EC 11-VII Quality Control and Standarts of Biological Products

Code	EC 11-VII
ECTS credits	4
Attendance time	8th Semester
Language of instruction	Ukrainian
Duration	1
Cycle	Each Winter Semester
Coordinator	Associate professor, PhD Olha Vinnikova
Instructor(s)	Lectures,Iryna Rayevska
Allocation of study programmes	Biology
Recommended prerequisites	Microbiology; Mycology; Plant Physiology and Biochemistry
Learning objectives	- organization of quality control of plant raw materials, methods of quality control of plant raw materials - application of regulatory documentation and standardization documentation, - to form the skills of practical work necessary for professional activity in the field of quality control of plant raw materials for the food, textile, processing and pharmaceutical industries, - organization of sanitary and microbiological control, methods of sanitary and microbiological control, - to form the skills of practical work necessary for professional activity in the field of biology.
Syllabus	**Patterns of quality formation of plant raw materials and organization of its control.**

	The quality of plant raw materials and the patterns of their formation. Theoretical foundations of the formation of the quality of plant raw materials. Concepts of "vegetable raw materials", "quality of raw materials", their types. Quality control, its organization, meaning and main tasks. State bodies involved in quality control of raw materials. Requirements for analytical laboratory personnel. Organizational structure of the laboratory. Certification of the laboratory, basic requirements. Material and technical arrangement of the analytical laboratory. Organization and implementation of laboratory quality control of plant raw materials. Rules for preparing samples for analysis. Normative documentation on quality control of plant raw materials. Laboratory journal of recording the results of the analysis and the rules for its management. Documents on the results of the analysis of the quality of raw materials. Standards that regulate the quality of raw materials. State standards and technical conditions for methods of quality control of plant raw materials. **Methods of assessing the quality of plant raw materials** Basic standard organoleptic quality control methods. The concept and essence of organoleptic methods of raw material quality control and their application. Biochemical and physicochemical methods of quality control of plant raw materials. Methods of assessing the quality of seed material, grain, baking properties of flour. The main basic indicators of the quality of seed material of field crops. Standard assessment methods. The main basic indicators of grain quality and baking qualities of flour. Assessment of technological qualities of cereal crops and brewing qualities of barley. Evaluation of the quality of raw materials of industrial crops. Assessment of the quality of sugar beet raw materials. Quality control of oil raw materials and products of their processing. Evaluation of the quality of raw materials of spinning crops. Evaluation of the quality of raw materials of medicinal plants.

	Normative documents used in various microbiological profile institutions. The importance of regulatory documentation and basic requirements for documentation management, according to ISO 9001:2000. The structure of the documentation system, the circulation of documents. Features of creating a documentation system in electronic form. Principles of establishment and use of microbiological criteria for food products - CAC/GL 21-1997. Rules and guidelines for microbiological risk assessment – CAC/GL-30 (1999). Normative documents on standardization and types of standards. International standards - ISO, ISO/MEK, regional, national, administrative and territorial standards. Legislative and regulatory framework of standardization. Use of the HACCP system ("Hazard Analysis and Critical Control Points") in Ukraine, Codex Alimentarius (Joint FAO/WHO Codex Alimentarius Commission). The Law of Ukraine "On the Safety and Quality of Food Products". Biosafety in laboratory conditions: WHO standards. **Normative documents on standardization in Ukraine.** The use of regulatory documents on microbiology in the food industry. Standards used for sanitary soil testing. Standards used for sanitary air testing. Standards used for sanitary water testing. Standards used for the sanitary examination of foodstuffs. Standards used for sanitary research of pharmacological preparations.
Literature	The Worldwide Standard for Good Agricultural Practices. Benson H.J. Microbiological Applications A Laboratory Manualin General Microbiology, 8thedition. – 2002. – 496 p. Duncan F. MCB 1000L Applied Microbiology Laboratory Manual, 4thedition. – 2005. – 70 p. Cappuccino J. G., Sherman N. Microbiology: A Laboratory Manual, 5thedition. – 1999. – 471 p Da Silva N. et al. Microbiological Examination Methods of Food and Water: A Laboratory Manual/ 2nd Edition. — CRC Press, 2019. — 565 p. — ISBN 978-1-138-05711-1

Teaching and learning methods	Lecture (2 WH), Laboratory (1 WH)
Workload	Classroom hours: 30 h Laboratory hours: 15 h Individual study time/preparation and postprocessing: 75 h **Total: 120 h**
Assessment	The assessment consists of written examination and preliminary graded study achievements
Grading procedure	The module grade is the sum of preliminary study achievements and the examination grade
Basis for	• Plant Physiology and Biochemistry • Methods of Biochemical Analysis of Plants • Isolation and Identification of Microorganisms Basic Methods of Sanitary, Soil and Water Microbiology