

Do We Want Reliable Cars and Students with Creditable Physical Bases?

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Abstract

Some of the basic insufficiency, which goes together with physics teaching at the technical universities is, the way of this teaching is carried out. Educator, who is often managed with the best effort about subject matter understanding, approaches to his lecture only too scientifically and does not give his students any opportunity to understand how physical phenomena act in practical life. Situation is very similar to a position when automobile manufacturer would manufacture cars according to his best mind indeed but without any feedback to users. Such a car would be very sophisticated but for common motorist totally complicated and hence inapplicable. Present - day teaching, no matter what classical or e-learning however proceeds exactly according to this described scheme. The result is a deepening lack of interest about physical education. So that we sheered off the same mistake, the authors made ready after extensive consultations with the audience a set of video - lessons from the basic physics course, that is an alternative to the classical education. The first experiences reflect, that this way of e- education is a great benefit for users on behalf of his interpretation clarity and easy PC handling. This contribution will handle with some aspects of the physics course creation and utilization.

Introduction

Many of us come forward in face of starting students of the technical universities with some idealistic conceptions, that students should be equipped to study with knowledge at the gymnasias studies level.

Reality is naturally absolutely different. It seems, that university educational system lives its life, without reference to system education in a lower level study. To university education are accepted quite without any problems everyone, who put together school-leaving exam.

With the school-leaving exam a study is concluded at secondary technical schools, industrial schools, instructional lays with school-leaving exam and gymnasias. Do you feel that disparity?

Four till six years of systematic studies in physics, mathematics and chemistry at gymnasias and only one year of a kind at special training centre. At the same time all

are accepted to college. Nevertheless the university pedagogue supposes quite well, that it is the matter of student only to have corresponding knowledge. A student postulates on the whole well, that if he would be went through on the basis of the entrance examinations, his knowledge are accordant with requirement for a given university. Let's go further. Secondary schools teach according to their curricula just as they have to and put emphasis on practical skills, not on preparation to university education. A gymnasium seems to be the only school, which can be the guarantor of corresponding knowledge.

1 But the result?

Totally frustrated student. We allure him to university education with interesting branches, perfect educational foul territory of libraries, with computers (internet), equipped schoolrooms, splendid laboratories, well - educated pedagogues, and so on. By the receiving we say to him – you are good, prepared, we want you at our place.

But it is true immediately in first semester that it happens both on the side of student and pedagogues to disillusion. Originally the optimistic student with a smile on his lips begins to wrestle with an absolutely different lecture systems, study hours, frequently chaotic organization of the school system, by lack of specified scripts and textbooks, ...and what is perhaps completely worst – with a sceptical pedagogues approach. The consequent effect is a waste of students already after the first semester, finances weakening towards a university and a mental detriment in self - importance of the young man. The initial enthusiasm is away, some smiles were changed into agonized hunting of missing information and the sense of, that I good and I am able to graduate, turned on I unable, I understand nothing, I don't have head for university education.

It is it only a brief enumeration of psychological effects, those start up by the entrance to university. To search a principal is not easy. And especially from of our level we may not to find a solution to such system. But one thing we can do respectively we have also made.

Find out ourselves, who is our student. Where he is coming from, what he knows, what expects, how much he cares for his study, what kind of characteristics and

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abilities he has, how fast he learns and what are his motivational formulas.

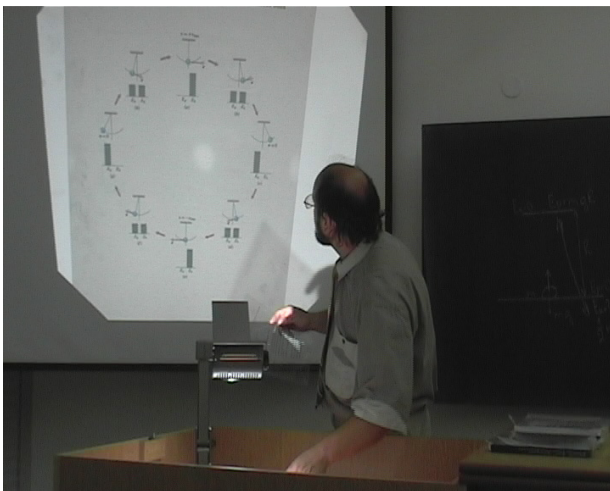
We intended upon these questions very carefully and in finale we reached to conclusion, that rather we will suppose nothing. Three things only:

- The student is able
- The student wants to study
- The student has almost no knowledge

2 75 CD –ROM lectures in physics

A comparatively solitary project has arisen in two peoples, which concentrated itself on video recording of the complete lectures from physics basic course.

Lecture records from physics were recorded in a scene of common lecture - room with standard equipment. By the help of projection equipment were on - screen illustrated in advance ready theses, formulas and pictures supported with written notices on the blackboard. The whole tutorial procedure gained on dynamics now, vital lecturer gesticulation, inflection, tools usage and frequent repeating of the key thesis sustains student in steadily heed. All reading is structured to the 10 – 25 minutes long sequences in so far to a slowly apprehensive student also in company with low - lying measure of the sustainment concentration did not lose continuity.



Technical data

Technical conditions of the recording were showed underwent realizable. Because usual SW equipment of PCs along with operational system Windows in some version from W98 higher includes Windows Media Player, it was decided to use him as a standard. Under codecs MPEG- 4 also satisfy to this player and they were used for a compression of recorded and cutted video - sequences.

While using a compression process MPEG- 4 along with a playback record rate about 1,5Mbit./s one CD -

ROM is able to record approximately 60 - 65 minutes of the data record.

3 Pedagogical sight

Is concerned the system of the education support, which was created last year by authoress and by lecturer doc. Vasinkem for centre of correspondence courses at the Technical university of Ostrava for the basic course of physics within the scope 75 CD - ROM. This project is at the present time solitary and in its range it is unique in the Czech Republic. Technical university of Ostrava was given to the foreground in the field of multimedia education.

We can see the significant contribution in the corresponding courses, where they may (and often also are) exist obstacles in regular study on the side student employer (shift working, family duties in conflict with job and study, sickness absence and so on).

By the daily study it is especially going about compensation of the missed lectures (diseases, collision of the particular subjects etc.).

From the distribution standpoint and applicability of the recorded tutorial lectures point is that a very effective multimedia improvement, because:

- There is no need to special integrated web server systems, which are necessary for classical text - based e-learning.
- Is executable on arbitrary PC with Windows 98 and graphical card, consequently also outside school intranet network
- For lecturing pedagogues there is no need to organize long - term special training courses, that are otherwise necessary for the e- learning courses creation.

Conclusion

We asked our students if CD-ROMs are suitable for them. And we obtained clearly answer: It is the best help for students.

But - the overall cost for lecture recording are very high it would be useful to close cooperate among universities.

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