

THE DEVELOPMENT OF THE ENGINEERING DESIGN PROGRAM AT THE UNIVERSITY OF FORESTRY FROM THE VIEWPOINT OF ITS GRADUATES

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ABSTRACT

The article represents a unique view at how the “Engineering Design (Interior and Furniture Design)” Program developed from its inception to the present times. The authors of the article hold a Master Degree in Engineer Design from the first cohort; later, they defended their PhD thesis in the same field. Nowadays, they act in the position of Lecturers, training students of the same Program. All of this gives a unique look at the various achievements and problems that have arisen during the Design Program's development period. Aspects such as the kind of studied courses, teaching methods, facilities, opportunity for creative expression, and students' career prospects are considered. For better objectivity, the opinion of other alumni who graduated the Program over the years has been studied.

Key words: Engineering Design Program, design education.

INTRODUCTION

Based on years of experience and their own perspective during the study as undergraduates and as PhD students and later as lecturers of the “Engineering Design (Interior and Furniture Design)” Program, the authors of this article aim to prove that the Program, despite all challenges and obstacles, continues to develop in a positive direction and is highly valued by alumni and employers in the industry. In the paper, the type of studied courses, teaching methods, facilities, opportunity for creative expression, and students' career prospects are considered.

Probably long thought out, desired and discussed, the “Engineering Design (Interior and Furniture Design)” Program (originally created as “Interior and Furniture Design”) admitted the first student cohort in the academic year 1995/1996. The admission examination consisted of three parts: mathematics, abstract colour composition drawing and a landscape pencil drawing. Applicants exceeded the admitted students by far. 60 students (30 women and 30 men) enrolled for

the initial five-year Master Degree Program. The long-hidden positive energy resulted in the start of the program and led to a beneficial impetus; that is why the first graduated cohort was considered very motivated and exceptional for years. The curriculum (good or bad) covered five years of study, including nine semesters and one semester for preparation of a Design Diploma Project. In its original state, the Program trained students for the first seven years of its existence. The first major change in the curriculum was required in the academic year 1998/1999 when the Bachelor and Master Degrees had to be introduced, required by the Law on Higher Education. Other changes followed, due to the need to increase the number of classes in specific courses, more needs to update and still others - to keep up with the latest educational formats in Europe and the world. The reason for this was the growing competition in this field, which teachers, the University and the Faculty had to meet. Despite the number of curriculum changes to distinguish the Design

Program from the Technical nature of the existing Engineering Program at the Faculty of Forest Industry (FFI), there is still room for improvement in this regard. This is the objective of the survey. Another direction is the reduction of the attendance load for students. With a change in the curriculum in 2009, attendance classes were reduced to 2777 study hours, "which enabled the provision of more non-attendance load and practical work with students" (Trichkov, N. 2010). Unfortunately, instead of maintaining this guideline for reducing students' attendance load, the amount of study hours has been increased once more to 2880. However, at national level, guidelines and recommendations were given to reduce this load with the introduction of a Bachelor Degree with a training period of 3 years. (Strategy for Development of Higher Education in the Republic of Bulgaria 2021-2030, 2021)

The curriculum of this program is a unique compilation of courses, aiming at training Design Engineers for the Furniture Industry and all areas related to the Design of the Habitable Environment by acquiring general knowledge and competencies, covering the implementation of all stages of design process, from the conceptual design to its implementation. Students receive theoretical and practical knowledge and competencies in the field of Interior and Furniture Design; Woodworking and Furniture Manufacturing, including processes, technologies, constructions, machines, tools and production modes; major requirements to the construction sites, which should be observed in case of interior reconstructions; properties, technical characteristics, advantages and disadvantages of the huge variety of different types of wood and non-wood materials; functional dimensions, constructive and functional features of furniture; historical heritage in interior styles and

architecture, etc. The study aims at developing figurative and combinatorial thinking and a creative approach to solving specific problems related to Graphic, Product and Interior Design. Students are encouraged to develop their critical and analytical thinking, perception, understanding, self-interpretation and decision-making related to Interior and Furniture Design.

