**SYLLABUS**

**Fall semester 2023-2024 academic year**

**Educational program** 7M05109 *Биотехнология****,***

***1 course (Autumn )***

*6B05103 Биотехнология, дневная, 3 Курс (Осенний)*

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| **ID** **and name** **of course** | **Independent work** **of the student****(IWS)** | **Number of credits** | **General****number** **of credits** | **Independent work** **of the student****under the guidance** **of a teacher (IWST)** |
| **Lectures (L)** | **Practical classes (PC)** | **Lab. classes (LC)** |
| Modern methods of biotechnology MMB 4312  | The number of IWS is 5.  | 3.6 | 3.6 |  |  | The number ofIWST is 6-7.This is a teacher's guide.for the preparation of the IWS.  |
| **ACADEMIC INFORMATION ABOUT THE COURSE** |
| **Learning Format** | **Cycle,****component** | **Lecture** **types** | **Types** **of practical classes** | **Form and platform final control** |
| *Choose**Offline/online/**hybrid* | Selectable Component  | Offline  | Offline | Univer standart  |
| **Lecturer - (s)** | Kenzhebayeva Saule Sagindykovna  |
| **e-mail :** | Saule.Kenzhabaeva@kaznu.edu.kz |
| **Phone :** |  |
| **Assistant - (s)** |  |
| **e-mail :** |  |
| **Phone :** |  |
| **ACADEMIC COURSE PRESENTATION**. |
| **Purpose****of the course** | **Expected Learning Outcomes (LO) \***  | **Indicators of LO achievement (ID)** |
| To acquaint students with the features of physiological basis of plants productivity and key physiological processes affecting crop plants productivity, to show their relationship with environmental conditions. | * 1. To demonstrate knowledge about the features of modern methods in biotechnology, the key biological compounds of living organisms and processes occurring in the biological objectivs, and their interaction, as well as modern approaches to study them.
 | 1.1. know the features of the structural organization and properties of the main classes of biological molecules;1.2. analyze the biological functions of the most important cell compounds and the key mechanisms of their regulation;1.3. finds a correspondence between the properties of compounds and their biological functions;1.4. demonstrates knowledge of the most suitable modern methods in biotechnology for study the properies and fetures of a living organism1.5. based on lecture material and information sources, can choise the appropriate methods to study the structure of various biological molecules, describe the mechanism of their biochemical and physiological action on a living organism |
| 2. to choose and apply in practice min terms of for the qualitative and quantitative analysis of biological material; and apply the basic methods for using in various fields of biotechnology | 2.1. conducts information search to solve research problems;2.2. formulates research objectives and plans the process of its implementation; prepares equipment (instruments, apparatus) for conducting experiments;2.3. selects and prepares samples (biological material) for the experiment;2.4. conducts a qualitative and quantitative analysis of biological material, according to methodological recommendations in accordance with safety regulations;2.5. apply the basic methods for use in various fields of biotechnology |
| 3. to interpret the results of biochemical and physiological experiments, evaluating the relationship between the structure of biomolecules and their physiological functions at the molecular level; interpret and analyze the results while conducting experiments with plants, contextualize the various approaches and methods used in plant physiology | 3.1. fixes and draws up the results of experimental work in the required format (tables, graphs, diagrams, etc.)3.2. evaluates the correctness of the laboratory test;3.3. analyzes the data obtained during the experiment;3.4. compares the obtained data with the expected results, confirming the correctness of the experiment; |
| 3.5. makes final conclusions from the data obtained; |
| 4. to demonstrate knowledge of the structural and functional characteristics of the living objectives; describe the schemes used to characterize the basic processes occur in them,  | 4.1 explain the essence of the main processes of the living objectives and their determination, |
| 4.2. formulate conclusions obtained as a result of experiments, argue the choice of using different approach to the study;4.3. know the techniques of the molecular biotechnology when creating GMOs;  |
| 5. analyze the features of the main modern methods in biotechnology and their application, advangases and limitations, to apply theoretical knowledge of techniques of modern methods in biotechnology, determine the main factors that determine their use in different area of biotechnology. | 5.1. explain the features of the main modern methods in biotechnology and their application, |
| 5.2 demonstrate theoretical knowledge and practical skills in plant physiology, show knowledge of the regulation of cell responses as their practical application.5.3. analyze the features of the main modern methods in biotechnology and their application, 5.4. understand the advangases and limitations the main modern methods in biotechnology |
| **Prerequisites** | Plant anatomy and morphology, Cytology and histology, Plants physiology, molecular biology, microbiology, biotechnology apparatus and processes |
| **Postrequisites** | Modern methods in in different area of biotechnology. Agronomy,  |
| **Learning Resources** | **Literature:**1. Kenzhebayeva S.S. Modern methods in biotechnology. Алматы, Қаzақ University, 2011, 207 С.
2. Глик Б., Пастернак Дж. Молекулярная биотехнология. М.: Мир, 2002. - 589 с.
3. Калашникова Е.А., Кочиева Е.З., Миронова О.Ю. Практикум по сельскохозяйственно» биотехнологии. - М. : Колосс, 2016. - 144 с.

