

OPEN COURSES AT THE FACULTY

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Open Courses, Engineer's Education, Lifelong Learning, Syllabus

1. Introduction

An idea for the open courses came out from often engineer's demands directed to author to allow engineers to attend courses about Computer Aided Design (CAD) during regular faculty lectures. Such demands clearly showed to author and his colleagues that once when an engineer has finished his education at the faculty, his need for education is not over because continued technical development driven by market, constantly demands from engineers a new knowledge [1]. As usual phrase for continuous education in many works often could be found term "lifelong learning". In many recent works like [2], [3] and [4] is also underlined importance of the lifelong learning.

In a search for a cutting-edge knowledge, especially in an implementation of advanced technologies, many of engineers attend additional courses organized by specialized companies or enrol for post-graduate degrees on post-graduate studies.

On the other side, most of the professors at the faculty continuously enhance syllabus to keep it up to date or faculty management offers new courses to students. Engineers know that fact and often ask faculty management or directly respective professors to allow them to attend such new or renewed courses.

For graduated and employed engineers, postgraduate studies could be one of the possibilities to find out more about new technologies. However, postgraduate studies on some faculties are dedicated to produce new masters of Science more often per prefix in the name than per skill. In some cases, studies are even so spread over several areas of interest, that one can hear from an engineer that only several of postgraduate courses really significantly contributes to his actual job.

One of the many but often the most expensive ways to obtain the newest knowledge is through specialized courses organized by specialized companies. Unfortunately, such lessons are rarely available to all interested people, especially for unemployed.

Intermediate cause for this paper is a basic need for faculty cooperation with production companies. Namely, as faculty must have a good knowledge in use of new technologies they also must have a good picture of tendencies in region because they should be leaders and first helpers in appliance of advanced technologies. Since most of the state governments and international associations support cooperation between universities and companies through sponsored common projects, cooperation is often the cheapest way to gain knowledge. In that light, open courses could obtain additional material benefits for all involved. Therefore, several benefits are considered later in the paper, mostly in conclusion.

All previously mentioned has encouraged author to consider the implementation of the open courses at the faculty. The main idea of the open courses is that faculty offer to non-students possibility of a listening and certifying subjects by their own choice during a regular school year. Open courses could be very interesting to an employed engineer, manufacturer, craftsmen and others who need to improve knowledge only in particular fields or even young unemployed man who needs additional education for easier employment. Therefore, in several headings are

considered premises, way of implementation, and, in conclusion, benefits and shortcomings of eventual open courses implementation.

2. Premises

First premise should be *in legislative area*. Actual state law for high education (cleared text [5] and revisions [6]) in §31 allows faculties to compose and perform programs in lifelong education and perfection. Such programs should yield from faculty council and embedded in a faculty statute. Also, state law in §3 gives to faculties a freedom to decide about enrollment criteria. Therefore, from a legislative point of view all legislative premises are prosperous and leave all steps to faculty management.

Second and may be the most important premise is *in a faculty policy*. The faculty management should set direction of the faculty policy towards the idea of the open courses. Such policy should demand realization for all of the later premises, in purpose of the full idea implementation. Because of many benefits from the open courses, it should not be a hard decision for the faculty management.

Criteria that designate whom will be allowed to attend open courses should be inbuilt in statute of the faculty. As a main condition, clearly shows off a candidate's degree of education. And good criteria could be that candidate should have at least finished high school.

There are also several premises *for a syllabus*. Namely, every course, which tends to be included in program, must be constantly, every year, revised and synchronized in its area. Its substance and units must be exactly specified and easily available to a potential candidate. Availability could be acquired through publishing the syllabus and detail course program on a faculty web-site and/or by printing it in a brochure or other mediums like CD and distributing the brochure or mediums through student services and so alike.

To perform open courses, faculty must have *material prerequisites*, which can vary depending on the way of implementation. In such prerequisites pertains space for additional attendants in classrooms or enough capacity in time schedule if attendants of the open course listen their subjects separately from regular students. Certainly, increment in a number of students causes greater demands for laboratory equipment and other teaching expedients.

If the faculty management decide to bring open courses in the statute and even more to bring them in life, there are several ways how that idea could be implemented. In next heading some of ways are observed.

3. Implementation

Simplicity of premises surveyed in previous chapter permit postulate that implementation of the open courses could pass less or more painless, but it could significantly depend on the way of the implementation. Therefore, further in this chapter are nominated several modes of the implementation.