Despite the constant effort to improve the curriculum, the level of education and the facilities of the University for the program, there is a decrease in the number of enrolled students.

Many factors affect the declining number of students in this study. Among some of them are: the opportunities to study abroad; the high number of universities per capita in the country; private universities and institutions that offer attractive forms of education and specialised courses; a negative demographic trend in the country, new state requirements, etc.

What is positive and very valuable is the fact that the University maintains close links with companies in the area and The Branch Chamber of Woodworking and Furniture Industry.

Competition in the field of education in recent years is extremely high, and this is no exception for design programs, such as "Engineering Design (Interior and Furniture Design)", studied at the University of Forestry. Despite the demographic collapse and the drastically reduced number of prospective students, more universities offer training in design areas. According to a study by Dimitar Dobrevski, there are more than five universities in Sofia and no less than 15 universities and colleges providing design training throughout the country. The number of private universities and institutions that attract prospective students with congenial programs has increased. Unlike the year when

the program started, there are now better opportunities to study design abroad. This new tendency is triggered by the option that allows one to study overseas and the companies involved in this sector. Young people are much more open to the world and have no difficulty changing their living and learning environments. The Ministry of Education and Science has implemented the policy for restructuring the admission and funding in public schools since 2016, which proved to be very important for the admission of students in Design. In this regard, from 2020, state admission quota for the "Engineering Design (Interior and Furniture Design)" Program has been drastically reduced; contrary to the fact that, according to the Bulgarian Ministry of Education and Science, design falls into the priority area of engineering and technical studies; despite the lack of employees in Furniture Industry; and despite the openly expressed opinion of the Branch Chamber of Woodworking and Furniture Industry against the reduction of state admission quota for this program at the University of Forestry.

EXPOSITION

In order to achieve greater objectivity in the exposition, the opinion of alumni in "Engineering Design (Interior and Furniture Design)" Program has been studied.

The research was conducted through an anonymous survey, including 15 questions, which aim to clarify the opinion and assessment of the respondents regarding their professional opportunities; level of training from the point of view of career; the positive guidelines for the development of the program, in order to train more successful professionals in the field of interior and furniture design; studied courses; teaching methods; duration and form of training; compared to design training at other universities and institutions, including abroad.

Based on the summarized answers, the following survey results can be presented:

Question 1: In which year did you complete your semestrial studies at the "Engineering Design" Program? Answers were given by students from almost all years since 2000, and logically there are more respondents from the last 6–7 years. The largest percentage of respondents is the one of graduates from the period 2011–2018 – 56%, followed by graduates from the period 2018–2020 – 37%.

Question 2: What degree did you receive? 33.3% of the respondents to the survey have received a Bachelor Degree, and 66.7% have a Master Degree.

