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Research Article

THE SIGNIFICANCE OF THE CREDIT-MODULE SYSTEM IN STUDYING THE SCIENCE OF ENGINEERING COMPUTER GRAPHICS

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ABSTRACT

This article highlights the special importance of organizing the engineering computer graphics course through the credit-module system, which plays a significant role in developing students' creative abilities and ensuring quality in the lesson process through modular teaching.

KEYWORDS

Credit module, engineering computer graphics, autoCAD , 3D, venn diagram.

INTRODUCTION

Currently, major reforms are being carried out by our leadership in higher education institutions in our republic to enhance the quality of education and to train qualified specialists that meet the demands of the market economy. Starting from the 2020/2021 academic year, the process of gradually transitioning the educational process in higher education institutions to a credit-module system has been initiated. This includes improving the qualification requirements, curricula, and course programs of bachelor's and master's programs based on the introduction of the credit-module system in the teaching of engineering graphics.

The credit-module system is a process of organizing education, based on a collection of modular teaching technologies and an assessment model based on credit measurement. Implementing it as a whole is a versatile and complex systemic process. Within the principles of the credit-module system, two main issues are emphasized: ensuring students' independent work and assessing students' knowledge based on a rating system.

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METHODOLOGY

The main tasks of the credit-module system are recognized as follows:

— Organizing educational processes based on modules;

— Determining the value of a subject or course (credit);

— Assessing students' knowledge based on rating scores;

— Allowing students to develop their own study plans individually;

— Increasing the share of independent learning in the educational process;

— Adapting the education programs based on the requirements of the labor market.

Any systematic and coherent set of studies and activities that aligns with the above definition and reflects the corresponding amount of credits can be referred to as a module.

THE ROLE OF MODULES IN HIGHER EDUCATION

By mastering the module, students will gain professional competence in studying the normative-legal foundations of the education and upbringing process, analyzing them, applying them in practice, and evaluating them

MODULE SUBJECTS AND AUDITORIUM LOAD

No	Module topics	Auditorium study download		
		Total	Theoretical	Practical training
1.	Laws and regulatory documents in the field of education	2	2	
2.	Organizing educational processes based on the credit system	2	2	
3.	Planning and organizing independent work of students in the credit-module system	2		2
4.	Methodological support of the educational process and assessment methods for learning outcomes in the credit-module system	4		4
	Total:	**10**	**4**	**6**

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Oliy ta'limda talabalar o'zlashtirishini baxolash tizimlarini qiyosiy taqqoslash JADVALI

2018 yildan OTMlarda baxolash tizimi	Rossiya tizimi (MDU)*	Evropa kredit transfer tizimi (ECTS — European Credit Transfer System)	Amerika tizimi (A-F)	Britaniya tizimi (%)	Yaponiya tizimi (%)	Koreya tizimi (%)	2019 yilga kadar OTM baxolash tizimi (%)
«5»	«5»	«A»	«A+»	70 —100	80 — 100	90 — 100	86 —100
			«A»				
			«A-»	65 — 69			
«4»	«4»	«V»	«V+»	60 — 64	70 — 79	80 — 89	71 — 85
		«S»	«V»	50 — 59			
			«V-»				
«3»	«3»	«D»	«S+»	45 — 49	60 — 69	70 — 79	55 — 70
		«E»	«S»	40 — 44			
			«S-»				
			«D+»			60 — 69	
			«D»				
			«D-»				
«2»	«2»	«FX»	«F»	0 — 39	0 — 59	0 — 59	0 — 54

RESULTS

Integrating working course programs in organizing the teaching process of engineering graphics through the credit-module system is essential for clearly defining the goals and objectives of the subject.

This will help students organize the lesson process and further develop their knowledge, skills and abilities, help students to better perform the given graphic tasks, and increase their spatial imagination. In this regard, the educational reforms that can be carried out in the current modern education system show that the organization of the lesson process through the credit-module system is directed to a specific goal and has integrity. It is appropriate to round up practical and theoretical, independent works and graphic tasks by dividing them into groups through a specific direction.

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Engineering computer graphics lesson process organize reach

3D muhitda berilgan o‘yish chiziqlari orqali yangi detal loyihalash

O‘quv mashg‘ulotining maqsadi: Talabalarni AutoCAD dasturining uch o‘lchamli loyihalash imkoniyatlaribilan tanishtirish

Talabalarning e’tiborini jalb etish va bilim darajalarini aniqlash uchun tezkor savollar

Kompyuterda uch o‘lchamda grafik axborotlarni bajarish mumkinmi?

Talabalarning ijodkorlik qobilyatini shakllantrish

Arxitektura qurilish elementlarini ham kompyuterda uch o‘lchamda loyihalash mumkinmi?

Berilgan grafik topshiriqlarni uch o‘lchamli detalarni va arxitektura elementlarni loyihalash mumkin. AutoCAD dasturi orqali kompyuterda chizishni o‘zlashtirib, olingan tushincha, ko‘nikma, malaka va tajribalar asosida bir nechta oddiy jismlardan tarkib topgan detallarning yaqqol tasvirlarini ham qiynalmay loyihalash mumkin bo‘ladi. Undagi yaqqol tasvir va qirqimlar bilan bog‘liq bo‘lgan muammolarni hal qilish onson va samarali tashkil etish mumkin

