Systematic solution for accurate deployment of students to available internship positions implemented at FTS-DIEM

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Abstract

Internship, as mandatory subject at Faculty of Technical Sciences (FTS) – Department of Industrial Engineering and Management (DIEM), is an ideal opportunity for students, after acquiring necessary theoretical knowledges from the field of study, to test, implement and analyse these knowledges in real business system and, also, to gain new practical knowledges, skills and experiences as essential components of their overall education process. Thus, providing internships in accordance with the study programme is a mission that needs to be fulfilled. Internship programme suported by Moodle requires advaced tools usage in order to deliver all indispensable informations. In this paper systematic solution for accurate deployment of students to available internship positions is presented.

Key words: *Internship, education, e-learning, Moodle*

1. STAKEHOLDERS ENGAGEMENT

Importance of having mandatory internship programme in curriculum is no longer questioned, since benefits for stakeholders: students, faculties and companies [1], are numerous and the effects are measurable. Nowadays, the focus is placed on the urge of optimal available departmental resources allocation in order to improve internship and make the most out of it. Participation of students, and therefore faculties, in real-work ambiance is a two-way street bringing significant benefits for companies, too. Improving cooperation between higher education and economy, internship represents useful mechanism that gives constant up-to-date insight into actualities in the labor market, both supply and demand, mainly regarding information on what hard and soft skills are sought for facilitated integration into specific business environment.

Students gain profound understanding of direct relation between theory based knowledge aquired in the classroom and its converting and applying as practical skills in real-working situations. They also get a certain amount of work experience, increase confidence in own capabilities, improve skills, make reasonable decisions regarding elective subjects and future education course, connect with potential employers, etc. In a nutshell - prepare for future career, enhance readiness for job and understand the process of transfering theoretical knowledge into applicable know-how.

Faculties, including listed students' interests, with the emphasise on theory in work process usage, benefit through: creating developmental teaching environment, attracting new students, creating direct links with representatives from specific industrial sectors, uptake of business environment obtained through feedback from students and their mentors from the companies, possibility to update curriculums with recent labour market requirements and needs, increase employability of graduated students, etc., which are all means for subsistence, continual improvement and growth.

For companies, internship is useful as recruiting tool, giving insight in what is offered in the market regarding human resources potential, attract enthusiastic, fresh, inexpensive workers, fasten pre-selection process, reduce training costs, improve own reputation by being socialy responsible, strengthen ties with community, etc. Internship effectiveness is conditioned by strong commitment and engagement of stakeholders groups and its purpose is fully dependent on good thought-out, which is primarily task for higher education institutions.

2. MOODLE – INSTRUCTIONS AND GUIDANCE

Internship can be a huge beneficiary point for students, but only if it is done properly [1]. Internship can be fully successful only if the assigned tasks and planned activities mach study program specificities and students' personal preferences and affinities. Faculties need to establish cooperation with wide range of companies and possibility to choose various terms during which students can perform internship activities. Mandatory internship demands significant resources conferment. Of crucial importance is that students get adequate level of support, both professional and academic [2]. The more involved the mentors are – the better the internship outcome. For students, the most important factor is commitment to the internship [3].

Bearing in mind that internship is the only subject in the curriculum for which learning does not occur in the classroom, but at remote location in the company, it was necessary to establish a system for communication and constant information exchange between students, mentors from the faculty and mentors from companies. After conducting detailed analysis DIEM team decided to use Moodle e-learning platform [4] as a solution to overcome absence and communication boundaries. Internship online course [5] is designed to support conventional methods of education and enable access to all available resources with admission from remote location at any time. It enriches the communication of all process participants, enhances flexibility, increases perception and knowledge acquisition, improves quality of work and, finally, boosts learning outcomes [6].

Understanding the importance of sharing same initial info to all students and then their guidance into study programme specific environment, DIEM team decided to divide home page of internship course interface into three primary sections.

Figure 1. Basic sections on Internship course homepage

This decision was substantiated by the fact that all students need same informations at the begging. They all need to understand the importance of internship, what is expected from them and what are "game rules" that apply to all of them. First button *Basic informations* is consisted of: Internship kick-off lesson, Internship significance lesson, awaiting Steps and Additional important informations. In this section no activities or feedback from students is expected. It is used as a resource to which they have permanent access if they have any concerns or doubts and it serves as a starting point for all further activities. At the button *Companies – Associates* students can see regulary updated list of available "employers" and by clicking on logo, they can visit company website and get acquainted with basic information about the company that can significantly ease the decision whether or not they want to carry out internship in a particular company or organization.

