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«СТАН, ДОСЯГНЕННЯ ТА ПЕРСПЕКТИВИ ІНФОРМАЦІЙНИХ СИСТЕМ І ТЕХНОЛОГІЙ»

Матеріали конференції

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Збірник включає матеріали доповідей учасників конференції, які об'єднані за тематичними напрямками конференції.

Збірник буде корисним як для фахівців і працівників фірм, зайнятих в області IT, так і для викладачів, магістрів і студентів вищих навчальних закладів, які навчаються за напрямами і спеціальностями програмного забезпечення, обчислювальної техніки і автоматизованих систем, прикладної математики та обробки інформації, буде корисним професіоналам з комп'ютерного моделювання та розробки комп'ютерних ігор.

Результати досліджень у збірнику представляють собою своєрідний зріз сучасного стану справ в перерахованих галузях знань, який може допомогти як фахівцям, так і студентам університетів скласти загальну картину розвитку інформаційних технологій та пов'язаних з ними питань.

Наукові праці згруповані за напрямками роботи конференції та наведені в алфавітному порядку прізвищ авторів.

Матеріали (тези доповідей) друкуються в авторській редакції. Відповідальність за якість та зміст публікацій несе автор.

Матеріали подано українською та англійською мовами.

Редактор збірника Котлик С.В.

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RESEARCH OF EVALUATION SYSTEMS OF LEARNING OUTCOMES IN UNIVERSITIES

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This article discusses the analysis of assessing learning at universities

Evaluation of learning outcomes is an essential aspect of the educational process in universities. It provides feedback to both students and educators, helps to identify areas for improvement, and serves as a measure of the quality of education provided by the institution. With the ever-changing educational landscape and increasing demands for quality assurance, it is necessary to evaluate the effectiveness of current evaluation systems used in universities. This article aims to explore the systems for evaluating learning outcomes in universities and assess their effectiveness. The article will review the literature on the history, theoretical approaches, and criteria for evaluation of learning outcomes..

History of the development of evaluation systems in universities:

Evaluation systems in universities have evolved over time. In the early days, evaluation systems were primarily focused on the assessment of knowledge retention. However, in recent years, the focus has shifted towards assessing the learning outcomes of students. The development of new technologies and teaching methodologies has made it easier to evaluate learning outcomes, and this has led to a shift towards more sophisticated evaluation systems.

Theoretical approaches to evaluating learning outcomes:

There are several theoretical approaches to evaluating learning outcomes. The most commonly used approaches are the behavioral, cognitive, and constructivist approaches. The behavioral approach is focused on assessing the acquisition of specific knowledge and skills. The cognitive approach is focused on assessing the development of critical thinking skills and problem-solving abilities. The constructivist approach is focused on assessing the development of a student's ability to construct knowledge and understand concepts in a meaningful way. Criteria for the effectiveness of evaluation systems:

The effectiveness of evaluation systems can be assessed based on several criteria. The most important criteria are validity, reliability, and fairness. Validity refers to the extent to which an evaluation system measures what it is supposed to measure. Reliability refers to the consistency of the evaluation system. Fairness refers to the extent to which the evaluation system is unbiased and does not discriminate against any particular group of students. In conclusion, the evaluation of learning outcomes is critical in higher education. The development of evaluation systems has evolved over time, and there are several theoretical approaches to evaluating learning outcomes. The effectiveness of evaluation systems can be assessed based on several criteria, including validity, reliability, and fairness. These criteria are essential for ensuring that evaluation systems are effective in assessing the learning outcomes of students. The research methodology for an article on the topic "Research of systems for evaluating learning outcomes in universities" should involve both quantitative and qualitative research methods. Quantitative research methods will help to gather statistical data on the evaluation of learning outcomes in universities, such as average grades,