Е.I. Коndratenko, N.В. Netipanova I.А. Skvorthova, N.А. Lomteva, Т.В. Кuzina, С.К. Каsimova. Cytogenetical and molecular-biological methods of plants analysis. 2015 «Аstrahan University». 70С. 1. De Jong, R. Enzyme Free Cloning for high throughput gene cloning and expression / R. de Jong, M. Daniёls, R. Kaptein and G. Folkers // J. Struct. Funct. Genomics. — 2016. — V. 7. — P. 109–118.
2. Lee, J. High-throughput T7 LIC vector for introducing C-terminal poly-histidine tags with variable lengths without extra sequences / J. Lee and S. Kim // Prot. Expr. Purif. — 2009. — V. 63. — P. 58–61.

Nolting B. The newest methods of biosystems research. - М.: ТЕchnosphera, 2015. -256 p.Епринцев **Professional scientific databases**1.genbank database2. genbankblast**Internet resources** 1 https://www.khanacademy.org/science/biology/cellular-molecular-biology/mitosis/a/cell-cycle-phaseshttp://plantphys.info/plant\_physiology/cellcycle.shtml<http://www.britannica.com/EBchecked/topic/623731/vascular-system><http://www.britannica.com/UpBeat-37879-Basic-Plant-Physiology-Parts-Flowering-Functions-Roots-Types-phy-Education-ppt-powerpoint.htm>**Software** (optionally) |

