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CHAPTER 4. FEATURES PROFESSIONAL TRAINING OF ENGINEERING, EDUCATIONAL AND TECHNOLOGICAL SPECIALISTS IN DISTANCE LEARNING CONDITIONS

4.1. Theoretical Aspects Professional Training of Specialists in Engineering, Pedagogical and Technological Fields in Distance Learning Conditions

Distance learning has become an integral part of modern education, especially in the training of specialists in engineering, pedagogical and technological fields. Recent years have been characterized by a rapid growth in the use of distance technologies in the field of higher education. The main prerequisite for the effective implementation of this format is the development of information and communication technologies (ICT), which allow providing access to educational materials, organizing communication between teachers and students, as well as implementing interactive learning methods. Distance platforms such as Moodle, Google Classroom, Microsoft Teams and Zoom contribute to flexible management of the educational process [18].

One of the most noticeable trends is the development of adaptive learning, which allows personalizing the educational process according to the individual needs of students. Adaptive systems use artificial intelligence to determine the level of preparation of students, assess their success and offer appropriate educational materials. This allows significantly improving the efficiency of learning, since each student receives exactly the content that matches his knowledge and abilities. Adaptive platforms can also recommend additional resources to study the student's weaknesses, thereby contributing to the individualization of education [43].

Another important trend is the development of microlearning, which involves the presentation of educational materials in the form of short, easy-to-learn blocks of information. Microlearning allows students to learn new material in a short time, which is especially relevant in the context of limited opportunities for deep immersion in the topic. Short video lessons, interactive tasks and test modules allow for effective learning of new knowledge while maintaining the student's concentration. Improvements to platforms such as Coursera, Khan Academy, as well as specific microlearning tools, are actively integrated into the educational process [35].

Also important is the trend towards the integration of virtual reality (VR) and augmented reality (AR) technologies into distance learning. These technologies allow the creation of realistic learning environments in which students can interact with objects and processes in virtual space. For engineering, pedagogical and technological fields, AR and VR open up new opportunities for conducting laboratory work and modeling complex technological processes. For example, VR can be used to simulate experiments, and AR allows you to visually demonstrate 3D models for a deeper understanding of complex technical aspects [34].

Another significant trend is blended learning, which combines the advantages of face-to-face and distance learning. This approach allows you to use both traditional teaching methods and modern digital technologies. Students get the opportunity to learn both in the classroom and through online platforms, which increases their

motivation and provides flexibility in the learning process. Blended learning contributes to the development of important skills of independent learning, critical thinking and the ability to adapt in a rapidly changing world of technologies [11].

Among the latest trends, one can note the use of big data analytics to improve learning outcomes. This allows teachers to receive detailed information about the success of each student, identify problems at an early stage and adjust the educational process. For example, using big data to analyze course attendance, forum participation, and assignment completion allows us to more accurately predict students' needs and provide them with additional support if necessary [39].

The integration of mobile technologies into distance learning is also important, allowing students to access learning materials from anywhere in the world. Mobile platforms and learning applications allow for teaching and learning at a convenient time, providing students with the necessary tools for effective learning. This is especially important for students who have limited access to stationary computers or for those who wish to learn in a mobile format [23].

One of the key features of distance learning is the use of various pedagogical models that allow adapting the learning process to new technological capabilities and students' needs. In this context, several main models can be distinguished, among which the most popular are blended learning, asynchronous and synchronous learning, as well as individualized learning based on adaptive technologies.

Blended learning combines traditional teaching methods with online resources, providing students with greater flexibility in choosing the learning format. This model allows for the integration of face-to-face classes with online content, which allows for the optimization of the learning process. The use of platforms such as Moodle or Google Classroom allows students to access lecture materials, tests, and the ability to communicate with the teacher and other students through forums or chats. Blended learning is extremely effective for engineering, pedagogical and technological education, as it allows for the combination of theoretical knowledge with practical skills that can be practiced using online simulations and virtual laboratories [31]. Another important approach is asynchronous learning, which involves students working independently with educational materials at a time convenient for them. This model is especially useful for students who have limited access to online resources or work on a flexible schedule. In this case, the teacher only provides course materials, but does not conduct classes in real time. Students can complete assignments, watch video lectures, take tests, and submit assignments through specialized platforms. Asynchronous learning allows each student to move at their own pace, which contributes to a deeper assimilation of the material [13].