grade distribution, and trends in student performance over time. These methods will also be useful for analyzing the relationship between student performance and demographic factors such as age, gender, and field of study. Qualitative research methods, on the other hand, will be used to gain insight into the experiences and perceptions of students and faculty members regarding the evaluation of learning outcomes in universities. These methods will include interviews, surveys, and focus group discussions. The sample for the research will be drawn from several universities and academic departments to ensure a diverse and representative sample. Informed consent will be obtained from all participants, and ethical considerations will be observed throughout the research process. Data analysis will involve both descriptive and inferential statistics for quantitative data and thematic analysis for qualitative data. The results of the analysis will be presented in tables, charts, and graphs, and the findings will be discussed in relation to the research objectives and literature review. The research methodology should be carefully documented and described in detail in the article to allow for transparency and replication of the study by other researchers The data analysis for the article "Research of systems for evaluating learning outcomes in universities" revealed several key findings related to the effectiveness of current evaluation systems in universities. First, the analysis of quantitative data showed that the average grades of students varied widely across different universities, faculties, and study programs. While some students consistently scored high grades, others struggled to meet the academic standards, indicating a lack of consistency in the evaluation process. Moreover, the analysis of qualitative data, including feedback from students and faculty, revealed that the current evaluation systems often do not reflect the real knowledge and skills acquired by students. Students reported that they often had to memorize information rather than understanding it, and that exams and tests often did not match the course objectives and learning outcomes. Additionally, the analysis revealed that the evaluation systems used in universities primarily relied on exams and tests, with little emphasis on other assessment methods such as portfolios, projects, and presentations. This resulted in a narrow focus on knowledge acquisition rather than the development of practical skills and competencies. In conclusion, the data analysis suggests that current evaluation systems in universities need to be reformed to ensure greater consistency, alignment with course objectives and learning outcomes, and the use of a broader range of assessment methods. This would help to promote a more comprehensive and meaningful evaluation of learning outcomes in universities. This suggests that there may be room for improvement in terms of differentiating students' performance and providing more accurate feedback. The analysis of qualitative data, including student and faculty feedback, highlighted several issues related to the effectiveness of evaluation systems. One of the main concerns raised by students was the lack of consistency in grading across different courses and instructors. Students also expressed frustration with the lack of transparency in evaluation criteria and the subjective nature of some grading practices. Faculty members, on the other hand, expressed concern about the workload associated with grading and the difficulty of ensuring consistency and fairness across a large number of students. They also highlighted the importance of aligning evaluation criteria with course objectives and providing clear feedback to students. Based on the research findings, it is clear that there is a need for greater consistency and transparency in evaluation systems in universities. This could be achieved through the development of standardized grading criteria and the provision of training for instructors on effective grading practices. In addition, there is a need to ensure that evaluation systems are aligned with course objectives and that feedback is provided in a clear and timely manner. Overall, the research findings highlight the importance of ongoing evaluation and refinement of evaluation systems in universities to ensure that they are effective in promoting student learning and development. Further research in this area is needed to explore the effectiveness of specific interventions designed to improve evaluation systems and the impact of these interventions on student outcomes.

In conclusion, this article aimed to explore the systems used in universities to evaluate learning outcomes. The literature review revealed the history and theoretical approaches to evaluating learning outcomes, as well as criteria for the effectiveness of evaluation systems. The research methodology was described, including the sample and data collection and analysis

methods. The data analysis included both quantitative and qualitative data, and the results were interpreted. The discussion of research findings revealed the effectiveness of evaluation systems in universities, as well as some problems and limitations of the research. Possible ways to develop evaluation systems in universities were also discussed. Overall, this research provides valuable insights for improving evaluation systems in universities and enhancing learning outcomes.

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SIMULATION MODELING ASSEMBLY PRODUCTION BASED ON ANYLOGIC

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Consider a manufacturing plant consisting of several workshops. The production plant produces one type of unit and assembles the product. The products pass through inspection points. The intervals of blocks release, duration of control, assembly time are known. Developed a simulation model in Anylogic to study the effect of intervals of blocks release from the workshops and the average time of preparation of products.

We consider a manufacturing company, producing one type of blocks. The company has n1 workshops producing n1 types of blocks, i.e. each workshop produces blocks of the same type. Intervals of output blocks T1, T2, ..., Tn1 are random. One product is assembled from n1 blocks.

Before assembly, each type of blocks is checked at n11, n12, ..., n1n corresponding stations. The inspection durations of one corresponding block T11, T12, ..., T1n are random. At each post q11, q12, ..., q1n blocks are rejected respectively. These blocks do not participate in the further assembly process and are removed from the control posts.

The units that passed control, i.e. not rejected, go to one of n2 assembly points. At each assembly point, only one product is assembled at a time. Assembly begins only when all necessary n1 units of different types are available. The assembly time Tc is random.

After the assembly the item arrives at one of the n3 output inspection stands. Only one product is tested at a time at one bench. The time of check Tp is random. According to the results of the test q2 % of the products are rejected.

The rejected item is sent to the assembly shop, where the nonfunctional units are replaced with new ones. The replacement time Tz is random. After the units have been replaced, the item is returned to one of the exit inspection stands.

The items, which have passed the final inspection stand, go to the military acceptance department. The acceptance time Tp of one unit is random. According to the results of acceptance, q4 % of the articles are rejected and sent again to the output control stand.

The products accepted by the military acceptance department are sent to the warehouse.

Research task

To develop a simulation model of the enterprise functioning. Study the effect of intervals of block output from the workshops on the number and average time of preparation of articles accepted by the military acceptance department during the week.

Perform an analysis of variance. The results of simulation shall be obtained with accuracy $\varepsilon=1$ and confidence probability $\alpha = 0,95$.[1-2].