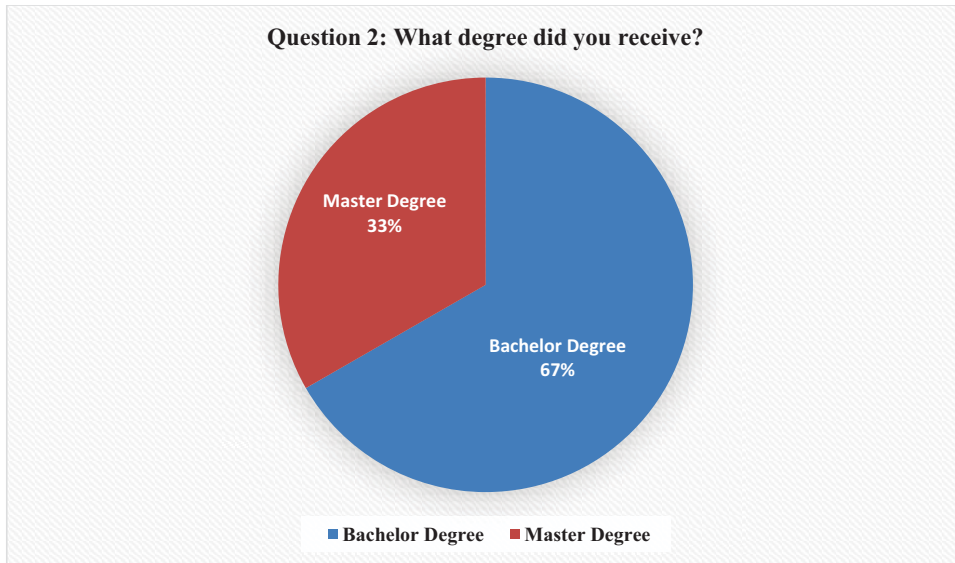


Figure 1: Graph, illustrating the answers to Question 2

Question 3: Which field does your professional career cover? From this question, it is clear that all respondents are professionally engaged in areas directly related to their training, as 36.1% of them perform design work, 25% are Business Owners and 11.1% work as Sales Consultants. The remaining

27.8% of the respondents are evenly distributed in the following positions: Manager; Operational Worker; Cabinet Furniture Designer; Google Cloud Architect; Project and Design Manager; Design Engineer; CG Artist; Engineer; Designer; Interior Architect; Furniture Production Engineer and Designer and Project Manager.

