HIGHER EDUCATIONAL INSTITUTION OF UKOOPSPILKA
«POLTAV UNIVERSITY OF ECONOMICS AND TRADE»

Educational and Scientific Institute of International Education
Department of commodity science, biotechnology, expertise and customs

SYLLABUS

educational disciplines

«Protection of goods from biodamage»

on 2022 - 2023 educational year

Course and semester study	4 course, 2 semester
Educational program/specialization	«Biotechnology»
Specialty	162 Biotechnology and bioengineering
Branch of knowledge	16 Chemical and bioengineering
Degree higher education	bachelor

Name of the NPP that leads this discipline, scientific degree and academic title, position

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Schedule of educational classes	http://schedule.puet.edu.ua/
Consultations	intramural http://www.tpt.puet.edu.ua/stud.php online: by e-mail, Mon-Fri from 10:00 a.m. to 5:00 p.m
Distance course page	https :// el . puet _ edu . u /

Description educational disciplines

Goal study academic discipline	Acquisition by future specialists of theoretical knowledge and practical skills in matters of protection of goods from biological damage, forecasting their preservation, management of production and storage technologies.
Duration	5 loans EKTS/150 hours (lectures 20 hours, practical occupation 40 hours, independent work 90 hours)
Forms and methods teaching	Lectures and practical classes in the classroom and field trips, independent work outside the schedule, excursions, training at the factory.
System current and final control	Current control: attending classes; discussion of lesson material; performance of educational tasks; testing; current modular work Final control: PMK (credit)
Basic knowledge	General biotechnology, Processes and devices biotechnological productions, Technology bio-production, Biotechnology and health a person
Language teaching	Ukrainian, English

List competencies, which provides given educational discipline, softwarethe results teaching

Software the results teaching	Competencies, which ones should master getter
• Be able to apply knowledge of composition and structure cells different biological agents for definition optimal conditions cultivation and potential use of researched cells in biotechnology (PR07); • Be able select with natural substrates and identify different microorganisms systematic groups Determine morphological cultural and physiological and biochemical properties different biological agents (PR08); • Be able to conduct experiments research with purpose definition	• Desire to preservation surrounding environment (ZK07); • The ability to use thorough knowledge of chemistry and biology in the amount necessary to achieve other educational results programs (SK02); • Ability work with biological agents, used in biotechnological processes (microorganisms, mushrooms, plants, animals; viruses; separate theirs components) (SK04);

impact physical and chemical and biological factors external environment on life activity cells living organisms (PR10); • Using microbiological, chemical, physical, physico-chemical and biochemical methods, to be able to carry out chemical control (definition concentration solutions disinfectants means, titration agents, concentration components nutritious environment etc), technological control (concentrations of carbon and nitrogen sources in cultural liquid during process; concentration of the target product); microbiological CONTROL (definition microbiological purity nutritious environment after sterilization, microbiological purity of the biological agent, etc.), microbiological purity and sterility biotechnological products different appointment (PR12)	• Ability conduct analysis raw materials, materials, semi-finished products, targeted products biotechnological production (SK06); • Ability adhere to requirements biosecurity, bioprotection andof bioethics (SK15).

Thematic plan educational disciplines

Name topics	Types of work	Task independent work in cut topics
Module 1. Technologies protection individual groups goods from biodamages		
Topic 1. General concepts of anatomical and morphological characteristics and composition of raw materials and their changes during storage. Chemical composition and its role in protecting goods from biodamage	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	To characterize anatomical and morphological signs of plants, meat and fish tissues. Characterize the chemical composition of potatoes, apples, rabbit meat, quail eggs
Topic 2. Biological features of obtaining plant and animal products with high marketable quality. The impact of diseases and damage on the preservation of plant material. Stability of plant raw materials. Dormant state of potatoes, vegetables and fruits	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	Describe the influence of meteorological factors on the production of plant products with high commercial quality. To study the types of diseases that occur during the storage of juicy raw materials, namely: apples, peaches, tomatoes. Describe the main factors affecting the mass of food products during storage. Characteristics of methods of disinfection of products from microorganisms
Topic 3. Material and technical base of storage of food products	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	Describe the methods of placing products in warehouses
Topic 4. Technologies for protection of grain and flour products from biological damage	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	Describe the physiological and microbiological processes occurring in grain masses
Topic 5. Technologies for protecting fruits, vegetables and potatoes from biological damage	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	Describe the main types of containers used for packaging and transportation of fruit and vegetable products to storage locations.
Topic 6. Technologies for the protection of flavored and confectionery products from	Attending classes; discussion of lesson material; performance of educational tasks; tasks of	Describe the main stages of product preparation for storage