On the other hand, synchronous learning allows students to be actively involved in the learning process in real time through video conferences, webinars and online lectures. This model provides instant feedback from the teacher, as well as the opportunity to collectively discuss the topic with other students. Synchronous learning is especially effective for conducting laboratory work or practical classes, where interaction with the teacher is important for adjusting the learning process [37].

It is also necessary to consider the impact of ICT on the training of specialists in engineering, pedagogical and technological areas. Thanks to the use of ICT, approaches to learning are changing significantly, in particular in the field of providing access to educational materials, organizing interactive forms of learning, as well as developing practical skills in a virtual environment. The integration of modern technologies into education allows for the creation of new forms of interaction between teachers and students, and also significantly expands the possibilities for conducting educational and research work.

One of the most significant aspects is the use of virtual laboratories and simulators, which allow students to acquire practical skills without having to be physically present in laboratories. This is especially relevant for specialists in engineering, pedagogical and technological areas, where the practical component of training is important. With the help of virtual laboratories, students can perform experiments, manipulate technological processes, simulate situations, which gives them an idea of the real production process [20].

Another important aspect is the use of methods focused on the development of critical thinking, independent work and creative skills. ICTs contribute to the implementation of interactive forms of learning, such as simulations, modeling, online quizzes and tests, which activate student participation in the learning process. This allows students to immerse themselves more deeply in the learning process and develop analytical skills, which is an important component in the training of specialists in the engineering, pedagogical and technological fields [36].

The use of ICTs also facilitates the process of assessing students' knowledge and skills. Using digital platforms, teachers can create interactive tests, surveys, tasks, and also carry out automatic verification of results. This not only speeds up the assessment process, but also allows monitoring the progress of each student in real time. In addition, electronic assessment provides more objectivity and transparency in calculating results, which is especially important for engineering, pedagogical and technological disciplines [12].

No less important is the impact of ICT on the organization of distance and blended learning. With the development of digital technologies, it has become possible to combine traditional learning with online components. The use of various digital tools, such as video conferencing, webinars, electronic textbooks, allows for more flexible and accessible learning. Students can combine independent study of the material with active participation in lectures and seminars held online, creating new opportunities for interaction and collaboration [41].

In general, the introduction of ICT in education not only improves the learning process, but also significantly increases its efficiency. The use of technologies, such as simulators, virtual laboratories, online courses and platforms for collaboration, allows students to master complex engineering and technological concepts and skills, which is important for their further professional activities. Technologies not only create new forms of learning, but also open up new horizons for self-improvement, mobility and accessibility of educational resources.

The development of distance courses is a key aspect in the implementation of distance learning, since the effectiveness of the educational process depends on the quality of the course. The development process includes not only the creation of educational materials, but also the consideration of pedagogical principles such as accessibility, interactivity, adaptability and assessment of results. All these components should contribute to the achievement of educational goals and the creation of a comfortable learning environment.

One of the main aspects in the development of distance courses is to ensure the accessibility of educational materials for all students, regardless of their level of training and technical capabilities. To do this, it is necessary to use simple and understandable interfaces, provide access to materials on different devices, and also take into account the needs of students with disabilities, for example, by adding subtitles to videos or using text alternatives for images and graphics [5, 14, 32]. The use of multimedia resources such as videos, graphics, animations, simulations allow you to significantly increase the effectiveness of the perception of educational material.

Another important component of distance learning is the interactivity of the educational process. Since distance learning involves greater independent work of students, it is important that courses contain elements that stimulate active participation in learning. These can be interactive tests, tasks for independent work, as well as the opportunity for students to ask questions or participate in discussions through forums and chats. Such methods not only help to better learn the material, but also contribute to the development of self-control and independent thinking skills [4].

