretical courses if the aim is to teach the teaching staff to work interactively with the students. A particular role is played by individual work, through which, according to the tasks stated in the current curriculum, the trainees will practice and adapt the acquired knowledge to the specifics of the professional field of activity.

II. ADMINISTRATION OF THE MODULE

Name	Semester/ month	Total hours:				Assessment	
		Total	including				
			C	S	P		IW
Problem / project-based learning	-	300	76			224	Viva voce

III. CONTENT UNITS AND INDICATIVE DISTRIBUTIONS OF HOURS

Nr.	Content units	Hours	
		Training	Individual work
1.	The need to change educational strategies in higher education. PBL as an opportunity for change	4	12
2.	PBL: approaches and models	8	26
3.	Development of the university curriculum from PBL perspective	24	66
4.	Teaching strategies from PBL perspective	18	42
5.	Identification and formulation of problems	10	30
6.	Evaluation of academic results in the light of PBL	12	48
Total		76	224

IV. COMPETENCES

1. Elaboration of curricular documents / curriculum for higher education, based on PBL methodology, by adjusting it to the normative framework in force;
2. Problem formulation from the perspective of PBL application based on practical / socio-economic activity;
3. Application of active / interactive methods in the context of PBL implementation;
4. Evaluation of academic results in the context of the PBL strategy.

V. GENERAL OBJECTIVES

At the level of knowledge:

- To identify the theoretical and methodological bases of problem-based learning;
- To define the key concepts of problem-based learning;
- To describe various models for achieving the PBL strategy.

At the level of understanding and application:

- To explain the particularities of problem-based learning;
- To analyze the real possibilities of applying the PBL in the provision of the professional training program;
- To establish a functional relationship between the outcomes of the program, the design of the educational process and the form of evaluation of the academic results.

At the level of integration:

- To justify the need to change the strategy of the professional training;
- To assess the role of PBL in modernizing the strategy of the professional training;
- To identify / formulate relevant problems in the labor market sector to achieve the PBL strategy;
- To develop the course curriculum through the PBL strategy;
- To propose ways of optimizing and streamlining the didactic process under the conditions of the functioning of the higher education system in the Republic of Moldova;

- To develop strategies for achieving the educational partnership between the university and the labor market;
- To promote constructive feedback in the process of supervising under problem-based learning.

VI. CONTENTS AND DIDACTIC STRATEGIES

1. The need to change educational strategies in higher education. PBL as an opportunity for change

Reference objectives and content	
Reference objectives	Content units
At the end of the course the trainees will be able to: <ul style="list-style-type: none"> - describes the essence of PBL; - identify the PBL theoretical bases / references; - analyze the possibilities of applying the PBL, depending on the specific field of professional training; - appreciate the formative possibilities of PBL in the context of competences-based training; - argue for the need to change the traditional training strategy in the university through the PBL strategy. 	<ul style="list-style-type: none"> - The paradigm of professional training in higher education; - Traditional training strategies in universities; - Characteristics of the new educational concept of higher education (Bologna process); - Diversity of approaches and ways of achieving the educational approach; - Background of PBL appearance. Evolution of the concept; - The essence of PBL philosophy and strategy.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	Training	4	<ul style="list-style-type: none"> • Power Point presentation; • Presentation of graphical representations; • Debates.
2	Individual activity	12	<ul style="list-style-type: none"> • Developing an argumentation speech of 5-10 min. in which the essence of PBL and the benefits for the professional training in higher education are presented.
3	Assessment		Current formative assessment: <ul style="list-style-type: none"> • Describe the essence of the PBL strategy; • Compare traditional strategy and PBL strategy; • Make some arguments in favor of PBL.