Steps - Activities is the most important interactive section where students are expected to pass through nine steps in the process of internship realization. Moving on to the each next step is conditioned by successfull completion of the previous one. Students can not skip any step, or do activities out of numbered order, which allows systematic administration and traceable progress of work [6].

Figure 2. Steps – activites in internship realization process

Forum-Discussion is included in all steps. This tool is of particular importance for communication among students [6] and eases dilemmas resolvement about what needs to be done within each step. It is sort of "internship alumnus" combined with realtime issues. Within forums students ask/answer questions, share experiences, help each other when selecting positions, take advices and opinions from former interns about mentors from the companies, inquire about their knowledge and commitment, accessibility, possibilities to implement what they did at internship in their bachelor and master thesis, and also, earn few extra points for the activity in this section. Forum is easy to navigate through. Each student can open new topic, and filter messages by key words, date, authors, exact phrases, words excluded, subjects, etc [7].

3. INTERNSHIP POSITIONS

When posting internship call it is not enough only to provide name of company in search for interns, since it is often the case that companies seek interns in different sectors of their operations. Within internship course all available internship engagements are described with seven items. For this reason, term position was introduced. Positions are opened evenly throughout the school year. It is important to avoid the risk of many students absent from classes, exams, colloquia, etc. Positions are defined by: host company/ organization, year of study, curriculum characteristics (study programme/module), precise term, set of tasks and sometimes specific knowlegde requirements (requested by the companies), number of available places and deadline for application. System is configured in manner that students can apply for one position only. If they quit after applying, the position automatically becomes available for other students. Due to the fact that numerous study programmes and modules are carried out, DIEM strives to increase number of partner companies from different industries with the aim to provide a variety of tasks for students.

4. MOODLE – STEERING DIRECTIONS

Based on conclusions aquired during five years of experience in working with students via Moodle platform it was obvious that the internship course must not be loaded with reading material, power point presentations and time consuming activities. It has to be simplified as much as it is possible, so the work within platform is not obnoxious, but on the contrary, clear, adjusted to the needs with the intent to solve all the issues related to more efficient internship realization. Considering that all nine planned *steps-activities* are fully dependent on specifics of study programme/modul, to achieve this goal and in order to avoid any misunderstandings and mistakes (primarily regarding students' applying to available positions) implementation of advanced Moodle tools was neccessary. When adding activities and resources, as basic components of any Moodle course [8], all access permissions can be customized based on belonging to: certain group, date, grade, user profile or set of various restrictions.
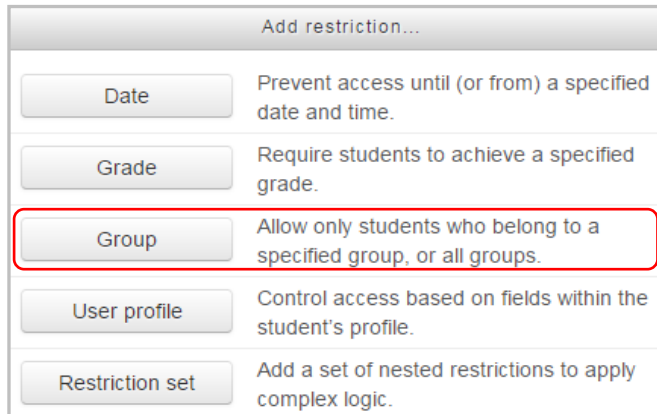

Figure 4. Adding restrictions – permision categories

The first implemented step is classification of students in appropriate groups according to study programmes and modules. Without access permissions, resources and activities can be totally hidden. Using users-groups distribution leads to full customization of entire course content depending on which group student belongs to. Experience that students gain during the time spent in company plays a crucial role in their perception towards internship [9], therefore, it is very important to prevent students to be misapplied. For this reason, the first and foremost restriction which must be placed is possibility to apply solely for the position intended for exact group. In activity *Choice*, which is used for applying, fulfilment of certain condition/s is a mean for access restriction. In advanced settings, not just access is denied, but internship position and all related details are completely hidden which entirely excludes the possibility for error.
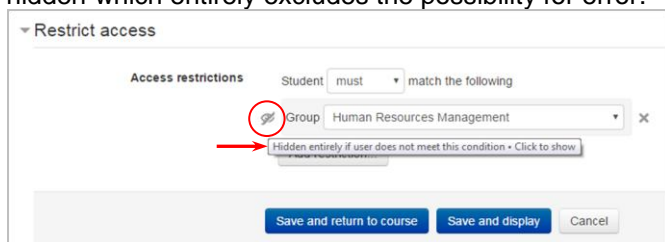