Particular attention should be paid to the development of adaptive learning systems that allow personalizing the learning process. The use of algorithms that analyze student performance and recommend additional resources or tasks according to their level of knowledge is one of the most progressive approaches in distance learning. These systems allow for an individual approach to each student, providing them with materials that meet their current needs and progress [40]. In this way, courses become more flexible and effective, increasing the level of material assimilation.

Didactic principles, such as gradualness and consistency of presentation of the material, are also an integral part of the development of distance courses. The course should be structured in such a way that students gradually deepen their knowledge, moving from simple to complex topics. To do this, it is important to carefully consider the logic of presenting the material, determine the main stages of the course and the learning objectives of each of them. In addition, it is important to include various types of learning tasks that allow you to check the assimilation of the material, such as testing, project work, reviews, etc. [19].

The development of a distance course also includes the stages of testing and feedback. After creating the course, it is necessary to test it among students, which will allow you to identify possible shortcomings in the materials or in the organization of the educational process. It is also important to provide a mechanism for receiving feedback from students so that they can express their comments on the course, which will allow you to make adjustments and increase the effectiveness of learning. Taking

into account the opinions of students allow you to constantly improve the course and adapt it to changes in educational needs [26, 27].

Special attention should be paid to the use of technologies for integrating virtual laboratories and simulations in courses. For engineering, pedagogical and technological areas, this is an important element, as it allows creating realistic conditions for performing practical tasks. Virtual laboratories make it possible to model various scenarios of production processes, conduct experiments and testing, which in traditional conditions is difficult or impossible. Thus, the development of virtual laboratories significantly expands the possibilities of distance learning in technical and engineering disciplines [21].

Thus, pedagogical models of distance learning are constantly evolving, integrating new technologies and adapting teaching methods to the needs of modern students. The choice of a specific model depends on the purpose of the course, the specifics of the discipline and the capabilities of the educational institution. It is important to use combined approaches that allow the most effective combination of the advantages of different learning models. And modern trends in the development of distance learning include not only the use of the latest technologies, but also changes in approaches to organizing the educational process. Personalization of learning, VR/AR integration, the development of blended learning and big data analytics are just a few aspects that will define the future of distance learning in education.

4.2. Practical Aspects Implementing Distance Learning in the Training of Specialists in Engineering, Pedagogical and Technological Fields

In the context of implementing distance learning, teacher training is a key aspect that determines the effectiveness of the educational process. Teachers must not only have professional knowledge of the discipline, but also have a high level of digital competence to use modern technologies in the educational process. Therefore, the first step is systematic training of teachers, which should include both technical skills in working with distance learning platforms (Moodle, Google Classroom, Zoom) and pedagogical aspects related to the organization and management of a distance course. In this regard, it is important to organize trainings and seminars for teachers, where they learn to use various digital tools. Such tools include creating online tasks, using simulation programs, conducting interactive lectures and seminars. Teachers should also know how to organize feedback with students through platforms and other means of communication. For this purpose, tools such as chat rooms, discussion forums, video conferencing, as well as tools for testing and assessing learning outcomes are used.

The main goal is to ensure that teachers have all the necessary knowledge and skills to manage the educational process in distance learning conditions, in particular, how to develop curricula, create content for online courses, and organize effective communication with students.

Another important aspect is to take into account the specifics of engineering, pedagogical, and technological disciplines, where the practical component plays a significant role. Therefore, teacher training should also include studying the methods of

using virtual laboratories, modeling technical processes, and using software for technical design. In addition, teachers should have the skills to create interactive lectures and seminars that allow students not only to listen to the material, but also to actively interact with it, completing various exercises and tasks.

In order to ensure effective distance learning for students, the organization of the educational process should take into account not only technological tools, but also appropriate pedagogical strategies. This includes the use of blended learning, combining online lectures with practical tasks, as well as providing students with opportunities for self-education and independent work using interactive platforms. In addition, an important component is the integration of adaptive systems that allow personalizing the educational process according to the needs and level of each student.