2. PBL: approaches and models

Reference objectives and content	
Reference objectives	Content units
At the end of the course the trainees will be able to: <ul style="list-style-type: none"> - describe various models of PBL application; - compare various models of PBL application; - analyze the possibilities of university autonomy in adopting the PBL philosophy / strategy; - identify patterns / elements of models that can be harmoniously integrated into the 	<ul style="list-style-type: none"> • Ways of PBL application: <ul style="list-style-type: none"> - The diversity of the PBL strategy configurations; - The application of PBL in universities in Denmark. University autonomy in the configuration of the design of the study process; - The application of PBL in universities in Germany;

local academic environment.	<ul style="list-style-type: none"> – The application of PBL in UK universities; – Good practices from universities around the world.
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Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	Training	8	<ul style="list-style-type: none"> • PPT presentation; • Graphic representations; • Clustering; • Explanation.
2	Individual activity	26	<ul style="list-style-type: none"> • Presentation of a PBL application model.
3	Assessment		<p>Current formative assessment:</p> <ul style="list-style-type: none"> • Describe various models of PBL application; • Justify the possibility and necessity of the diversity of the PBL design.

3. Development of the university curriculum from PBL perspective

Reference objectives and content	
Reference objectives	Content units
<p>At the end of the course the trainees will be able to:</p> <ul style="list-style-type: none"> – define the concept of learning outcome; – identify the normative documents, which regulate the professional training; – determine the elements of the structure of competence; – analyze the types of learning outcomes based on various criteria; – establish the relationship between the learning outcomes, content and ways of achieving the professional training process based on the PBL methodology; – argue the possibilities and limits of the teacher's autonomy in achieving the learning outcomes, based on the PBL methodology; – formulate different types of learning outcomes based on methodological recommendations / rigors. 	<p>Learning outcomes</p> <ul style="list-style-type: none"> • Learning outcomes in the context of PBL strategy: <ul style="list-style-type: none"> – the learning outcomes: general approaches; – the types of learning outcomes according to various criteria; – the relationship between the learning outcomes - the content - the training methods. • Competences as an outcome of the training process: <ul style="list-style-type: none"> – the competence structure; – types of competences; – competences in curricular documents / normative framework; – the teacher's autonomy in achieving the competences. • Formulation of learning outcomes: <ul style="list-style-type: none"> – the competence structure; – rigors / ways of formulating objectives. • Ways of formulating tasks: <ul style="list-style-type: none"> – the approach of the correlation of competences with the general and specific learning outcomes; – the real labor market problems and the possibilities of the PBL strategy.
<ul style="list-style-type: none"> – identify the provisions of the normative and regulatory documents, regarding the structure and content of the study plan; – determine the structure of the academic path based on the institution's PBL philosophy; – establish, dynamically, the share of PBL in the 	<p>Design of the study program</p> <ul style="list-style-type: none"> • General concepts regarding the elaboration of the study plan: <ul style="list-style-type: none"> – normative recommendations; – study plan developed on the basis of PBL methodology: diversity of models;

<p>study plan;</p> <ul style="list-style-type: none"> – establish the structure of the semester in relation to the PBL methodology; – argue the diversity of the configuration variants of the study plan structure based on the PBL methodology, according to the philosophy of the institution; – assess the role and importance of curriculum management centered on PBL methodology at institution, faculty, and department level. 	<ul style="list-style-type: none"> – preliminaries / explanatory note; – the structure of the academic path based on the PBL philosophy of the institution; – progress of the PBL strategy at the study program level. <ul style="list-style-type: none"> • The design of the study process at the semester level: <ul style="list-style-type: none"> – the structure of the semester based on the PBL strategy; – criteria / principles of structuring; types of configurations in PBL application; – the institution’s strategy regarding didactic workload in the application of PBL; – the progress of the PBL strategy; – the PBL didactic process management: responsibilities and coordination at institution, faculty, and department level.
<ul style="list-style-type: none"> – determine the structure of the curriculum at the discipline, based on the rigors and methodological approaches of the institution; – identify the possibilities of changing the curriculum based on the PBL methodology; – correlate the forms of organization of the study process based on the PBL methodology; – establish ways to conceptualize and deliver content in the context of PBL design; – elaborate the professional training path according to the philosophy of the institution, by correlating the learning outcomes, the process, the product. 	<ul style="list-style-type: none"> • The design of the discipline / module: <ul style="list-style-type: none"> – the structure of the curriculum; management of the discipline / module: criteria for correlating the learning outcomes - the time - the form of organizing the didactic process (theoretical course, seminar, project monitoring, individual work); – ways to conceptualize / select and deliver content; – the final product: ways of correlating with the learning outcomes.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. de ore	Strategies and dominant teaching activities
1	Training	24	<ul style="list-style-type: none"> • Interactive methods; • Presentation of posters; • Debates.
2	Individual activity	66	<ul style="list-style-type: none"> • Formulation of the learning outcomes; • Adaptation of the study plan to the PBL strategy; • Development of the curriculum for the discipline.
3	Assessment		<p>Current formative assessment:</p> <ul style="list-style-type: none"> • Identify the types of professional competences to be formed during the academic year; • Determine the structure of the semester by applying PBL; • Argue the design of the study discipline developed based on the PBL.