In the beginning, introduction of the open courses could start with small steps, i.e. with legislation of the open courses in the faculty statute and by nominating only few most attractive subjects as open courses. That can be surveyed as a probationary period and used for evaluation of the idea alone but also for evaluation of different implementation models.

Considering payment, open courses could be *with a fine involved, sponsored or free of charge for candidate*. It is normal for faculty management to determine the fine (or the fee) for each particular open course for self-supporting attendants, not only because of financial gaining but also to avoid high number of application. Fine should differ from course to course depending on included course hours, material expenses, interest rate and other relative factors.

Sponsored special courses at the faculty already exist and take place from time to time depending on an interest of a various sponsors. Last such course, in a fact group of courses, has been financially sponsored: by Croatian Employment Office, by city and county authorities and in equipment by Siemens Company. Siemens also made employment contract with twelve from twenty attendants and Office believes that the other eight will find job easier after finishing the course, may be even in Siemens too. The realisation of stated employment plans could be a good

sign and strong stimulant for Employment Office to auspice the implementation of the open courses at the faculty.

Some of the open courses could be free of charge in promotional reasons and in combination with sponsored courses. Stand-alone free of charge open course take a risk to become overloaded with attendants in short time and thus could not be recommended without reasonable doubt.

The open course could be *with or without final examination*. Attendants may have choice only to listen chosen subject without an obligation to pass subject examination if is not needed certificate, but only the new knowledge. The appropriate certificate should go with passed examination to prove accepted knowledge.

Besides attending particular open course, several open courses could be *grouped in module by orientation* and so to be sufficient for achieving specific educational degree or specialization above high school educational degree. For example, group of subjects "Mathematics I" (linear algebra), "Engineering Mechanic" (static), "Technical Drawing", "Computer Appliance", "Computer Aided Design" and so alike could be sufficient for specialization named like "Computer Projecting Assistant". Such a group should not contain more then dozen of subjects to avoid overloading of attendant and to avoid interference with engineer level of education.

Finally, advertising must support good implementation and even more, it must be part of it. The cheapest and often the most efficient advertising takes place through direct contact with potential attendants either during usual contacts with employed engineers in companies or during work on common projects. Neither the traditional advertising methods such as publicity in public mediums (web pages and banners on Internet, radio, television, newspaper etc.) should be neglected.

4. Conclusions

The idea of implementing open courses at the faculty could bring many benefits to all sides involved; to university, its faculties and lecturers, outside attendants, local students, unemployed and society.

Major benefits for faculty are financial, but also promotional and in further staff perfection. Main financial benefits will be directly accomplished through sponsored courses and courses with a fine included for self-supporting attendants, while free of charge courses will serve as support and promotion to previous.

As more candidates will be attracted, so the faculty will become more familiar and popular not just for possible candidates for some of the open course but also for possible candidates for regular studies at the faculty.

Except financial benefit to faculty, employed engineers as attendants of the open courses will unavoidable encourage cooperation between their companies and faculty, what will certainly improve faculty link with actual production in region. Cooperation will, in general, increase capability of faculty staff to cope with new demands from companies and to better attune syllabus to actual production needs.

If professors would like to maintain their subjects attractive to possible candidates, they will have to constantly refresh programs of subjects by inducting cutting-edge knowledge from relative areas, or otherwise they will loose candidates for the open courses but also detract potential regular students. Therefore, number of candidates and number of students could be a very important estimation index for an attractiveness of particular subject and/or lecturer.

For unemployed persons, either with high school education or faculty education, open courses could significantly increase chance to find a job after additional education and certification of earned knowledge. As mentioned in previous chapter, if open courses are organized in cooperation with Croatian Employment Office and interested companies that search for appropriately educated labours, so better will be chance for attendants to find a job after education. In present time, when actual unemployment rate is significant, this potential benefit could be crucial for implementation of the open course in social point of view.

Possible shortcoming came out from additional load to faculty staff, but since candidates of the open courses will attend their elocution together with regular students it should not be so significantly in time of elocutions but may be more notable during laboratory exercises. Stated way

of performance could cause harder synchronization or even inappropriate timetable for employed engineers, but that will be desirable troubles for faculty management.

All previously stated potential benefits and age designated by use of new technologies based on new scientific knowledge should be sufficient for faculty and university management and may be even for relative ministries in state government, to consider the implementation of the open courses in the shortest possible period.

References

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