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| **Academic****course policy** | The academic policy of the course is determined by [the Academic Policy](https://univer.kaznu.kz/Content/instructions/%D0%90%D0%BA%D0%B0%D0%B4%D0%B5%D0%BC%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B0%D1%8F%20%D0%BF%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0.pdf) and [the Policy of Academic Integrity of Al-Farabi Kazakh National University .](https://univer.kaznu.kz/Content/instructions/%D0%9F%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0%20%D0%B0%D0%BA%D0%B0%D0%B4%D0%B5%D0%BC%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%BE%D0%B9%20%D1%87%D0%B5%D1%81%D1%82%D0%BD%D0%BE%D1%81%D1%82%D0%B8.pdf) Documents are available on the main page of IS Univer .**Integration of science and education.** The research work of students, undergraduates and doctoral students is a deepening of the educational process. It is organized directly at the departments, laboratories, scientific and design departments of the university, in student scientific and technical associations. Independent work of students at all levels of education is aimed at developing research skills and competencies based on obtaining new knowledge using modern research and information technologies. A research university teacher integrates the results of scientific activities into the topics of lectures and seminars (practical) classes, laboratory classes and into the tasks of the IWST, IWS, which are reflected in the syllabus and are responsible for the relevance of the topics of training sessions andassignments.**Attendance.** The deadline for each task is indicated in the calendar (schedule) for the implementation of the content of the course. Failure to meet deadlines results in loss of points.**Аcademic honesty.** Practical/laboratory classes, IWS develop the student's independence, critical thinking, and creativity. Plagiarism, forgery, the use of cheat sheets, cheating at all stages of completing tasks are unacceptable.Compliance with academic honesty during the period of theoretical training and at exams, in addition to the main policies, is regulated by [the "Rules for the final control"](https://univer.kaznu.kz/Content/instructions/%D0%9F%D1%80%D0%B0%D0%B2%D0%B8%D0%BB%D0%B0%20%D0%BF%D1%80%D0%BE%D0%B2%D0%B5%D0%B4%D0%B5%D0%BD%D0%B8%D1%8F%20%D0%B8%D1%82%D0%BE%D0%B3%D0%BE%D0%B2%D0%BE%D0%B3%D0%BE%20%D0%BA%D0%BE%D0%BD%D1%82%D1%80%D0%BE%D0%BB%D1%8F%20%D0%9B%D0%AD%D0%A1%202022-2023%20%D1%83%D1%87%D0%B3%D0%BE%D0%B4%20%D1%80%D1%83%D1%81%D1%8F%D0%B7%D1%8B%D0%BA%D0%B5.pdf) , ["Instructions for the final control of the autumn / spring semester of the current academic year"](https://univer.kaznu.kz/Content/instructions/%D0%98%D0%BD%D1%81%D1%82%D1%80%D1%83%D0%BA%D1%86%D0%B8%D1%8F%20%D0%B4%D0%BB%D1%8F%20%D0%B8%D1%82%D0%BE%D0%B3%D0%BE%D0%B2%D0%BE%D0%B3%D0%BE%20%D0%BA%D0%BE%D0%BD%D1%82%D1%80%D0%BE%D0%BB%D1%8F%20%D0%B2%D0%B5%D1%81%D0%B5%D0%BD%D0%BD%D0%B5%D0%B3%D0%BE%20%D1%81%D0%B5%D0%BC%D0%B5%D1%81%D1%82%D1%80%D0%B0%202022-2023.pdf) , "Regulations on checking students' text documents for borrowings".Documents are available on the main page of IS Univer .**Basic principles of inclusive education.** The educational environment of the university is conceived as a safe place where there is always support and equal attitude from the teacher to all students and students to each other, regardless of gender, race / ethnicity, religious beliefs, socio-economic status, physical health of the student, etc. All people need the support and friendship of peers and fellow students. For all students, progress is more about what they can do than what they can't. Diversity enhances all aspects of life.All students, especially those with disabilities, can receive counseling assistance by phone / e- mail Saule.Kenzhabaeva@kaznu.edu.kz *contacts* or via video link in MS Teams *enter a permanent link to the meeting.***Integration MOOC (massive open online course).** In the case of integrating MOOC into the course, all students need to register for MOOC. The deadlines for passing MOOC modules must be strictly observed in accordance with the course study schedule. **ATTENTION!** The deadline for each task is indicated in the calendar (schedule) for the implementation of the content of the course, as well as in the MOOC. Failure to meet deadlines results in loss of points. |
| **INFORMATION ABOUT TEACHING, LEARNING AND ASSESSMENT** |
| **Score-rating letter system of assessment of accounting for educational achievements** | **Assessment Methods** |
| **Grade** | **Digital****equivalent****points** | **points,****% content** | **Assessment according to the traditional system** | **Criteria-based assessment** is the process of correlating actual learning outcomes with expected learning outcomes based on clearly defined criteria. Based on formative and summative assessment.**Formative assessment is** a type of assessment that is carried out in the course of daily learning activities. It is the current measure of progress. Provides an operational relationship between the student and the teacher. It allows you to determine the capabilities of the student, identify difficulties, help achieve the best results, timely correct the educational process for the teacher. The performance of tasks, the activity of work in the classroom during lectures, seminars, practical exercises (discussions, quizzes, debates, round tables, laboratory work, etc.) are evaluated. Acquired knowledge and competencies are assessed.**Summative assessment** -type of assessment, which is carried out upon completion of the study of the section in accordance with the program of the course.Conducted 3-4 times per semester when performing IWS. This is the assessment of mastering the expected learning outcomes in relation to the descriptors. Allows you to determine and fix the level of mastering the course for a certain period. Learning outcomes are evaluated. |
| A | 4.0 \_ | 95-100 | Great |
| A- | 3.67 | 90-94 |
| B+ | 3.33 | 85-89 | Fine |
| B | 3.0 | 80-84 | **Formative and summative assessment**The teacher introduces his own types of assessment or uses the proposed option | **Points % content**The teacher enters his score into points in accordance with the calendar (schedule).The exam does not changeand the final score in the course. |
| B- | 2.67 | 75-79 | Activity at lectures | 5 |
| C+ | 2.33 | 70-74 | Work in practical classes | 20 |
| C | 2.0 | 65-69 | Satisfactorily | Independent work | 25 |
| C- | 1.67 | 60-64 | Design and creative activity | 10 |
| D+ | 1.33 | 55-59 | Unsatisfactory | Final control (exam) | 40 |
| D | 1.0 | 50-54 | TOTAL | 100 |
| **Calendar (schedule) for the implementation of the content of the course. Methods of teaching and learning.** |