4. Teaching strategies from PBL perspective

Reference objectives and content	
Reference objectives	Content units
<p>At the end of the course the trainees will be able to:</p> <ul style="list-style-type: none"> – describe the stages of applying the various active-interactive methods; – describe the principles of organizing group work; – explain how to create work teams and role-sharing; – analyze the possibilities of using ICT in PBL; – apply various ICTs to achieve the PBL strategy; – select the methods according to the problems addressed; – integrate a case study into the theoretical activities; – develop teaching-learning strategies depending on the specifics of the problem; – create favorable contexts for the involvement of students in the realization of didactic strategies; – propose ways to resolve team conflicts. 	<ul style="list-style-type: none"> • Active-interactive methods: <ul style="list-style-type: none"> – The need to apply active-interactive methods in professional training; – The diversity of active-interactive methods. Classification; – The relevance of use for training in various fields; – Possibilities to integrate interactive methods into theoretical activities; – Importance of simulations, role plays; case studies for competences training; – Interactive teaching strategies in seminars and laboratories; – Integration of advanced training (Flipped classroom) in teaching. • Individual and group work in the context of PBL: <ul style="list-style-type: none"> – Forms of teaching-learning activity; – Advantages / disadvantages of teamwork; – Criteria for team formation; – Methods to prevent crisis and conflict in the team; – Formulation of individual and group work tasks; – The division of roles; – Monitoring the achievement of individual work; – Supervising individual work achievement. • ICT tools in PBL: <ul style="list-style-type: none"> – MOODLE; – Office 365; – Adobe connect; – SMART board; – Kahoot; – Social networks.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	Training	18	<ul style="list-style-type: none"> • Practical activities; • Group work; • Presentation of the results.
2	Individual activity	42	<ul style="list-style-type: none"> • Identification of typical cases of professional activity / professional field, relevant to the training of students' professional competences; • Elaboration of the didactic strategy for an activity.
3	Assessment		Current formative assessment:

		<ul style="list-style-type: none"> • Identify methods relevant for the professional training (in the specific field); • Argue the benefits of teamwork; • Formulate criteria to set up the working group; • Suggest solutions to overcome the teamwork crisis / difficulties.
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5. Identification and formulation of problems

Reference objectives and content	
Reference objectives	Content units
<p>At the end of the course the trainees will be able to:</p> <ul style="list-style-type: none"> – define the concept / essence of the problem in the PBL context; – describe the mission of the semester coordinator; – determine the ways of involving students in identifying and solving problems individually and in groups; – report on the typology of PBL projects and their distinctive features; – identify the characteristics of independent learning patterns and the specificity of different types of learning in PBL; – analyze the specificity of supervising in PBL; – establish relations with stakeholders to create opportunities for dialogue between the university (teachers, students, supervisors, etc.) and businesses, LPAs, public institutions, NGOs; – use PBL-based learning tools and resources; – design learning strategies in the context of PBL; – elaborate the methodology for identifying, analyzing and solving the PBL problem / product; – exploit the possibilities of the partnership with the labor market for problem-based teaching. 	<ul style="list-style-type: none"> • Specificity of PBL problem formulation: <ul style="list-style-type: none"> – Trainee profile; – Problem profile; – Presentation of the problem; – Classification of problems; – The problem in the context of PBL sample Mission. • Typology of PBL projects: <ul style="list-style-type: none"> – Semestr project (with autonomous status set in the study plan); – Mini-project (produced within a course); – The thesis / the annual project; – Internship. • Typology of PBL projects after Kolmos: <ul style="list-style-type: none"> – Assignment project / Predefined theme project; – Subject project; – Problem project. • PBL supervision: <ul style="list-style-type: none"> – Supervision of students through mixed meeting processes (face-to-face and online); – Supervision by asking different types of questions. • Partnership with stakeholders: <ul style="list-style-type: none"> – The notion of stakeholder; – Partnership with stakeholders as an opportunity for dialogue between the university (teachers, students, supervisor, etc.) and businesses, local public institutions, NGOs etc. • The responsibilities of the semester coordinator: <ul style="list-style-type: none"> – The role of the semester coordinator in ensuring the implementation of the PBL; – Supervising the schedule and sessions of PBL; – Supervisor’s attendance and reporting forms regarding PBL sessions. • Methodology for identifying, analyzing, solving the PBL problem / product: <ul style="list-style-type: none"> Identifying problems according to the knowledge that needs to be gained: <ul style="list-style-type: none"> – Explanatory knowledge; – Descriptive knowledge;

