

FIRST YEAR STUDENT EVALUATION OF STUDY PROCESS AT THE FACULTY OF ENGINEERING

Kaspars Vartukapteinis, Antonina Cukure, Janis Cukurs
Latvia University of Agriculture, Faculty of Engineering
kaspars.vartukapteinis@llu.lv

Abstract. In spite of concern and prognoses that the economic recession and democratic depression will cause sharp decrease of people wishing to study the admission commission of the Faculty of Engineering in the summer of 2009 received a considerable number of applications from entrants for full-time studies. It shows that young people evaluate education as long-term investment for their future. Though, in part-time studies sharp reduction of students can be observed. It indicates that the form of part-time studies at the present economic situation has exhausted its possibilities and the faculty should think about future and offer other forms of organisation of studies. The authors of the article are working with the first year students and through inquiries get an insight in the problems of the procedure of the study process and try to find solutions of them.

Keywords: students, study process, quality of studies, enquiry.

Introduction

The review of the Ministry of Education and Science [1] shows that in 2009 in Latvia for the first time essential decrease in the number of students was observed. The total number of students has decreased by 10.2 %, but the number of students enrolled in the first year of undergraduate studies – by 26 % in comparison to 2008. The admission results at the Faculty of Engineering of the Latvia University of Agriculture in 2009 in full-time studies do not correspond to the trend of the total number of enrolled students in the country. The total number of students enrolled in the study programs of engineering in the first year in 2009 in comparison to 2008 has increased by 11.8 %. The number of students and its variations according to the study programs and kinds of studies is shown in Table 1.

Table 1

Number of students enrolled in the first year in 2008 and 2009

Study programme	Number of enrolled students				Changes in 2009 in comparison to 2008, %		Changes of the total number of students, %
	2008		2009		Full time	Part time	
	Full time	Part time	Full time	Part time			
Agricultural Engineering	66	19	91	12	+37.9	-36.8	+21.2
Agricultural Power Engineering	23	23	40	9	+73.9	-60.9	+6.5
Machine Design and Manufacturing	29	9	31	6	+6.9	-33.3	-2.6
Total:	118	51	162	27	+37.3	-47.1	+11.8

The competition coefficient in 2009 in full-time studies in the places financed by the state in the Agricultural Engineering program was 2.36, in Agricultural Power Engineering – 2.64, in Machine Design and Manufacturing – 3.12. According to the data in Table 1 the number of students enrolled in the first year in part-time studies has reduced in comparison to full-time studies.

Materials and methods

The aim of the research is to obtain the student evaluation of the study process by means of inquiries. After that, based on the student evaluation, it is possible to evaluate critically different aspects of the study process and perform the necessary activities for improvement of the study process. It is especially essential in the situation when the total number of graduates from the secondary educational institutions and potential higher school entrants is decreasing.

Table 2 shows the number of the first year students at the beginning of studies, that is, at the beginning of the first semester and after the first exam period – at the beginning of the second semester. It can be seen that at the beginning of the second semester depending on the study program there are 84.4 to 87.8 % left from the initial number of students. In the table in brackets the number of the respondents is shown. The students were inquired at the beginning of December, 2009 after the first three months of studies when the first semester was almost over and in February, 2010 when the students had passed the first exam period and started studies in the second semester. In the enquiry the students were asked 11 questions related to the process of studies.

Table 2

Information on the 1st year students at the Faculty of Engineering in 2009/2010

Study program	Number of students starting studies		Number of students in the second semester in comparison to the first, %
	1 st semester	2 nd semester	
Agricultural Engineering	92 (75)*	80 (62)	86.9
Agricultural Power Engineering	41 (28)	36 (24)	87.8
Machine Design and Manufacturing	32 (21)	27 (20)	84.4

* – in brackets the number of students-respondents.

Results and discussion

In December, 2009 from 124 respondents 104 students (83.9 %) had not changed their opinion on the chosen study program, 5 (4.0 %) had changed their opinion towards positive direction, 3 students (2.4 %) could not evaluate the dynamics of their attitude, two students (1.6 %) had changed their opinion in negative direction, 10 students (8.1 %) were not certain.

To the question about the studies and other things at the faculty that they liked best 18.5 % of the respondents mention understanding and responsive teachers, 16.1 % – interesting extra-curriculum activities, 15.3 % mention the interesting Azemitologs festival, 12.9 % mention their nice peers.

The students were most unsatisfied about hard studies (14.5 %), including Descriptive geometry (13.7 %), Physics (10.5 %) and Mathematics (8.9 %). They were unsatisfied also with the reduction of the number of budget places, often walking during the day to different faculty buildings as well as with their own disability to plan their free time.

According to the opinion of the students the most understandable way of teaching is (Fig. 1) in Chemistry (56.6 % of respondents have mentioned it), Descriptive geometry (28.2 %) and Informatics (26.6 %), but most difficult to understand – Physics (55.6 %) and Mathematics (50.8 %).

The best methodical materials according to the student evaluation are (Fig. 2) in Chemistry (42.7 %), Descriptive geometry (30.6 %) and Informatics (25.8 %). They should be improved in Physics (52.4 %) and Mathematics (34.7 %).