Topic 7. Technologies for the protection of food fats from biodamage	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	Describe the conditions, methods of storage and transportation of starch and honey
Topic 8. Technologies for protection of milk and dairy products, eggs and egg products from biological damage	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	To study the peculiarities of storage of food fats.
Topic 9. Technologies for the protection of meat and meat products, fish and fish products rom biological damage	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	Describe the methods of storing fresh and dry milk. To study the peculiarities of transportation of dairy products
Topic 10. Technologies of storage of certain groups of non-food products	Attending classes; discussion of lesson material; performance of educational tasks; tasks of independent work; testing	To study the main quality changes that occur during the storage of offal, packaged meat and meat semi-finished products depending on the term, conditions and method of storage.

Informational sources

1. Jones J.V. (2006). Integrated Logistics Support Handbook (3rd ed.). New York, USA: McGraw Hill.
2. Kachru U. (2013). Logistics and Supply Chain Management. New Delhi, India: New Delhi.
3. Masudin I. (2018). Impact of Inventory Management and Procurement Pracces on Organiza on's Performance. Singaporean Journal of Business Economics, and Management Studies.
4. Zhang G., Nishi, T., Turner, S. D., Oga, K., & Li, X. (2017). An integrated strategy for a production planning and warehouse layout problem: Modeling and solution approaches. Omega, 68, 85-94.
5. Sharma S., & Shah, B. (2015). A proposed hybrid storage assignment framework: a case study. International Journal of Productivity and Performance Management, 64(6), 870-892.
6. Rai S., & Ettam, R. K. (2016). Autonomous Cell Based Storage Location Assignment Strategy in Print Production Environments. International Journal of Performability Engineering, 12(1), 45-54.
7. Guerriero F., Pisacane, O., & Rende, F. (2015). Comparing heuristics for the product allocation problem in multilevel warehouses under compatibility constraints. Applied Mathematical Modelling, 39(23-24), 7375-7389.
8. Fontana M. E., & Nepomuceno, V. S. (2017). Multi-criteria approach for products classification and their storage location assignment. The International Journal of Advanced Manufacturing Technology, 88(9-12), 3205-3216.

Software software educational disciplines

- Package software products Microsoft Office.

Policy study educational disciplines and assessment

- Due Date and Reschedule Policy: Assignments that are submitted in violation of due dates are not respected reasons are evaluated on lower grade (75 % of the possible maximum amount points for the type of activity), or by collecting additional points for other types of work. Rearranging modules takes place with the permission of the host the teacher by availability respectable reasons (eg hospital).
- Policy of academic integrity: writing off under time implementation current modular works and testing prohibited (including h from using mobile phones devices).
- Policy of visiting:
  visiting classes is mandatory component. By objective reasons (example, disease, employment,internship) training may to happen in online form (Moodle) by consent with the leading a teacher
- Policy enrollment results informal Education: http://puet.edu.ua/uk/publichna-informaciya

Assessment

Final rating by study academic discipline is calculated by current assessment

Kinds works	Maximum number points
Module 1 (topics 1-5): attending lectures (3 points); availability of developed material on the topic lectures (3 points); visiting classes and discussion material classes (10 points); implementation educational tasks (10 points); task independent work (5 points); testing (5 points); current modular work (14 points)	50
Module 2 (topics 6-12): attending lectures (7 points); availability of developed material on the topic lectures (7 points); visiting classes and discussion lesson material (7.5 points); implementation educational tasks (7.5 points); task independent work (5 points); testing (5 points); current module work (11 points)	50
Together	100

Scale assessment acquirers higher education by the results study educational disciplines

Sum points by all species educational activity	Rating by scale ECTS	Rating by national scale
90-100	A	Perfectly
82-89	B	Very fine
74-81	C	Fine
64-73	D	Satisfactorily
60-63	E	Satisfactorily enough
35-59	FX	Unsatisfactorily with possibility repeated drafting
0-34	F	Unsatisfactorily with mandatory repeated study educational disciplines