A VIRTUAL TRAINING CENTRE FOR SHOE DESIGN

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Abstract
Virtual Training centre for Shoe Design (VTC-SHOE) is a LdV Project product which has come up to the changing needs in shoe design training to promote quality in training in the context of vocational education and training as well as to promote competitiveness and employment in the European footwear industry. With the help of Information and Communications Technologies in the footwear design training, the VTC-Shoe gives courses up to intermediate level in shoe design training in the virtual environment constructed to this end. Thus, it aims to overcome a common challenge to support quality improvements in vocational education and training systems by focusing on the development of innovation and good practice. The training centre is a virtually designed and served training centre which is accessible over internet (http://www.vtcforshoedesign.com). The aim of this paper is paper is to present two types of content: first is the content material developed for the static content based on texts and pictures. The second type is the dynamic presentation using audio-visual aids in the virtual environment. The methodology and training steps presented virtually using ICT as an innovation in vocational education and training is the main focus of this virtual training centre and paper.

Keywords: Virtual Training, ICT, Shoe Design, VET

1. INTRODUCTION

Virtual reality can be defined as a technology allowing a user to interact with a computer-based environment which may consist of a simulation of the real world or an imaginary world. Many of such virtual environments are based on audio and visual experiences reflected on computer screens. These environments can have additional properties with simulations. These simulated environments can be very similar to the real world. Myron Krueger used "artificial reality" as term in the 1970s, but the origin of the term "virtual reality" can be traced back to the French playwright, poet, actor and director Antonin Artaud. Artaud described theatre as "la réalite virtuelle", a virtual reality "in which characters, objects, and images take on the phantasmagoric force of alchemy's visionary internal dramas" [1]. The earliest use cited by the Oxford English Dictionary is in a 1987 article entitled "Virtual reality" [2]. Michael Heim [3] identifies seven different concepts of Virtual Reality: simulation, interaction, artificiality, immersion, telepresence, full-body immersion, and network communication. To Heim, virtual reality already exists and he deigns to communicate to us via the dead tree medium of books. So strap on your virtual eyephones and open the covers and prepare yourself for a roller coaster ride through the labyrinths of hypertext and cyberspace. Heim also idetifies the main points that distinguishe our external reality from virtual reality? His answer is 1) *natality* (we are born), 2) *mortality* (we die), and 3) *temporality* (we remember past happenings). These limits, he says, "impose existential parameters on reality, providing us with a sense of rootedness in the earth (a finite planet with fragile ecosystems)." I would agree with him, except I consider the earth to have a robust ecosystem, to be a robust planet, not a fragile one.

Virtual Reality is an efficient tool in education and training as education people tend to comprehend images faster than the text lines. Learners can actively participate in the learning process and are attracted by the visual information rather than boring texts. Simulations help them to have the training that would otherwise be too costly. This kind of training is preferred mostly in aviation to train pilots that would be too expensive and dangerous. When we use this training tool in the class rooms, it is certain that it will increase student participation and Classroom activities will use VR tools for hands-on learning, group projects and discussions,

field trips, and concept visualization [4]. It is a fact that traditional teaching approach is text based and presented orally. Virtual training environments allow natural interaction with information. Students prefer exploring new worlds such as foreign countries, ancient times or the human body to reading about foreign places or watching a videotaped program.

2. TRAINING IN VIRTUAL ENVIRONMENT

During the 60's and 70's, teaching and learning tools were nothing but a piece of chalk and a blackboard eraser, teachers and students who met each other face to face inside the classroom during class. In the 80's, videotape programs were used as teaching aids. In the 90's, one-way teaching by computer arrived. And finally today's advanced computer and information network technology has revolutionized our teaching and learning methods. In accord with the development, learning environment has also changed. Students can listen to their teacher or trainers in distant classrooms through PCs and get a simultaneous view of their teachers and texts as well. They can ask questions and record the "class" for repeated viewing. Training organizations can conduct professional training directly via the computer network. These learning environments are not so different from a teacher-guided class with discussions and tests as well [5, 6].

In the report "Studies in the Context of the E-learning Initiative: Virtual Models of European Universities", a key concern was how virtual mobility is being supported in European universities through ICT integration and e-learning [7]. The study found that the majority of universities face major challenges in promoting ICT integration. ICT strategy is very important and those universities that have an ICT strategy are significantly ahead in integration of ICT in administration and organisation and networking. Integration of ICT and e-learning is politically important in the EU in terms of internationalisation and globalisation of education, student demand and interest in increasing the quality of education through ICT. At the national level, integration of ICT should become a key priority with national and regional institutions making a commitment to ITC and the development of networks. There must be increased national flexibility with a commitment to support common standards of quality and assessment and to develop national and international metadata standards.