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| **A week** | **Topic name** | **Number of hours** | **Max.****ball** |
| **MODULE 1** Methods for sudy of cellelar structure |
| **1** | **L 1.** Theme Itroduction. Practical use of modern methods in agriculture, industrial biotechnology, development of new products» | **2** | **0** |
| **PC 1.** Theme Advanced methods and techniques in plant science and biotechnology. Development of new products by using different modern approaches | 1 | 10 |
| **L.2** Methods of differential centrifugation and their using. Methods of identification of subcellular fractions. Ultra centrifugation |  |  |
| **PC 2.** Theme Crude Isolation of plant plasma membrane by differential centrifugation. | 1 | 10 |
| **LC 2.** Theme… |  |  |
| **IWS P 1.** Consultations on the implementation of **IWST 1**ATTENTION. Number of IWST (6-7), IWS (2-5 ) for 15 weeksMethods of determination of membranes lipides of cellular structures. 2. Identification of cellular structure on the base of marker enzymes.3. Methods of determination of fatty acids membranes of of cellular structures.4. Methods of determination of proteins membranes of cellular structures.5. Use of transmission electron microscope for study of internal ultra structure of the cell organelles. Different types of microscopes for study of cellular structures | **2** | **20** |
| **3** | **L 3.** Theme Modern methods in study cell membranes | **2** | **0** |
| **PC 3.** Theme Crude Isolation of plant plasma membrane by differential centrifugation | 1 | 10 |
| **LC 3.** Theme… |  |  |
| **IWST 1.** Control work, test, individual / group project, essay, situational task, testing, portfolio, etc. at the teacher's choice. |  |  |
| **4** | **L 4.** Theme Membranes and detergents. The method of solubilization of membranes. Use of detergents Use detergents in studycell membranes  | **2** | **0** |
| **PC 4.** Theme Determine selective protein precipitation methods*.* Describe factors affecting protein stability during isolation, purification  | 1 | 10 |
| LC 4. Theme…  |  |  |
| **5** | **L 5.** Theme Present types of biophysical methods on study of membrane structures. Basic principles of chromotography | **2** | **0** |
| **PC 5.** Theme Theme Describe enzyme activity analysis by electrophoresis. Show use of preparative gel electrophoresis in protein study. Practical exercises will include: protocol of preparation of gel, Reaction mix for determination of enzyme activity.Calculation of molecular mass from SDS gels Describe methods in study of proteins separation according to distinct physical properties.  | 1 | 10 |
| **LC 5.** Theme … |  |  |
| **MODULE 2** Title . The methods of analyses of proteins. Proteomic methods**.** |
| **6** | **L 6.** Theme. Analysis and Characterization of Proteins |  |  |
| **PC 6.** Theme. Present principles of methods of protein assays. Describe methods in study of proteins separation according to distinct physical properties and proteins purification. |  |  |
| **LC 6.** Theme. |  |  |
| **IWS 2.** Consultations on the implementation of **IWS 2** Assignments for the CDS 3. Ion exchange chromotography. Gel exclution chromotography. High performance liquid chromotography (HPLC). Principles of isoelectric focusing (IEF) to separate proteins based on their isoelectric points Describe enzyme activity analysis by electrophoresis Show preparative gel electrophoresis in protein study. Calculation of molecular mass from SDS gels Describe methods in study of proteins separation according to distinct physical properties. Calculation of molecular mass from SDS gels in isoelectric focusing (IEF). Molecular Characterization of GMOs. Southern blot analysis and polymerase chain reaction (PCR). Carry out type**:** Presentation. | 1 | **20** |
| **7** | **L 7.** Theme General mordent strategy of protein purification | **2** | **0** |