In 86 cases (69.4 %) the respondents have indicated that the best amount of independent work outside the classroom is in Descriptive geometry. In 75 cases the students have shown also the amount of independent work, its average arithmetical value is 8.01 hours with the variation coefficient 32.6 %. Considering that the amount of the course in Descriptive geometry in the first semester is 3.0 KP, the adequate amount of independent work should be 3.0 KP per week. This is a reason for considering in relation to the present amount of independent work and its organization as well as a subject for further research.

In the inquiry forms the students have also mentioned study courses where, according to their opinion, independent work should be more supervised. The most often mentioned courses are Mathematics (25.8 %), Physics (25.8 %) and Descriptive geometry (5.6 %).

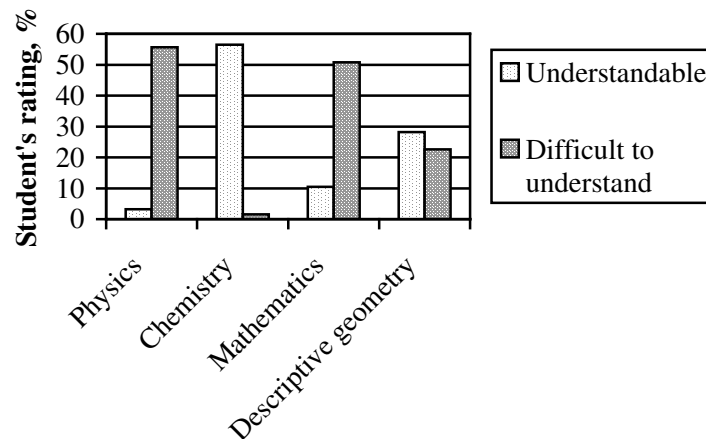


Fig. 1. Perceptibility of the way of teaching evaluated by students

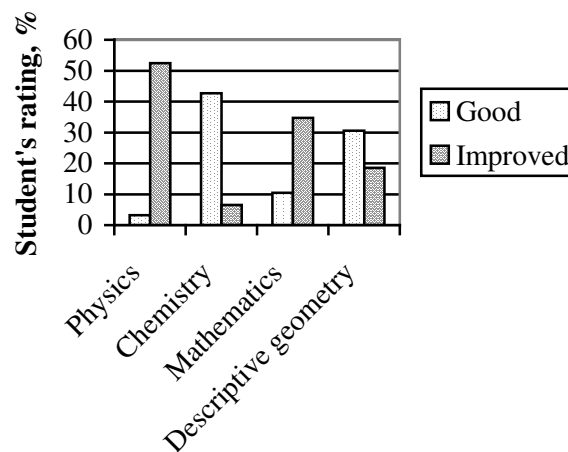


Fig. 2. Methodical provision in study courses

In February, 2010 in the inquiry performed after the first exam period 88.7 % of the students confirmed that they are still satisfied with the chosen field of studies and they are sure that their choice is correct. 44.3 % of the respondents said that the results of the first exam period are good and excellent, but about a half of the respondents evaluate their performance as satisfactory and they think that it could be better. As the reason for average assessment a part of the respondents mention the fact that still they have not got used to the system of studies at the university, and that at secondary school they have not paid the necessary attention to acquisition of Physics and Mathematics. Most of the respondents acknowledge that at secondary school they had not been interested in the possibility to acquire Technical graphics. It causes considerable difficulties in the acquisition of Descriptive geometry at present and hinders with mastering of dimensional understanding.

Most difficulties for the first year students were caused by Physics (83.0 %) and Mathematics (59.4 %) – understanding and acquisition. According to the respondents in these study courses feedback is not sufficient between the teacher and the students as well as often the explanation of the material is difficult to understand. Such evaluation of these study courses by the students repeats already for several years [2]. It indicates that the methodical commission of the faculty has to work a lot in order to clarify the reasons that cause difficulties for the students in acquisition of these subjects and to find ways for improvement of progress. The commission should evaluate whether it is not necessary to review the content of the programs in these courses in order to implement the activities indicated in the decision of the Convention of the university for maintenance of the number of students at the Latvia University of Agriculture considering the interests of the Ministry of Agriculture of the RL and Zemgale region.

Application of computers and presentation devices in the process of studies has surely be considered as innovation in application of technologies, nevertheless, increasing the application of the presentation devices the results of teaching should not be forgotten – knowledge and skills. With updated means of presentation it is possible to show extremely large amounts of information in short time. The issue stays topical – whether supplying of the students' brain with large amounts of information that is difficult to understand is the main aim of the process of studies. The possibilities offered by the innovative technologies have to be balanced with the possibilities of the perception abilities of the students. Choosing between a bright presentation and deep knowledge – the result is the main issue in every kind of work.

Conclusions

1. Reduction of the number of students in the engineering study programs at the faculty of Engineering during the first semester is between 12.2 and 15.5 %, although also 88.7 % are satisfied with the chosen field of studies and are sure that their choice is correct.
2. To improve the achievement and ensure quality in the process of studies teacher self-assessment and ensurance of feedback as well as internal audit are very important. The faculty board already in November, 2005 took a decision that determined that every teacher at the end of the teaching course should perform an inquiry among the students in order to obtain assessment of the acquired subject and its teaching.
3. The student inquiry shows that students start studying engineering subjects without sufficient basic knowledge in Physics, Mathematics and Technical graphics.
4. According to the student evaluation it is necessary to improve the quality of teaching and methodical ensurance in Physics and Mathematics.

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