A NEW AGE IN THE AIR FORCE: THE DIGITALIZATION OF MILITARY HIGHER EDUCATION

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Abstract: *This paper represents AFAHC's conception of the beginning of digitization in the academy. The poor digitalization in the institution has made itself felt during the pandemic. The paper is a brief summary of what has been done over the course of a year to mitigate the effects of a weak digitization in the teaching/learning process. The beginning of solving the problem of digitalization, of understanding the digital educational process was made with the submission by a consortium with 4 partner universities of a project under the action Partnerships for Digital Education Readiness of the Erasmus program that is talked about in the paper.*

Keywords: digitalization, educational resources, Erasmus

1. CONTEXT OF THE PROJECT

In the pandemic context, still existing at the time of submitting the project, and given the specificity of AFAHC, the lack of a coherent strategy for the implementation of an online education system led to improvisations made to bring out of the impasse, at the moment, the educational process.

The improvisations made for online teaching had a weak point in terms of achieving high-quality results in the teaching/learning process. A little help was the existence of an e-learning platform developed through a previous project. Thus, the asynchronous educational process was started as the fastest solution found. In order to eliminate one of the disadvantages of this system – a low-quality teaching process resulting in poor results in student preparation – it was necessary to quickly update the knowledge about online conference systems. The synchronous online education system has gradually shifted. However, not all staff involved in the educational process were able to quickly adapt to the new requirements. Moreover, in the case of both methods, the impossibility of carrying out applicative courses, laboratory classes or tactical exercises should be taken into account.

The readiness of students is noticeably better if synchronous and asynchronous systems do not work independently. Each of the two demands the other so a mixed system would be desirable. Moreover, it is preferable to introduce simulation software for the operation of various technical systems or tactical applications.

Moreover, with the passage of the pandemic period, the mixed educational system comes to complete the methods of face-to-face teaching. The need for digitization, updating teaching methods and introducing new systems and devices dedicated to simulating different situations (VR or AR glasses) was another reason why it followed.

At the international level, there is a tendency that information resources, in greater numbers, to be realized in digital format, the advantages of this format being their diversity and accessibility.

2. DRIVE METHODS

The identification of the problems during the pandemic and the new direction of development of the educational process at international level has united 4 universities whose profile, although not identical, is similar to submit a project. These are: Vasil Levski National Military University, Hellenic Air Force Academy, War Studies University and Henri Coanda Air Force Academy

Correctly identifying the target groups means a successful project. At such a project dedicated to the educational process, the main target groups are: students and teachers. The two target groups have double quality in the project: as a developer of the objectives but also as a beneficiary of them. The aim of the project is to raise the level of preparation of students by updating the teaching / learning methods necessary in the context of digitalization.

Objectives deriving from the purpose of the project:

1.Raising the level of digital competences of teachers in partner universities

2.Raising the level of involvement of students and attracting them to the research process

3.Existence of digital educational resources

4.Existence and introduction in the teaching / learning process of VR and AR systems in all universities involved in the project

5.Existence of a platform / library where all the materials developed through the project can be found

The current state of the project consists in achieving two major objectives: the development of educational resources in digital format and their gradual opening to augmented reality applications.

The stages, in their chronological order, imposed:

Because within the project it will not be possible to develop materials for all the subjects taught during the first cycle of study due to the lack of time, it was opted to establish a number of 12 disciplines covering a wide range of topics in the field of university training in military institutions. It has been taken into account that in military higher education there is a wide range of specializations, from social sciences to engineering ones that can be distributed in:

- disciplines that are suitable to be taught in all the universities in the project and that are specific to the defense system such as leadership and management
- disciplines specific to each university and the specializations of the study plans those dedicated to the technical systems in the defense system

The 12 disciplines are as the following list shows: Measurement in telecommunications, NATO crisis and disaster management, Databases, War gaming, Information Warfare, Sensor Technologies for Security and Defense, Diplomatic Protocol, Military Powers, Unmanned Aircraft Systems, Electronic Warfare, Very Short Range Air Defense Systems, Radar Fundamentals.

Each of the 4 universities had to develop digital educational resources for 3 disciplines to form the foundation of a digital educational resource base around which to develop a digital library dedicated to the military university system and not only. Following a study, the decision was that educational resources shouldbe realized in eXelearning.

Involved: the target group - the teachers for whom the first objective of raising the level of digital skills necessary to create these digital educational resources appeared.

The reasons for choosing the eXelearning software are given by its characteristics: it is a free, open source software. Its easy use and the fact that what is achieved with eXelearning can be saved according to several standards has led to the conclusion that it is the most suitable for the project.

Figure 1 shows how to save as a web page and what the user interface looks like.

