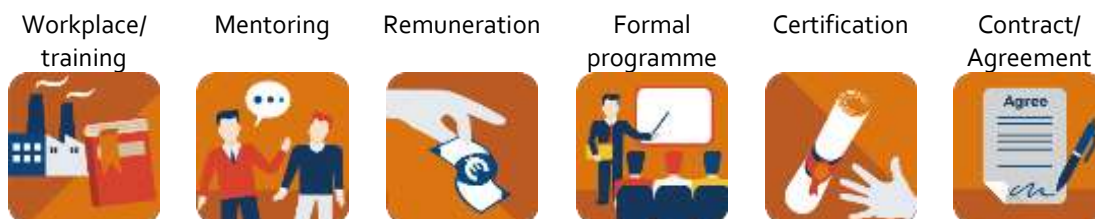


Best Practices on Higher Education Apprenticeship (HEA)

Authors

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Suitability of this case to the ApprEnt definition of HEA



Evaluation of how the programme/practice reaches the following goals
Scale: 1 = not at all; 2 = very little; 3 = somewhat; 4 = well; 5 = very well

	1	2	3	4	5
i. Enhances relevant working life skills and qualifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Promotes professional growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Develops learning environment practices as a whole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Develops work-based learning practices and materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. Improves work performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
vi. Improves tutoring and mentoring practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
vii. Enhances University-Business collaboration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
viii. Showcases potential aspects for programme standardisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Title

Co-op education programme in an official Master's Degree in Informatics Engineering (Spain)

Description

Model

In our country the co-op education methodology is broad and highly valued but only at the level of vocational schools. The co-op educational programmes are practically non-existent on higher education and is not regulated administratively. Our University and in particular our faculty, the Polytechnic School at University of Lleida, has pioneered the inclusion of mandatory practices within companies located in Spain, particularly during the last course of all engineering programmes in our school. The co-op educational programme for the Master degree in Informatics Engineering is a pioneering programme for the specific field of engineering, but also generally in view of higher education official programmes.

Best practice

Regulations and Programme Structure

Spanish legislation on higher education establishes particular regulations for those programmes directly related to the access to the professional practice. The Master's Degree in Informatics Engineering is designed following these regulations, which fix specific competences and workload. Although these aspects limit any possible implementation, the programme has been properly designed in order to allow for the coexistence between ordinary and co-op based systems.

This is a three-semester Master's Degree programme that constitutes of 90 ECTS, of which 54 ECTS cover compulsory courses in Management and Information Technologies, while 24 ECTS are assigned through specialization modules: Big Data Analytics and Video-game Development. In terms of pedagogical approaches, the programme is focused on the Project Based Learning paradigm, centred on design and development of real-world projects. As a step further in this direction, in 2015 a new specialization module was included in the programme, named Enterprise Integrated Projects, devoted to drive the co-op programme.

Co-op Methodology and Job Placement

The life-cycle of the co-op methodology covers two main stages: seeking appropriate job positions and assignment to candidates and, secondly, properly planning guidance and evaluation steps during the learning period within the company.

The proposed procedure for Searching and Assigning New Job Positions is composed of the following six different stages:

- (1) Collection of vacancies: companies define their job vacancies, including an enterprise description, tasks to develop, student profile, work timetable and annual gross remuneration. The offers are reviewed from an ad-hoc commission, to validate its adaption to the programme competences and skills;
- (2) Promotion of the vacancies: selected offers are published on the web page of the Master's programme and sent to our international partner universities to attract the attention of their potentially interested students;
- (3) Collection of the students' applications: students send to the coordinator a priority list of their preferences. When the given deadline has expired, each company receives the applications addressed to them;

(4) Selection of the candidates by companies: the companies analyse the received applications and conduct the selection process. In case that one student was selected for more than one company, he/she chooses the vacancy that best suits her/his preferences.

(5) Global meeting between academic tutors and company tutors: two different tutors are assigned to each student: the academic tutor (AT) at the university and the company tutor (CT) at the company. All the academic and company tutors involved in the programme attend the kick-off meeting, in order to get to know each other and clarify the overall procedure;

(6) Beginning of the training period for each student: students begin their training plan usually during the last two weeks of September. During these two weeks, a first meeting between the student and her/his two tutors is arranged in order to define skills and activities to be carried out during the first semester.