One of the effective methods of organizing the educational process is the combination of synchronous and asynchronous learning. Synchronous learning includes real online lectures and webinars, where the teacher can directly interact with students, and asynchronous learning provides flexibility, giving students the opportunity to independently work with course materials at a time convenient for them. This allows you to create an individual learning schedule and adapt the educational process to the different needs of students.

The use of digital platforms makes it possible to effectively monitor student progress. Thanks to electronic testing systems and automated assessment, teachers can quickly receive data on student performance, which allows them to adjust the learning process and provide feedback in real time.

In turn, interactive learning tools are an important element in distance learning, as they allow students not only to gain knowledge, but also to actively interact with the learning material. This approach provides better motivation for students, contributes to a deeper understanding of the subject and the development of critical thinking. In the context of distance learning, interactive tools make it possible to create a learning environment that supports active learning, promotes the development of collaboration skills and allows for the practical application of theoretical knowledge.

The main interactive learning tools include forums, chats, video conferences, electronic tests, as well as learning platforms that allow students to participate in real learning processes, perform practical tasks and receive feedback. Platforms like Moodle or Google Classroom allow for the integration of various multimedia resources, making learning more dynamic and effective. They enable teachers to create interactive lessons where students can interact with content, discuss material, and work on joint projects.

One of the main advantages of interactive tools is that they stimulate students to actively work. They allow teachers to create learning scenarios that increase interest in the learning process and contribute to the formation of practical skills. For example, when using virtual laboratories, students can work with models that simulate real production processes, which is especially relevant for engineering, pedagogical, and technological specialties.

Interactive tools also allow for the creation of personalized learning paths for students, which is important in distance learning environments, where each student can

have their own learning pace and individual needs. Adaptive systems that are integrated into online courses allow for automatic adjustment of the level of complexity of tasks according to the student's performance, which ensures a high level of involvement and progress in learning.

Among the popular tools for implementing interactive teaching methods are various online games and simulators that allow you to create learning situations where a student can learn through practical activities. Such tools are used to develop critical thinking, solve real-world problems, and develop problem-solving skills. For example, in technological disciplines, simulators can be used to study software or manage production processes, which are important for specialists in these areas.

The use of video conferencing and online seminars makes it possible to conduct synchronous classes during which students can ask questions to the teacher, participate in discussions, and work on collective projects. This is especially useful for creating a sense of presence and interaction among students, which is important in distance learning.

Thus, interactive learning tools significantly increase the effectiveness of the educational process in distance learning, allowing you to create dynamic, personalized, and actively engaging learning environments. They contribute not only to the acquisition of knowledge, but also to the development of skills necessary for professional activity, which is especially important for specialists in engineering, pedagogical and technological fields.

Another important aspect of distance learning for engineering, pedagogical and technological specialists is the use of virtual laboratories and simulations. These tools significantly expand the possibilities for practical learning, allowing students to gain experience that would normally be unavailable due to limited physical resources or the dangers associated with conducting real experiments.

Virtual laboratories are specialized software products or online platforms that simulate real laboratory conditions. They give students the opportunity to conduct various experiments, interact with hardware and software without leaving the computer classroom. For example, in technological and engineering disciplines, simulators can be used to model complex technical processes or to work with physical objects, which is impossible in standard laboratories.

Virtual laboratories have several significant advantages. First, they allow students to perform complex practical tasks that usually require significant time and resources. For example, a student can work with models of car engines or study complex physical phenomena such as electrical circuits or thermal processes without the need for special equipment or safety risks. Second, these tools allow for repeated experiments, which is important for deeper learning of the material and development of skills.

Additionally, simulations allow students to receive real-time feedback, which is an important part of the learning process. For example, in software simulators, students can see the result of their actions and immediately correct mistakes, which stimulates them to independently solve problems. This is especially useful for developing critical thinking and the ability to solve non-trivial tasks.