3. VIRTUAL TRAINING CENTRE FOR SHOE DESIGN

The rapidly changing technologies, as well as the innovative e-learning teaching methods require for adapted modules for lifelong training that keeps continuously up to date with the relevant developments of the European footwear industry. The Virtual Training Centre for Shoe Design is an interactive platform, a meeting point for policy-makers, social-partners, practitioners, researchers and all those with an interest in shoe design field of vocational education and training. Experts in the field can share and exchange knowledge and experience with associates within and outside the European Union.

The project's scientific and pedagogic objectives are in tune with the main priority in Lifelong Learning Programme [8]. Through the various research and development projects, partners have developed training materials for shoe design. These materials have to be compared between involved partners in order to get common curricula to be share with future users at a European level. The innovative e-content, developed within the VTC-Shoe project, can easily be translated to various languages.

In terms of strategic impact and contribution to growth, the VTC-Shoe project is expected to have a very powerful impact in the European footwear industry. Similar to the other projects funded by European Community, it is to improve competitiveness helping footwear companies to have skilled and competent shoe designers. Thus, VTC-Shoe added value for the Community lies in the provision of a training tool that has the dynamics not only to provide valuable training and skills to the targeted beneficiaries but also to empower the processes of the EU footwear industry and thus, increase productivity and competitiveness. This, in its turn, is expected help the industry grow and, thus, increase the demand for more skilled employees.

This virtual training centre to be formed in this field and its application constitute the first and good example for virtual learning in national vocational training systems. It helps to improve and upgrade competences and skills of staff and exchange experiences over the virtual training

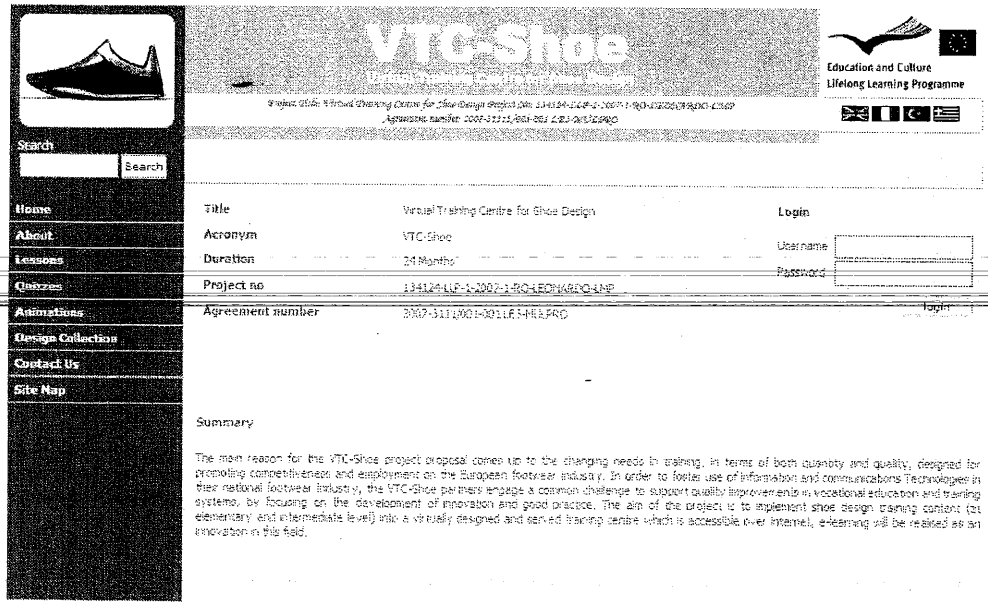
centre. It also increases the work opportunity by helping young generation to use Information Technologies.