| **PC 7.** Theme Describe methods in study of proteins separation according to distinct physical properties. Show preparative gel electrophoresis in protein study. | 1 | 10 |
| **LC 7.** Theme.  |  |  |
| **IWST 2.** Control work, test, individual  | **NT** |  |
| **Midterm control 1** | **100** |
| **8** | **L 8.** Theme.Main principles of electrophoresis | **2** | **0** |
| **PC 8.** Theme. Different typesofelectrophoresis and gel visualization. Consider the protocols for these methods. | 1 | 10 |
| **LC 8.** Theme  |  |  |
| **IWST 3.** Consultations on the implementation of **IWS 2**. Topic 2 Experimental measurements of ligands binding interactions.  Topic 3 Kinetic properties of enzymes. Topic 4. The Bradford Protein Assay as an Example of Ligand Binding.Topic 5. Applications of an Enzyme Assay.Topic 6. Significance of Kinetic Constants.Topic 7. Agarose Gel Electrophoresis.Topic 8. Protein Characterization Topic 9. Determination of Primary Structure.  Topic 10. Polyacrylamide Gel Electrophoresis (PAGE);Topic Discontinuous Gel Electrophoresis, Sodium Dodecyl Sulfate-Polyacrylamide Gel Electrophoresis, (SDS-PAGE), | **1** | **20** |
| **9** | **L 9.**  Methods of nucleic acids isolation. | **2** | **0** |
| **PC 9.** Theme. DNA isolation from different biological organisms*Assignments for the CDS 4.* Molecular methods of structural and functional organization of genes and genome | 1 | 10 |
| **LC 9.** Subject... |  |  |
| **IWS 4.** Methods for studying genes expression, preparation of cDNA, Fish-method. |  |  |
| **10** | **L 10.** Theme. Methods of DNA analysis | **2** | **0** |
| **PC 10.** Theme. Main principles of RNA isolation and analysis from different biological organisms | 1 | 10 |
| **LC 10.** Theme... |  |  |
| **IWST 4.** Consultation on the implementation **of IWS 3** | **1** | **20** |
|  |  |  |
| **MODULE 3 Title** *Molecular biology: Structures and analysis of nucleic acids* |
| **11** | L 11. Theme. Modification of nucleic acids | **2** | **0** |
| **PC 11.** Theme. Different types of PCR. Determination optimal concentration of sample DNA, optimal concentration of primers, regime of PCR for amplification of PCR product | 1 | 10 |
| **LC 11**. Theme... |  |  |
| **IWS** **5**. Methods of study of transcriptional factors and nucleic acids staining. Use of molecular markers in improvement of living organisms’ traits.Topic: Production of Proteins by Expression of foreign Genes;Gene Expression in Prokaryotic Organisms,Gene Expression in Eukaryotic Cells .Aproaches for genome editing |  |  |
| **12** | L12. Theme. The use of DNA markers in molecular breeding | **2** | **0** |
| **PC 12.** Theme. Types of molecular markers used in biotechnology | 1 | 10 |
| **LC 12.** Theme... |  |  |
| **With RO 3.** |  |  |
| **13** | **L 13.**  Theme. Principles of marker assisted selection (MAS) in crop plants | **2** | **0** |
| **PC 13.** Theme. Practical applications of methods genetic engineering for improvement of valuable traits. | 1 | 10 |
| **LC 13.** Theme... |  |  |
| **IWST 5.** Consultation on the implementation **of** IWST 5**.** |  | **20** |
| **14** | **L 14.** Theme. Application of MAS for improvement of the valuable traits | **2** | **0** |
| PC 14. Theme Examples of marker assisted selection for improvement of valuable traits in crop plants and genome wide associated studies (GWAS) to increase these traits. Basic principles and methods genetic engineering | 1 | 10 |
| **LC 14.** Theme... |  |  |
| **15** | **L 15.** Theme Methods of studying the sequences of the nucleic acids fragments..  | **2** | **0** |
| **PC 15.** Theme. The examples of applications of genome editing for improvement of valuable traits. Boundary control II. | 1 | 10 |
| **LC 15.** Theme... |  |  |
| **IWST 5.** |  |  |
| **Midterm control 2** | **100** |
| **Final control (exam)** | **100** |
| **TOTAL for course** | **100** |