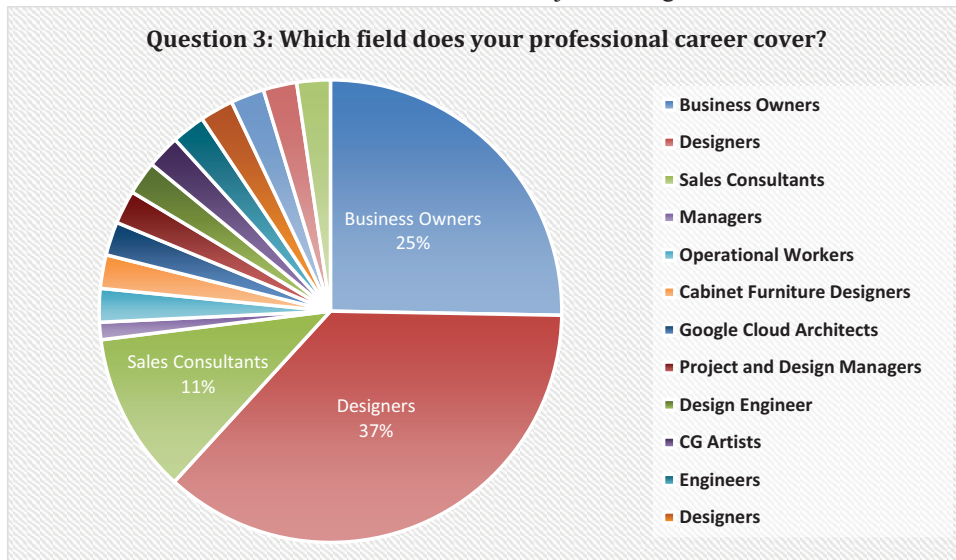


Figure 2: Graph, illustrating the answers to Question 3

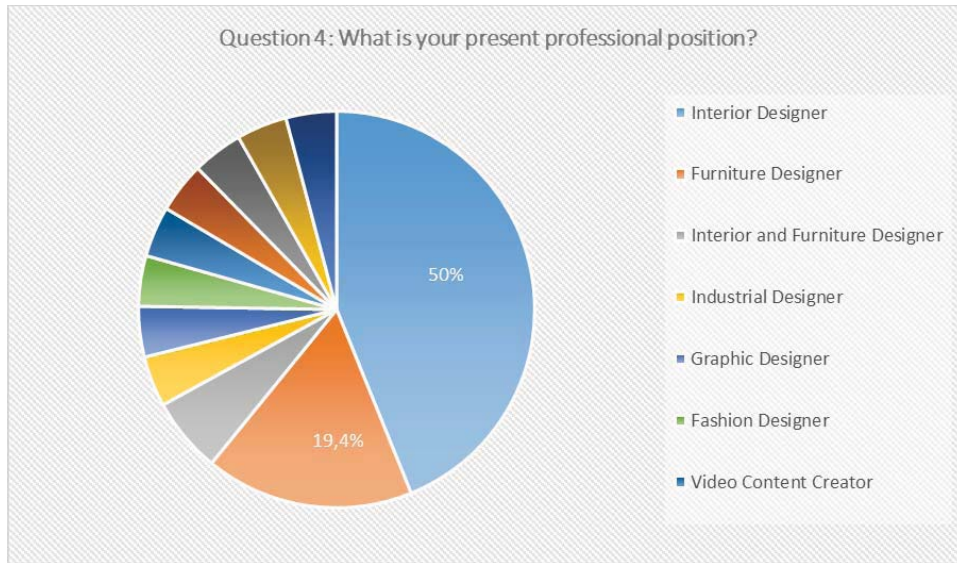


Figure 3: Graph, illustrating the answers to Question 4

Question 4: What is your present professional position? The most common answers to this question are: “Interior Designer; Furniture Designer; Industrial Designer; Graphic Designer; Fashion Designer; Video Content Creator; IT Engineer; Interior and Furniture Designer; Architectural and Interior 3D Visualization; Services Designer; Interior and Furniture Designer, as well as Manager of a Design Studio; My career is in the Design and Organization of Events, as well as ...; I

am not working in the area I studied, since there are no job vacancies at the moment.”

Question 5: How do you evaluate the training received at the University of Forestry in terms of your professional career? The positive assessment given by the respondents to the training in Design Program makes a strong impression. In reality, only 2.8% of respondents believe that the University training is "bad". These assessments should be an incentive for development in a positive direction.

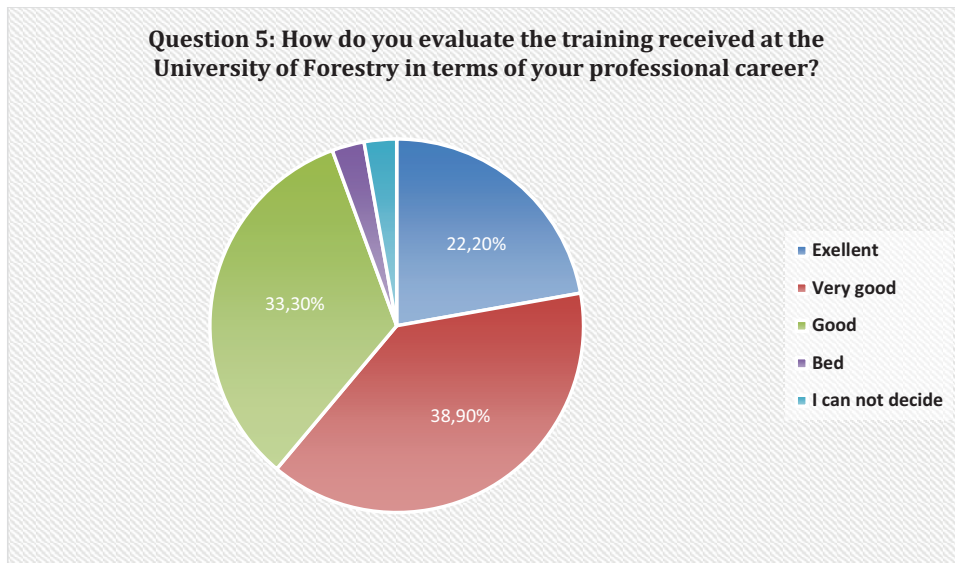


Figure 4: Graph, illustrating the answers to Question 5

Question 6: What should be improved in the education of the Design Program to train more successful professionals in the field of interior and furniture design from your point of view? Some of the most common answers are: "More connection between different courses, less technological courses"; "Emphasis on computer programs"; "More teachers with actual practical experience"; "More practical activities and meetings with furniture companies"; "Full digitalization"; "More prototyping."

These answers provide extremely valuable guidelines for improving the set of subjects in the curriculum of the "Engineering Design (Interior and Furniture Design)" Program and their content. It can be said that a lot has been done in terms of practical activities and the links with companies in the industry. The curriculum includes two intensive study modules in which students work on "live assignments" provided to them by companies in the furniture industry. In addition, every year, students have the opportunity to be acquainted with the activities of various companies, by means of the lectures

they give at the University of Forestry or through visits to these companies. However, there is much to be desired in terms of facilities and, in particular - the need for workshop space with modern prototyping equipment, where students can make models and prototypes of their projects related to different courses. We also consider as a disadvantage the study of Digital Visualization as late as the last years of the program.