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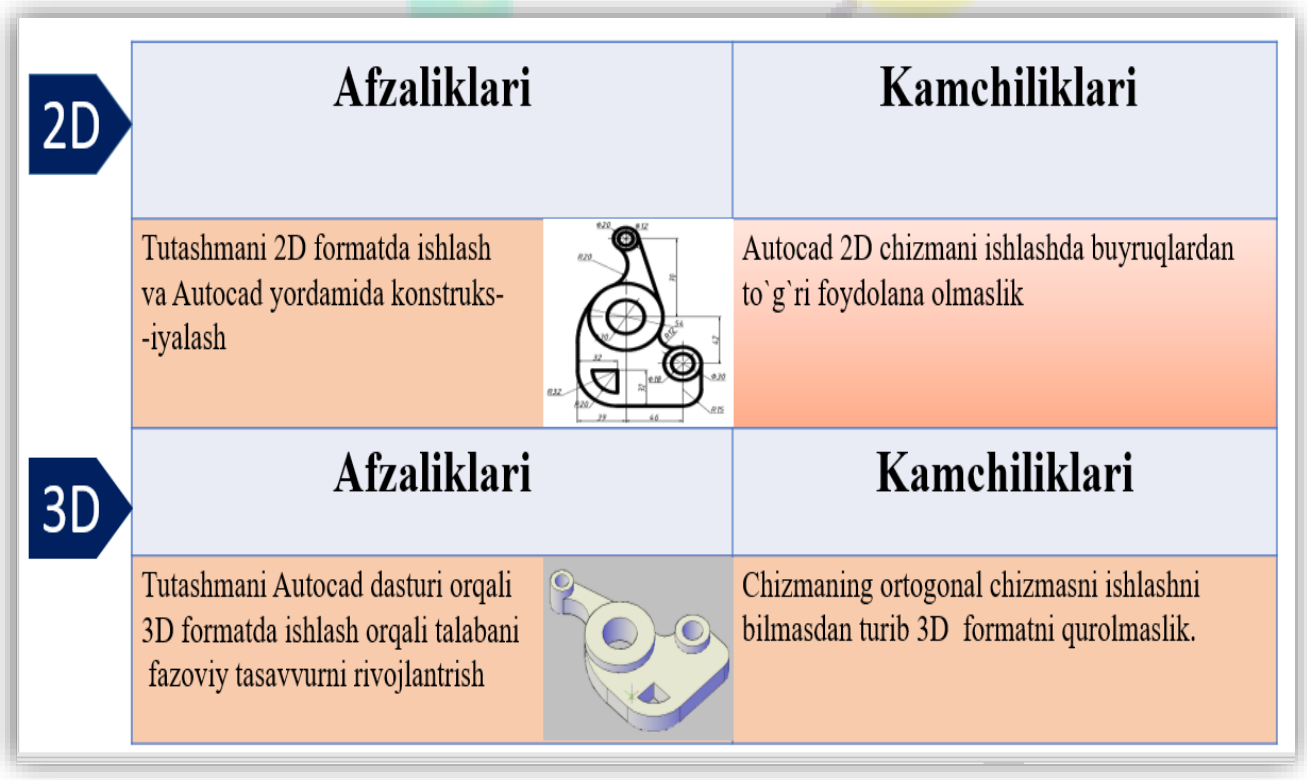
Current education in the process credit module system through engineering and computer graphics science organize in reaching putable requirements that's it shows that today's modern requirements within of teaching its own importance clearly one the goal set received without organize reach to the goal appropriate is considered

Students spatial imagination in raising Ven diagram from the methodology used without lesson process organize of reaching to himself now importance

practical training: To acquaint students with A utoCAD program commands for designing solids in three dimensions and their orthogonal drawings axonometric projection according to spatial the imagination shaping and student learned knowledge qualification through " Practical training and independent education can collect 30 credits for In this case, it is possible to collect 15 credits for practical training, 15 credits for independent education, or it allows to collect certain credits depending on the knowledge potential.



First of all, we need to explain the difference between 2D and 3D drawings to students before we create 3D drawings in the imagination of students using the "Modelirovanie" panel command.

It can be seen that the difference between advantages and disadvantages in performing graphic tasks in 2D and 3D formats is considered, which means that the student's lack of knowledge about the given graphic

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task or the inability to correctly use the commands on the AutoCAD toolbar means that the student does not have enough knowledge.

DISCUSSION

Today, organizing the lesson process using modern methodologies and information technologies in engineering graphics not only provides convenience for students but also for teachers. Organizing independent learning tasks in engineering computer graphics through the credit-module system allows students to prepare notes and graphic designs using the AutoCAD program, which is necessary for applying their acquired knowledge practically.

Students will prepare independent work notebooks on self-studied topics, which will be defended in a question-answer format. The notes should include the level of understanding of the topic, current pressing issues, problems, and scientific-methodical proposals aimed at resolving them. The practical significance of geometric drawing in everyday life, technology, production, visual arts, and architecture should also be highlighted. Additionally, it is recommended that students prepare reports on independently studied topics and present them, as well as prepare scientific-methodical and theoretical articles.

The ability to correctly construct the given graphic task using the AutoCAD program and the proper use of commands in the working panel is crucial for assessing the level of understanding of the topic, current pressing issues, problems, and scientific-methodical proposals aimed at resolving them.

CONCLUSION

In conclusion, it can be said that modern information technologies based on new pedagogical technologies in the education system of the Republic of Uzbekistan further improve modular teaching in engineering computer graphics and enhance students' knowledge and skills through the credit-module system. Being able to correctly use commands in the AutoCAD program's working window and organizing the teaching process based on innovative methods will contribute to developing creativity. Enriching students' spatial imagination and creatively approaching given graphic tasks will properly shape their worldview. Emphasizing the development of competencies by widely utilizing modern information communication technologies and innovative interactive teaching methods is appropriate. Experiences show that developing students' creative abilities requires distinct independent study hours dedicated to creative-directed educational programs to enhance their knowledge and skills.

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