The use of virtual laboratories in distance learning is especially relevant for training specialists, where it is important to combine theoretical knowledge with practical skills. In conditions where a student cannot directly interact with physical equipment, virtual simulations provide an opportunity to develop important professional skills. For example, future engineers can work with virtual models of machines and mechanisms, testing them for operability, which significantly increases the effectiveness of their training.

Modern virtual reality (VR) technologies are also actively integrated into the distance learning system, providing an even deeper level of immersion in the learning process. The use of VR allows students to "visit" real production facilities or experiment with equipment, as in physical laboratories, without the need to be on site. This opens up new opportunities for training in professions where there is a need for practical classes.

Thus, the use of virtual laboratories and simulations is a necessary element in the training of specialists in the field of engineering and pedagogy. They allow organizing high-quality practical training that directly supports students' theoretical knowledge and provides them with the necessary skills to work in real conditions. The introduction of such technologies has enormous potential for the development of modern education.

The introduction of distance learning requires the adaptation of traditional methods of assessing students' academic achievements, since new conditions require a different approach to measuring their knowledge and skills. Assessment in a distance learning format should not only be an indicator of the achievement of learning goals, but also part of a process that supports interactive and active student learning. Let's consider the main methods of assessment in distance learning.

One of the important aspects of assessment is the use of various forms of feedback, which allows students to immediately receive corrections and recommendations for further learning. This is especially important in the context of asynchronous learning, where the student has more freedom in choosing the time to complete the tasks, but at the same time it is necessary to have a clear understanding that the result will be checked.

One of the most popular assessment methods is the use of tests and online exams, which automate the process of checking knowledge and allow the teacher to quickly receive the result without the need for manual checking. Modern distance platforms, such as Moodle or Google Classroom, offer a wide range of test types – from simple multiple-choice questions to more complex tasks requiring essay writing or analysis.

For a more comprehensive assessment of students' knowledge and skills, project-based learning methods that involve the completion of practical tasks are effective. In distance learning, this can be implemented through the development of projects, the use of simulations or the creation of models, which allows students to apply theoretical knowledge in practice. This assessment method stimulates critical thinking and the ability to solve problems independently.

Forum and video discussions are also used to assess student participation in the educational process. This format allows students to actively engage in discussions of

important theoretical and practical aspects, which allows them to test their ability to argue their point of view and interact with other participants. The use of video discussions can provide a more in-depth analysis of the arguments presented and allows students to demonstrate their ability to communicate in an online environment.

Additionally, distance learning uses combined assessment methods, when students' results are assessed based on the sum of scores from several different tasks, including tests, projects, discussions and other forms of assessment. This allows for a more objective and comprehensive picture of a student's academic achievements.

Assessment in distance learning is not limited to determining student success, but also contributes to their development by providing feedback. This helps students to realize their weaknesses and correct them in a timely manner, and also provides an opportunity for further improvement in the learning process.

Assessment methods in distance learning should take into account the specifics of this format: greater student autonomy, the ability to obtain results in real time, as well as the use of various digital tools to improve the interactivity of the educational process. This allows to increase the level of student motivation and promotes their active participation in the educational process.

The introduction of digital technologies into the educational process is an important step for the development of effective distance learning, as they provide new opportunities for interactive, accessible and personalized learning. To achieve maximum results, it is necessary to consider several key aspects and recommendations that allow for the effective integration of these technologies into the educational process.

The first thing to consider is choosing the right digital platform for organizing learning. Platforms such as Moodle, Google Classroom, Microsoft Teams, or Zoom provide functionality for lectures, sharing materials, conducting tests, and organizing interactive classes. The choice of platform should be based on the specifics of the training course, the accessibility of the interface for students and teachers, and the possibility of integration with other learning management tools [31].

The next important step is to organize the effective use of digital tools for interactive learning. Modern technologies allow you to create online laboratories, conduct simulations of production processes, or use virtual and augmented reality to solve practical problems. For example, in technical and engineering disciplines, digital simulators can be used to model technical processes or to study mechanisms and systems in an interactive environment, which significantly increases the level of practical training of students [24–32].