Question 7: What could be improved in terms of the courses studied from your point of view? Respondents' opinion on this issue is that the training should be conducted in "modules of one/two weeks, studying only one courses during this time, similar to project weeks"; "There should be more design related courses, technological - to be seriously reduced"; "Emphasis on courses related to computer programs and design; "There should be more communication between the courses - not just to eliminate iterations, but also building adequate links of study content, implemented in design assignments."

From these answers, it can be concluded that alumni of the Design Program, as already established professionals in their field, have a very clear view of the content and the way of teaching the studied content.

Question 8: Are you satisfied with the duration and form of training? The large percentage of satisfaction with the duration and form of training clearly shows that a somewhat optimal ratio has been achieved in the period and form of training.

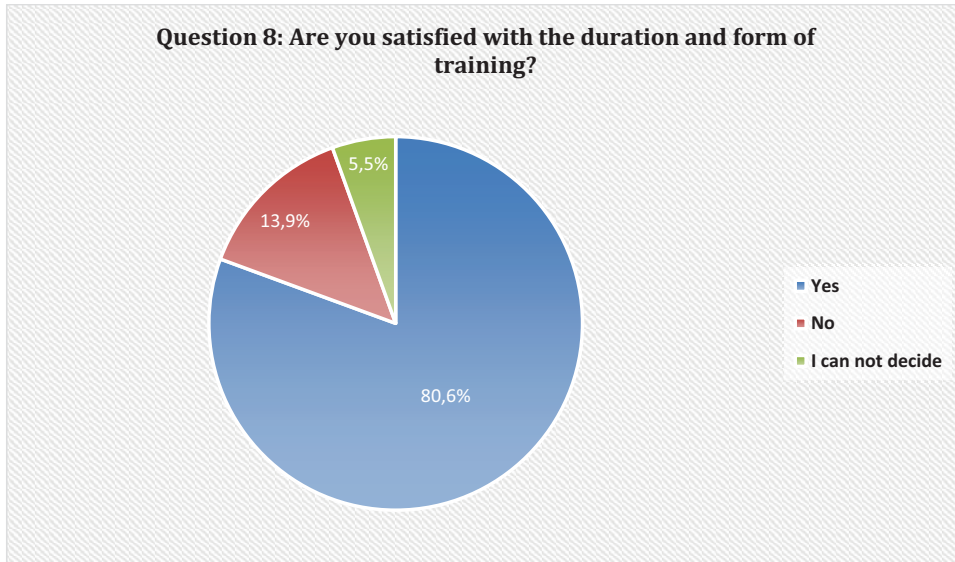


Figure 5: Graph, illustrating the answers to Question 8

Question 9. If you are not satisfied, would you suggest what the duration and form of training should be?

Those who believe that the form and duration of training should be changed have given the following arguments and suggestions: "Most courses in engineering are not relevant to market requirements and if they are removed or modernized, all theoretical training will be shortened."; "I would not say that the four years should be shortened, but the emphasis should be more on practical skills"; "I think that there are too many courses in the Bachelor Degree"; "I think it

right to have more design studio classes"; "To set up a design workshop, where design will be shaped in actual form".

From the given answers, it can be judged that the respondents believe that more practice, tasks and cases are needed from a real work environment. Emphasis is put on studio classes with less focus on the lecture content, as well as basic business experience. "There should be reciprocal communication between students and University!"

Question 10: Have you studied such a Design Program abroad?