Figure 5. Access restrictions – hidding unintended content

Faculties have responsibility, besides imperative to provide appropriate internship positions for students, to meet inquiries for interns on behalf of partner companies. In agreement with companies, certain dynamics of applying can be scheduled, but faculties can not claim that all opened positions will be signed up. Sometimes, when companies search for interns from various fields of study for positions that can be taken by any of matching profiles, access restrictions setings that allow fulfilling only one of two (or more) conditions is ideal solution.
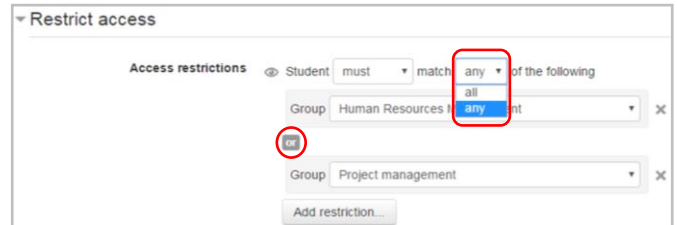

Figure 6. Adding restrictions – multiple possibilities

When companies select applied students by assessing their CVs or by interviews, there is no need to limit the number of allowed responses. Otherwise, number of positions for applying needs to be limited. When editing position anouncement by using choice activity, option for applying these settings must be used.

Figure 7. Adding restrictions – limiting number of responses

As previously mentioned, intent to make internship course useful, precise and without the need to access more often than it is necessary, is additionally confirmed by sending e-mail notifications about new opened positions directly and only to particular group of students. This is done by using *Quickmail* plugin and, by creating additional group of students who have already applied (and then removing them from the list of recipients), spaming and disturbing students by sending needless informations is avoided.

Navigating students from different study programmes in right directions by excluding any possibilities for mistakes and misapplying proved to be correct solution for organization of internship course. During 2015/16 school year, 192 students completed internship course and within *step 7 – evaluation*, on scale from 1 to 5, rated organization of internship via Moodle distance learning platform with average grade of 4,37 [10].

Beside facilitation of internship subject without direct contact with students in classroom, using Moodle has many aditional advantages. It provides opportunities for teachers to enrich materials, engage students and enchance interest in self-directed participation in course activities. It allows own pace determination, increases learning desire [11] and advances relevant digital learning knowledge and skills [12].

5. CONTINUOUS IMPROVEMENT LOOP

The business world becomes a laboratory for students to see how the material they have learned in the classroom relates to the practice of business [13].

The overall importance of internship is defined by cognition on the need to harmonize theoretical contents with needs of economy, as well as aplication of aquired skills and knowledges in further educational process from both students and teachers. Internship process should put through possibility for all three stakeholders to have clearer standing point regarding future development course and improved relations for the benefit of all. Sinergy in internship process that needs to be achieved results in continious improvement loop.

Practical internship goals should emphasise the usefulness of verification of theoretical implications on contemporary work processes and adroitness of students in companies. This goals can be reached by introducing modern business environment to students through presenting work-place specifics, by determining necessary competencies and skills, encouraging them to work independetly and in a team, to be autonomous in decision making processes. Accomplishment of these goals leads to carrying out one of the main universities' objectives [14] – ensuring that students will be able to find employment within chosen career [15].

It is essential to constantly insist on the importance of internship for students since it is the first milestone, after deciding which faculty and study programme they will chose, when students take full responsibility for their future prospectives.

Previous research papers have shown that students who have completed internships report higher salaries, better understanding of career paths [16], higher level of job satisfaction [17], realistic expectations [18] and better studying performance becouse interns tend to graduate with higher grade point averages [19] in comparison with students who did not complete internships. Among others, enhanced job and social skills are most commonly listed positive attributes [20].

Internship can possibly be a decisive factor for students when resolving whether they want to work in similar company in the future or not by giving them a clue about what could their future work place look like.

Internship motivates students to be more engaged and arouses the understanding of self directed learning and taking more responsibility for their own learning and education [21]. Taylor made online courses can foster this process. When potentials of Moodle are used appropriately by teachers it can motivate students to remain focused on their studies and be active in learning beyond the classroom [22] and they will be encouredged to research through applied problem-based learning and teaching pedagogy [23].

Future obtained and analysed data gathered from *step 7 – evaluation* (7 criteria: mentor from DIEM, internship organization, Moodle, available positions, mentor from company, host company and overall satisfaction) will be guidance for furher improvements. Expanding this questionnaire with additional questions will give more detailed insight into students' satisfaction and needs regarding various aspects of internship organization.

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