	<ul style="list-style-type: none"> – Procedural knowledge; – Personal, normative knowledge. <p>Types of problems:</p> <ul style="list-style-type: none"> – Explanatory problems; – Problems based on looking for facts; – Strategic problems; – Problems related to moral dilemmas. <ul style="list-style-type: none"> • Reporting in groups and individually: <ul style="list-style-type: none"> – Delimiting tasks; – Way of proper reporting of the problem; – Team involvement: peculiarities; – Individual reporting; – Situations favorable to individual reporting; – Reflections on the work on the usefulness of the project, the involvement of the team members, the good and bad aspects of the activity; the vulnerabilities of the project and the working process; interaction with the mentor.
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Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. de ore	Strategies and dominant teaching activities
1	Training	10	<ul style="list-style-type: none"> • Practical activities; • Presentation of identified / formulated problems.
2	Individual activity	30	<ul style="list-style-type: none"> • Collaboration with employers. The joint formulation of problems; • Presentation of the problems formulated.
3	Assessment		<p>Current formative assessment:</p> <ul style="list-style-type: none"> • Describe various types of problems; • Describe various types of projects; • Identify problems / projects relevant to various learning situations; • Argue the importance / need for a problem / project to build professional competences.

6. Evaluation of academic results in the light of PBL

Reference objectives and content	
Reference objectives	Content units
<p>At the end of the course the trainees will be able to:</p> <ul style="list-style-type: none"> – describe types of assessment in problem-based learning; – analyze the specificity of assessment in problem-based learning; – adapt the assessment strategies to the PBL approach; – develop assessment tools within PBL; – apply competences assessment techniques in the context of PBL; 	<ul style="list-style-type: none"> • The essence of the assessment in problem-based learning (PBL): <ul style="list-style-type: none"> – Role and specificity of the assessment in problem-based learning. • Types of assessment: <ul style="list-style-type: none"> – initial (predictive); – formative (continuous); – summative (cumulative); – elements of the assessment: verification - measurement - decision. • Assessment methods in PBL:

<p>– propose ways of diminishing subjectivity in the assessment of activity and products made in the group.</p>	<ul style="list-style-type: none"> – Adaptation of strategies and assessment methods to the PBL specificity; – Periodicity of the assessment; – Elaboration of assessment criteria; – Assessment in monitoring the problem-solving process; – Use of various assessment tools: progress report, observation sheet / evaluation grid; – Current assessment of knowledge through SMART tests; – Self-assessment or cross-evaluation of solutions by the studenta; – Evaluation of the product / process by the teacher; – Documenting the working process through the attendance card, indicating the activities performed per person, photo / video documentation, useful links, bibliography, minutes; – Current and final reporting of the work through PowerPoint presentation, narrative report, produced product; – Evaluation by descriptors; – Difficulties in assessing group work.
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Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	Training	12	<ul style="list-style-type: none"> • PPT presentation; • Practical interactive activities.
2	Individual activity	48	<ul style="list-style-type: none"> • Elaboration of methodology and tools for assessing competences; • Elaboration of assessment strategy in the PBL context.
3	Assessment		<p>Current formative assessment:</p> <ul style="list-style-type: none"> • Analyze the assessment methods (various types) within PBL; • Elaborate criteria for assessing the process of solving the problem and the product, in correlation with the competence to be formed.

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