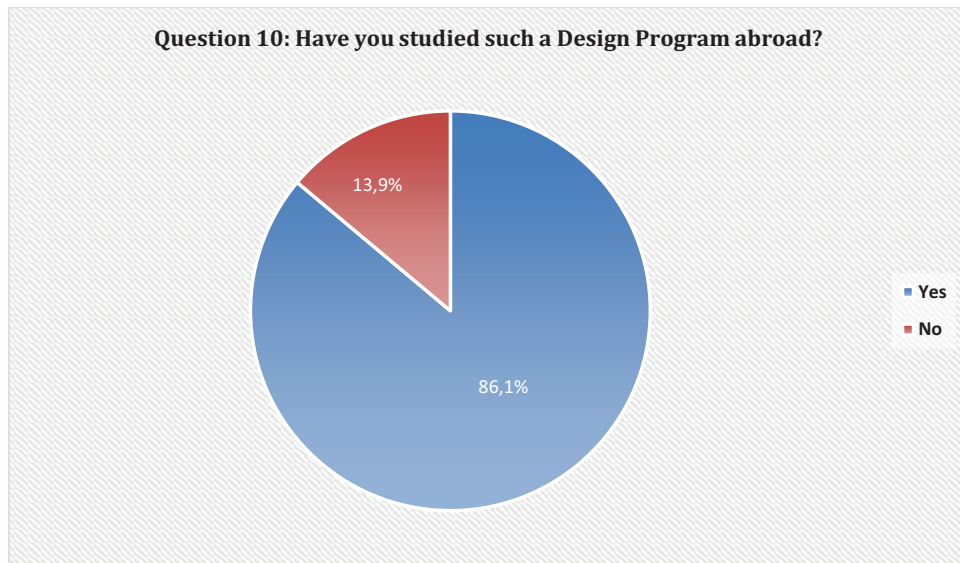


Figure 6: Graph, illustrating the answers to Question 10

Question 11. Are you familiar in detail with design training in other universities and institutions?

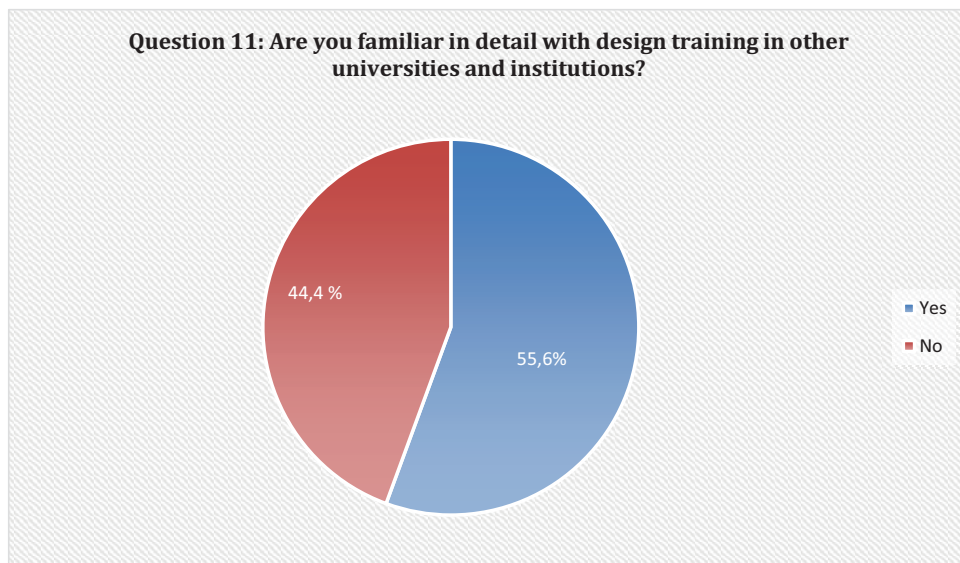


Figure 7: Graph, illustrating the answers to Question 11

Question 12. Can you make a comparison between design training at the University of Forestry and other educational institutions (including abroad)? We received the following answers to this question from Design

Alumni, which give us a good direction for curriculum evolution and for integration with design curricula abroad in order to transfer credits:

"In my opinion, the education at the University of Forestry is at a very high level compared to other universities in Sofia."; "Very good level of teachers and courses."; "If the Master Degree at the University of Forestry undergoes a curriculum change, then this may be the ideal upgrade for future professionals."; "Too many technical subjects at the University of Forestry at the expense of design and sketching and drawing. A designer without sketching skills is just ridiculous and absurd."; "Yes, at the University of Forestry, prototyping is a luxury. Everywhere abroad, prototyping is a required part of any project, regardless of the type of

course. Prototyping is the most important part of designer's training and practice and should not be reserved only for some who have enrolled in specific courses."; "At the University of Forestry, the focus is on the interior and furniture design during the entire education, while elsewhere it is either partially affected or not so detailed."