Supervision and Monitoring

The student guidance and monitoring is carried out by means of a portfolio, which is integrated in the Virtual Campus. The portfolio establishes a minimum number of meetings to be held throughout the three semesters involving the different actors (AT: Academic Tutor, CT: Company Tutor and ST: Student). There are a minimum of two planned meetings for each semester, the first one to define the competences and activities to develop throughout the semester and the second one to assess the work carried out during the semester. In addition, there is a meeting during the second semester, named MEINF Dual Meeting, where each student shares his/her experience with their classmates, so they gain a global vision of the IT sector. In the last meeting, there is an overall assessment of the learning period. This assessment reflects the acquisition of the programme competences as well as the achievement of professional skills (pro-activity participation, motivation, efficiency, responsibility, and communication).

Main Challenges

Beyond the academic design of the co-op methodology, several external difficulties have arisen. These challenges cover those aspects with which companies have to deal in order to achieve a successful incorporation of the apprentice in their projects. The main issues to be faced are sketched below:

(1) The tutors of the companies must invest a part of their time to supervise and monitor the students;

(2) Companies hire co-op students as full-time workers, although they should spend half of the workday at the company and dedicate the second half to attending lectures at university. These challenges require a change of mentality for those companies adopting the co-op programme;

(3) Within the Spanish legislative framework, there is not a particular type of contract specifically designed for co-op students. This problem is especially relevant for international students since they do not hold a work visa and they require a special authorisation from the administration, which sometimes may be denied;

(4) Companies provide confidential information to the university as evidence of the student's learning process. The custody of this information generates concerns to the companies, so the university must offer guarantees through confidentiality agreements, which might be as exhaustive as possible;

(5) Timing and deadlines of the selection process driven by the company's human resources area are conditioned by the academic calendar;

(6) The co-op education students participate in project development tasks which, in certain cases, force the company to redefine their work organization processes;

(7) Companies are used to consider the technical aspects of training but feel insecure when they have to handle the pedagogical aspects. They are not accustomed to planning in terms of competences, academic monitoring, or numerical qualification. In this sense, the role of the academic tutor is crucial in order to plan the learning process of the student in the company.

Strengths and Weaknesses of the Programme

The strengths of the programme are mostly related to the benefits obtained by all the participants in the programme. Students receive a comprehensive education, not solely based on technical aspects but also acquiring professional expertise, cross-skills development and personal growth. Companies highlight the learning capacity of students, whose activity is highly aligned with the enterprise objectives and their contributions to their workplace are positively perceived. From the point of view of the academia, the co-op programme enriches students' education, strengthens the relationships with companies and boosts knowledge transfer.

The weaknesses are directly related to the challenges previously displayed; they can be summarized in two main aspects, such as the increasing workload for all the actors, that must be approached in a very different way according to the individual and/or institutional idiosyncrasy, and the costly administrative management for both the companies and the university, especially with regards to crucial processes such as recruitment, contracting, agreements, monitoring and evaluation.

Feedback from users

Students and Tutors provide valuable feedbacks during the follow-up meetings and through the assessment process and surveys. In terms of student satisfaction, most of them claim that they would have studied again under the co-op model, even though it implies a greater workload. All the students that have completed the degree have received a job offer in the same company. The students value positively the acquired competences and the way of acquiring them, as in learning by doing. The co-op programme provides them with highly valuable knowledge and competences but also powerful cross skills.

Companies also perceive how the progression throughout the training process enhances student competences and skills. Co-op students boost companies in their innovation processes. Finally, confidence between companies and the university has improved and both feel part of a common project. At the end, from the point of view of the university the co-op programme improves student and enterprise satisfaction and the relations are strengthened and allow for the promotion of future collaborations in different areas such as the request for industrial doctorates, the request for European projects, etc.

Relevance and Transferability

This experience can easily be emulated by other engineering studies, both at bachelor's and master's levels. Indeed, we are currently working on applying this model to the Master's programme in Industrial Engineering and also to Bachelor's programme in Building Engineering.

Comments

N/A