**Dean \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Zaydan B.K.**

**Head of Department \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Kistaybayeva A.S.**

**Lecturer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Kenzhebayeva S.S.**

**RUBRICATOR OF THE SUMMATIVE ASSESSMENT**

**CRITERIA EVALUATION OF LEARNING OUTCOMES**

Issued at the request of the teacher for each planned summative assessment (IWST)

**TEMPLATE**

**Task name** (points, % content from 100% MC, copy from the calendar (graphics) implementation of the content of the training course, methods of teaching and learning

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| --- | --- | --- | --- | --- |
| **Criterion**   | **"Excellent"**  **Max. weight in %**  | **"Good"**  **Max. weight in %**  | **"Satisfactory"**  **Max. weight in %**  | **"Unsatisfactory"**  **Max. weight in %**  |
|    |    |    |    |    |

**Example 1. Written assignment "My professional history" (25% of 100% MC)**

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| **Criterion**  | **"Excellent"**20-25% | **"Good"**15-20% | **"Satisfactory"**10-15% | **"Unsatisfactory"**0-10% |
| **Understanding Theories** **and concepts of professional identity and professionalism of a teacher**   | Deep understanding of theories, concepts of professional identity and teacher professionalism. Relevant and relevant links (citations) to key sources are provided.  | Understanding theories, concepts of professional identity and teacher professionalism. Links (citations) to key sources are provided.  | Limited understanding of theories, concepts of professional identity and teacher professionalism. Limited references (citations) to key sources are provided.  | Superficial understanding / lack of understanding of theories, concepts of professional identity and professionalism of the teacher. Relevant references (citations) to key sources are not provided.  |
| **Awareness of key issues of professional identity and professionalism of teachers in Kazakhstan**   | Links well the key concepts of professional identity and teacher professionalism with the context of Kazakhstan. Excellent substantiation of arguments with evidence from empirical research (for example, based on interviews or statistical analysis).  | Links the concepts of professional identity and teacher professionalism with the context of Kazakhstan. Supports arguments with evidence from empirical research.  | Limited connection of the concepts of professional identity and professionalism of teachers with the context of Kazakhstan. Limited use of evidence from empirical research.  | There is little or no connection between the concepts of a teacher's professional identity and the context of Kazakhstan. Little or no use of empirical research.  |
| **Policy proposal or practical recommendations/suggestions**   | Offers sound policy and/or practical recommendations, proposals for improving the professional identity and professionalism of teachers in Kazakhstan.  | Offers some policy and/or practical recommendations, proposals for enhancing the professional identity and professionalism of teachers in Kazakhstan  | Limited policy and practical recommendations. Recommendations are non-essential, not based on rigorous analysis, and are shallow.  | Little or no policy and practice advice, or advice of very low quality.  |
| **Letter,**  **APA style**   | The writing demonstrates clarity, conciseness and correctness. Strictly follows the APA style.  | The letter demonstrates clarity, conciseness and correctness. Basically follows the APA style.  | The letter has some key errors and clarity needs to be improved. There are mistakes in following the APA style.  | The writing is unclear, it is difficult to follow the content. Lots of mistakes in following the APA style.  |

   **Example 2. Group presentation "Teaching profession in Kazakhstan" (30% of 100% RK)**

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| **Criterion**  | **"Excellent"** 25-30% | **"Good"** 20-20% | **"Satisfactory"** 15-20% | **"Unsatisfactory"** 0 – 15% |
| **Understanding theories and concepts of the professional identity of the teacher and the teaching profession**   | Deep understanding of theories, concepts of the professional identity of the teacher and the teaching profession.  | Understanding theories, concepts of the professional identity of the teacher and the teaching profession.  | Limited understanding of theories, concepts of the professional identity of the teacher and the teaching profession.  | Superficial understanding / lack of understanding of theories, concepts of the professional identity of the teacher and the teaching profession.  |
| **Awareness of key issues of the professional identity of the teacher and the teaching profession in Kazakhstan**   | Competent correlation of the key concepts of the professional identity of the teacher and the teaching profession with the context of Kazakhstan. Excellent substantiation of arguments with evidence from empirical research (for example, based on interviews or statistical analysis).  | There is a connection between the concepts of professional identity of a teacher and the teaching profession with the context of Kazakhstan. The arguments are backed by evidence from empirical research.  | Limited correlation of the professional identity of the teacher and the concepts of the teaching profession with the context of Kazakhstan. Limited use of evidence from empirical research  | Insignificant connection / lack of connection between the concepts of the teacher's professional identity and the context of Kazakhstan. Little or no empirical research is used.  |
| **Pilot Study**   | Excellent use of the results of pilot studies (interviews or surveys) in the presentation  | Good use of the results of pilot studies (interviews or surveys) in the presentation.  | Satisfactory use of the results of pilot studies (interviews or surveys) in the presentation.  | Poor use of the results of pilot studies (interviews or surveys) in the presentation.  |
| **Suggestion of policy or practical recommendations/suggestions**   | Offers very good policy and/or practical advice or suggestions for improving the professional identity and teaching profession in Kazakhstan.  | Offers some policy and/or practical recommendations or suggestions for improving the professional identity and teaching profession in Kazakhstan.  | Limited policy and practical recommendations. Recommendations are non-essential, not based on rigorous analysis, and are shallow.  | Little or no policy and practice advice, or advice of very low quality.  |
| **Presentation,** **teamwork**   | Excellent, attractive presentation, excellent quality of visuals, slides, materials, excellent teamwork.  | Good engagement, good quality visuals, slides or other materials, good teamwork.  | Satisfactory level of involvement, satisfactory quality of materials, satisfactory level of teamwork.  | Low engagement, low quality content, poor teamwork.  |