Question 13: Do you think that the development of the Design Program at the University of Forestry has prospects? The number of positive respondents clearly shows their opinion about the future of the "Engineering Design (Interior and Furniture Design)" Program.

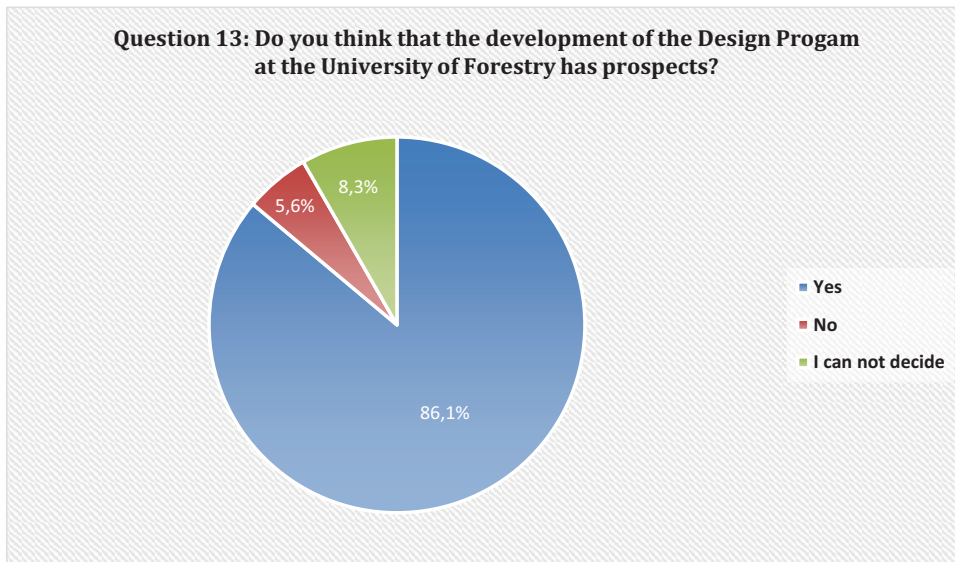


Figure 8: Graph, illustrating the answers to Question 13

Question 14: Would you recommend to your relatives and friends to study this Design Program? The graph in Figure 9 shows that the percentage of alumni who answered positively coincides with the percentage of those who believe that the development of the Design Program at the University of Forestry has prospects.

Question 15: If you were an applicant now, would you enrol to study the Design

Program at the University of Forestry? Again, as in the answers mentioned above, the positive attitude towards training in Design Program significantly prevails - 75%. Unfortunately, there is also the number of those who answered that they would not or do not know whether they would enrol to study Design at the University of Forestry, which means that there is still much to be desired in terms of improving training.