Interactive learning tools, such as forums, video conferencing, and virtual classrooms, allow students to actively engage in the learning process. The ability to discuss course materials in real time is especially important, which allows the teacher to adjust the lesson depending on the needs of the students, ask additional questions, or explain difficult points.

Another important recommendation is the implementation of adaptive learning systems that allow for the creation of a personalized program for each student. Thanks

to systems such as adaptive tests or intelligent learning platforms, it is possible to provide an individual approach to each student, taking into account his previous knowledge and learning needs [24–32]. Such systems help to maximize the potential of each student, allowing him to move at his own pace.

It is also important to teach students to use digital tools effectively. Since not all students may have experience with modern technologies, it is important to conduct additional training in the use of selected platforms and software. This will avoid unnecessary delays in the learning process and help students adapt more quickly to distance learning conditions.

The final stage is the assessment of the effectiveness of the implementation of digital technologies. Regular assessment and feedback from students allow you to identify weaknesses in the organization of the educational process in a timely manner and identify problems in working with platforms. Using data to analyze student success and interaction with content makes it possible to adjust the distance learning strategy to ensure maximum efficiency.

Distance learning, as one of the main trends in higher education, has great potential for development in the coming years. Modern technologies, in particular ICT, are changing traditional approaches to organizing learning, creating new opportunities for students and teachers. In the future, we can observe a significant expansion of digital platforms, the integration of the latest technologies, such as artificial intelligence (AI), augmented and virtual reality, as well as further personalization of the educational process.

One of the most promising areas of development is the use of adaptive learning systems that can automatically adjust the educational process depending on the needs of each student. Such systems use AI algorithms that analyze student performance, identify their weaknesses, and provide individual recommendations for further learning [24–32]. This allows for the creation of a personalized learning environment where each student can receive materials that match their level of knowledge and learning needs.

Another important perspective is the use of augmented reality (AR) and virtual reality (VR) technologies. These technologies are capable of creating interactive learning environments that allow students to work with real objects and processes without leaving home. This is especially relevant for engineering, pedagogical and technological specialties, as it allows for practical classes, laboratory work and even modeling of production processes [24–32]. In particular, VR laboratories can replace physical experiments, which will allow students not only to see, but also to interact with models of complex technical systems in real time.

Another important direction is the development of microlearning, which involves the presentation of educational material in short modules or video lessons. This format allows for effective use of time and the acquisition of new knowledge even using mobile devices, which is convenient for students who have limited time for study. The use of microlearning in combination with interactive platforms makes it possible to gain deep knowledge in a short time [24–32].

In the future, it is also important to develop hybrid learning models that combine online courses with traditional teaching methods, which allows combining the advantages of both approaches. Such models are already actively used in some universities, which allows not only to increase the accessibility of education, but also to improve its quality through interactive and flexible approaches to learning [4, 5]. Blended learning also allows you to adapt the educational process to the specific needs of students, ensuring more effective learning.

Given the rapid development of technology, an important prospect is also the further integration of distance learning with other areas of life. For example, the use of online courses in professional development, where employees can undergo specialized training without leaving the workplace. This allows for continuous improvement of professional skills and advanced training in the conditions of a changing labor market [4, 5].

Thus, the prospects for the development of distance learning are multifaceted. The use of new technologies, such as artificial intelligence, virtual reality, as well as innovative approaches to learning, create new opportunities for improving the educational process, ensuring greater accessibility and quality of education. Taking into account development trends, distance learning will become even more flexible, personalized and effective in the future.

The introduction of distance learning in the training of specialists in engineering, pedagogical and technological areas is a relevant and necessary step in modern education. The combination of theoretical knowledge with practical skills, the use of modern technologies and interactive teaching methods contributes to the formation of competent and sought-after specialists. The preparation of pedagogical staff for work in distance learning conditions is the key to the successful implementation of educational programs and ensuring high quality education.