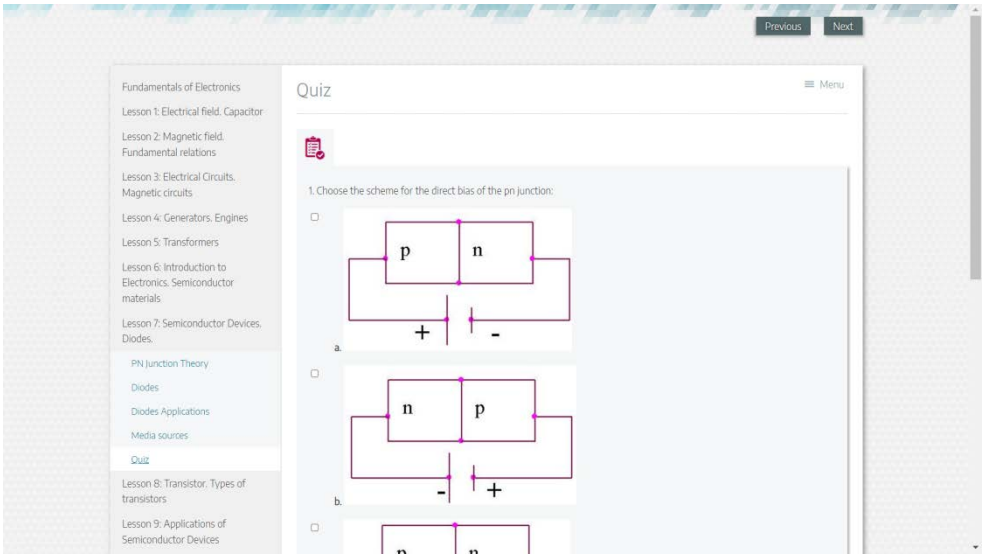

FIG. 1 Show course content as a web page

The highly used asynchronous teaching process during the pandemic period is still current in terms of personal training of students. Under the current conditions this involves self-guided lesson modules, streaming of video content, virtual libraries, lecture notes posted and exchanges on discussion forums or social media platforms. All this can be embedded in the digital educational resources realized and saved in eXelearning (see Fig. 1).

Online learning environments are becoming more and more common in teaching and learning processes being the basis of asynchronous learning and needing course papers delivered via the web, email and messaging to be posted on online forums.

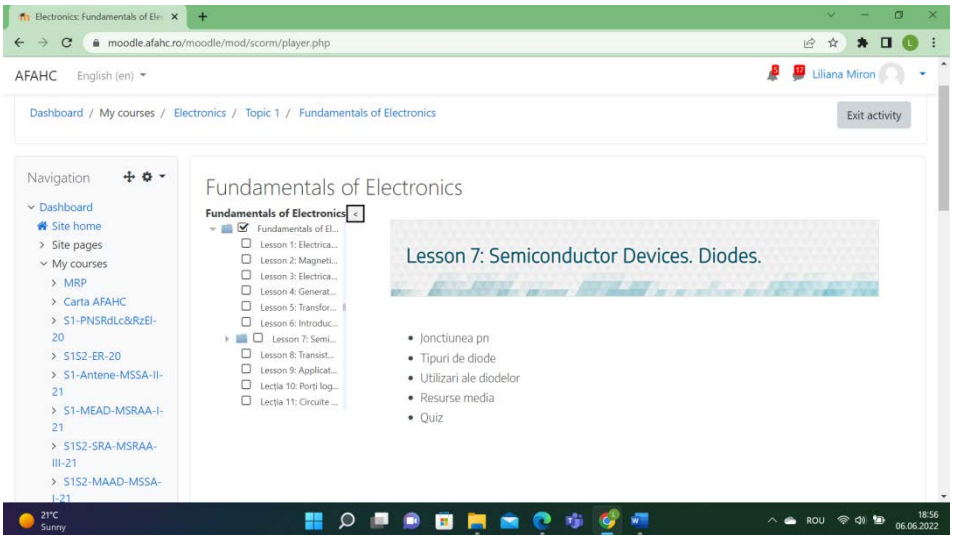

FIG.2 Show course content as SCORM in Moodle

All this can be done with eXelearning, another advantage of this software. A strong point of eXelearning is that it offers the possibility of a work saved in the SCORM standard that can be imported into an LMS platform.

Figure 2 shows how to save and interconnect with an LMS platform. With this said, we moved on to the target group – the students, involved in the process of developing educational resources. Their involvement has benefits in terms of familiarizing them with the functioning of the current educational system in the universities partnering in the project and in developing their spirit of creativity.

The double quality of target group and beneficiaries of the project results of the two mentioned target groups is observed throughout the project.

Another characteristic of this project is the multidisciplinary highlighted by the diversity of the disciplines for which the teaching and technical materials are made, there are disciplines with a strong technical profile but also some with a humanistic or management profile.

If for the humanist profile the applications are easier to manage, for the technical one dedicated devices and software are needed.

3. NEXT STEPS

Once the digitalization phase of educational resources is completed, the objectives dedicated to applicative and laboratory activities follow. The introduction of augmented reality systems and the realization of dedicated applications is the next challenge for students and teachers.

CONCLUSIONS

Although it does not seem like the project Implementation of Digiatlization in Defence Higher Education whose steps gone through and future were presented in the paper has the element tou innovation. The digital transition of educational resources and their correlation with LMS platforms bring into focus the university education specific to the military system. The introduction of augmented reality in the teaching system is a step towards the future.

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[2] Implementation of Digitalization in Defence Higher Education (DDHE) - 2020-1-RO01-KA226-HE-095411, https://www.afahc.ro/ro/erasmus/ddhe/ddhe_en.html, Henri Coanda Air Force Academy.