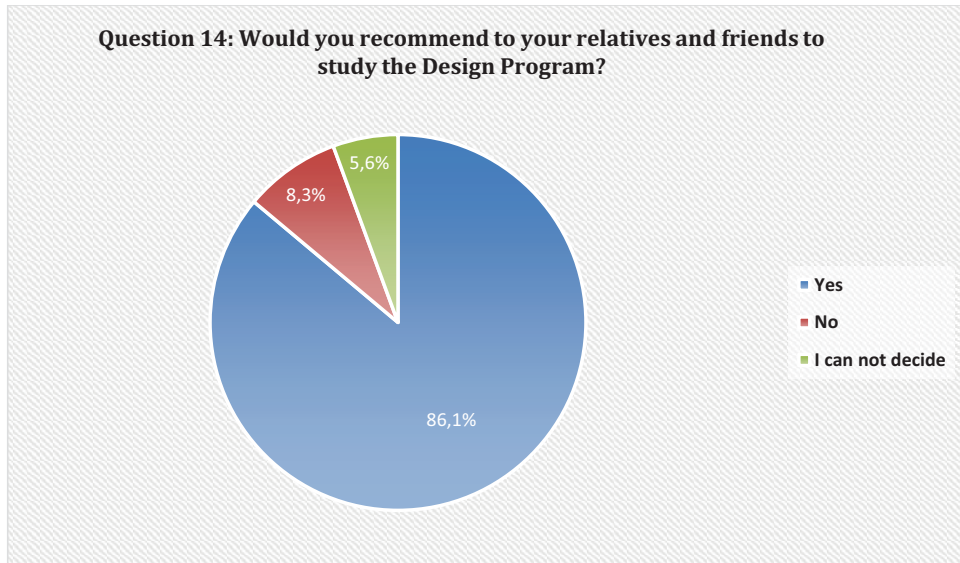


Figure 9: Graph, illustrating the answers to Question 14

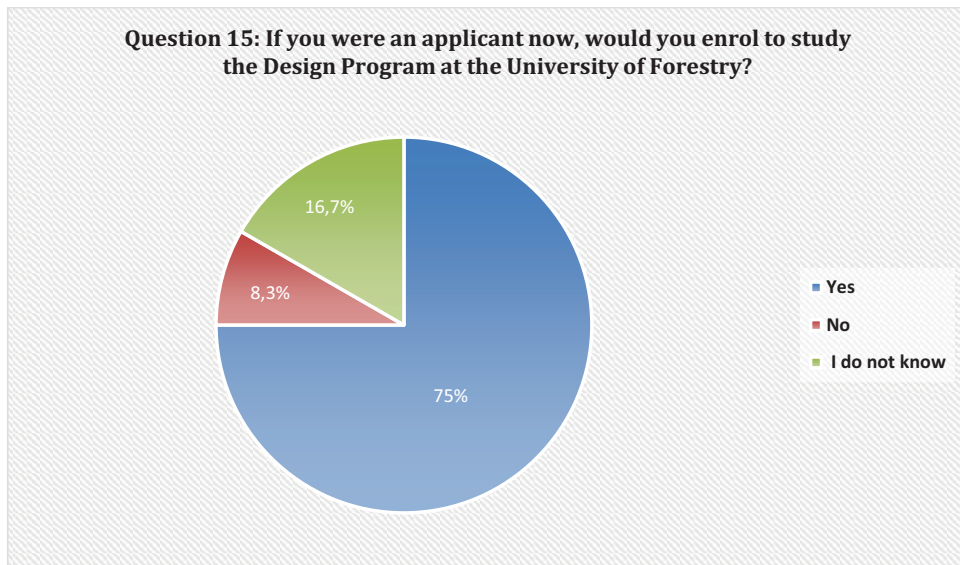


Figure 10: Graph, illustrating the answers to Question 15

SUMMARY OF THE SURVEY RESULTS

All respondents who graduated the Master Degree, have a managerial or high executive position, which is actually the purpose of this upgrading degree. The situation is similar with bachelors - all but one respondent work in the field of design. From this, it

should be concluded that the design and engineering courses created the necessary foundation for graduates, entering the labour market.

Satisfaction with the received education is high, as the percentage of Master Degree holders, i.e., alumni with more experience demonstrate higher satisfaction, once more

an indicator of success. All Masters and almost all Bachelors believe that the Design Program has potential, would recommend it and would graduate again.

The above-demonstrated feedback from alumni of this Design Program confirms the hypothesis of the authors that in spite of difficulties the "Engineering Design (Interior and Furniture Design)" Program has a positive development and perspective.

CONCLUSION

Despite the positive opinion about the development of the Design Program, today's reality requires us to follow the direction of creating more flexible educational formats. This is necessary in view of the various institutions that have emerged in recent years, offering design training characterized by a very short period of training, intensive study of a small number and highly specialized courses and strongly represented computer training. Improvements in this direction will help the Design Program to become more attractive for applicants and will be more competitive with other design programs both in Bulgaria and abroad.

Collaboration between business and educational institutions is becoming increasingly important and urgent.

The timely updating of training programs, in line with changes in technology and public attitudes, is crucial for the successful

professional career of alumni we have educated.

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