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ANNOTATION

CHAPTER 1. MODERN BASICS OF ECONOMICS, MANAGEMENT AND TOURISM

1.1. Nataliya Hryniv, Tetiana Gryniv, Kateryna Roshko CONTAINERIZED TRANSPORTATION - HISTORY, APPLICATION, PROSPECTS, ACTUALIZATION

The article explores intermodal transportation with a focus on rolling road (Ro-La) services as a crucial component of modern logistics. It delves into the historical development, current status, implementation perspectives, and relevance of such transportation systems in the context of globalized supply chains. The paper reviews the origins of rolling road services in Europe, their introduction in Ukraine, and the key challenges and advantages associated with this type of freight transport. Special emphasis is placed on analyzing international experiences, including the economic and environmental benefits of Ro-La operations.

The article highlights successful projects implemented both in Ukraine and abroad, analyzing the role of government support and investments in developing infrastructure for intermodal transportation. Additionally, it examines the potential of integrating Ukraine into the European transport network through the expansion of rolling road services. The authors emphasize the importance of adopting advanced technologies, such as artificial intelligence, the Internet of Things, and blockchain, to enhance the efficiency, transparency, and security of this transportation mode.

Keywords: rolling road transport, logistics, multimodal transportation, transport infrastructure, combined transport, Internet of Things, blockchain.

1.2. Nadiia Vasylytsiv E-COMMERCE MARKET IN CURRENT CONDITIONS OF UNCERTAINTY: TRENDS AND CHALLENGES

The global e-commerce market has been analyzed. The main factors that have caused the growth of the global e-commerce market have been identified and formed. The current state of the e-commerce market in Ukraine development and changes in consumer purchasing behavior in conditions of uncertainty have been analyzed. The main challenges caused by the military invasion of the Russian Federation, to which the Ukrainian e-commerce segment must adapt, have been identified. The main trends of the e-commerce market in Ukraine have been identified and formed, which it is important for businesses to integrate into their activities in order to maintain competitive positions in conditions of uncertainty.

Keywords: e-commerce, conditions of uncertainty, marketplaces, payment methods, purchasing behavior, social networks, mobile commerce.

1.3. Olha Hirna LOGISTICS SERVICES MARKET: DIGITAL TRANSFORMATION AND INNOVATION

The publication examines the current state and trends in the development of the logistics services market in the context of digital transformation. The key factors determining the economic potential of transport logistics and the industry's main challenges are analyzed. The impact of innovative technologies on improving transport logistics is considered, including integrating IoT technologies, developing autonomous

CHAPTER 3. THE LATEST BASICS OF AGRICULTURAL DEVELOPMENT

3.1. Dmytro Bohatyrov DETERMINATION OF PARAMETERS FOR A CRIMP-ROLLER SHREDDER

Evaluated the drum parameters for shredding plant residues to ensure the reliability of the technological process. Analyzed the designs of crimp-rollers, including their structural and technological parameters. Investigated the influence of the blade inclination angle and the operating speed of the aggregate on the clogging of the inter-blade space. It has been proven that increasing the speed and blade inclination angle reduces clogging, even under high moisture conditions.

Keywords: crop residue shredders, crimp-roller, inter-knife space, rotor rolling, clogging of the inter-knife space, plant-soil mass, knife decay angle, unit operating speed.

CHAPTER 4. Serhii Onyshchenko FEATURES PROFESSIONAL TRAINING OF ENGINEERING, EDUCATIONAL AND TECHNOLOGICAL SPECIALISTS IN DISTANCE LEARNING CONDITIONS

This section of the collective monograph examines the features of professional training of specialists in engineering, pedagogical and technological areas in terms of distance learning. An analysis of modern trends and teaching methods used in the distance format has been conducted, and methodological recommendations have been developed for the effective implementation of distance learning in the training of future specialists in engineering, pedagogical and technological areas.

Keywords: distance learning, engineering, pedagogical education, technological education, information and communication technologies, teaching methodology.

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