4. CONTENT

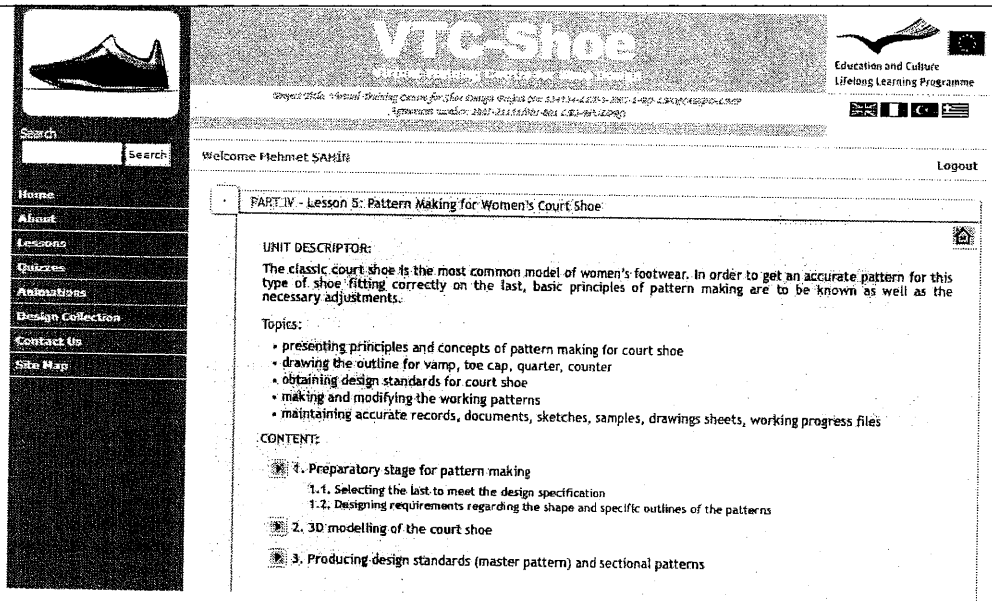
The content of the curriculum is composed of four main parts. The first part consists of Knowledge on Foot Anatomy and Biomechanics Applied to Footwear Design and Pattern Making. The second part is dedicated to Footwear. It covers Materials Used for Footwear Products, Footwear - Structure, Functions and Classification Criteria, Lasts for Footwear Industry, Footwear Technology, Technological Allowances for Pattern Making. The third part is about Measurements and Tools used in shoe design. This part includes Measuring the Foot (foot anthropometrics), Measurement Systems, Tools for Pattern Making. The last part is dedicated to Design and Pattern Making in footwear. This part covers Principles and Elements of Design Applied to Footwear, Develop and Present New Design Concepts, Producing Standard Forme of the Last, Producing Design Standard (master pattern), Pattern Making for Women's Court Shoe, and Pattern Making for Men's Casual Shoe (Oxford, Derby), Pattern Making for Children's Shoe, Pattern Making for Slippers, Pattern Making for Boots/High Boots, Pattern Making for Women's Sandals, Producing Lining Patterns, Elements for designing bottom footwear components (insole, sole), Basics for producing footwear patterns from 3D design, Grading 2D footwear patterns and Nesting the Patterns and Material Efficiency Analysis.

5. SAMPLES FROM VIRTUAL TRAINING CENTRE FOR SHOE DESIGN

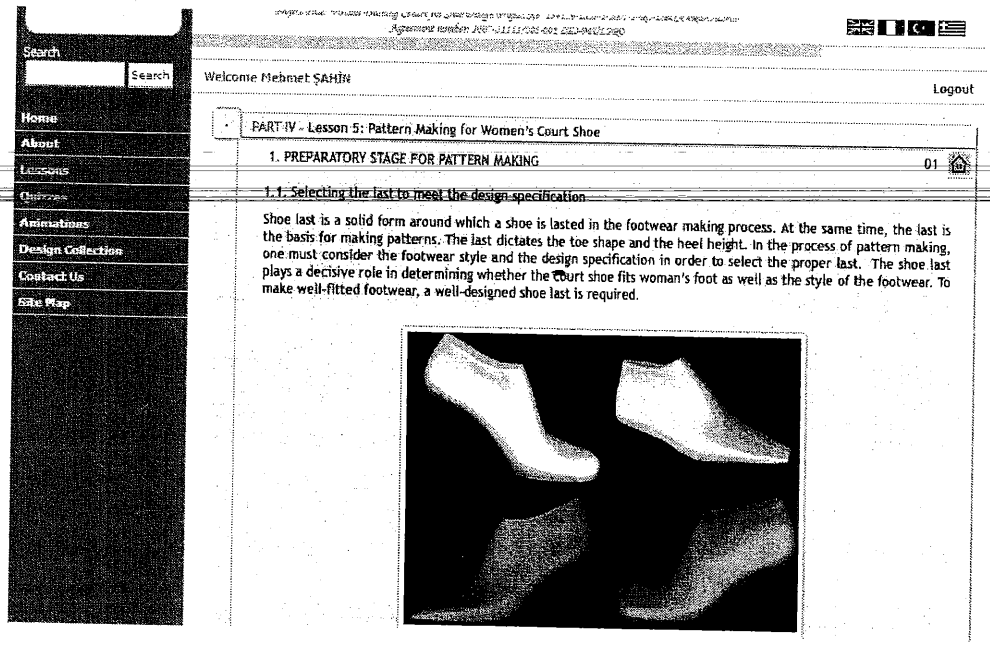
The virtual training centre (**http://www.vtcforshoedesign.com**) is a portal which has lessons, Quizzes, Animations and Design Collection. This training tool has a login and password for access.



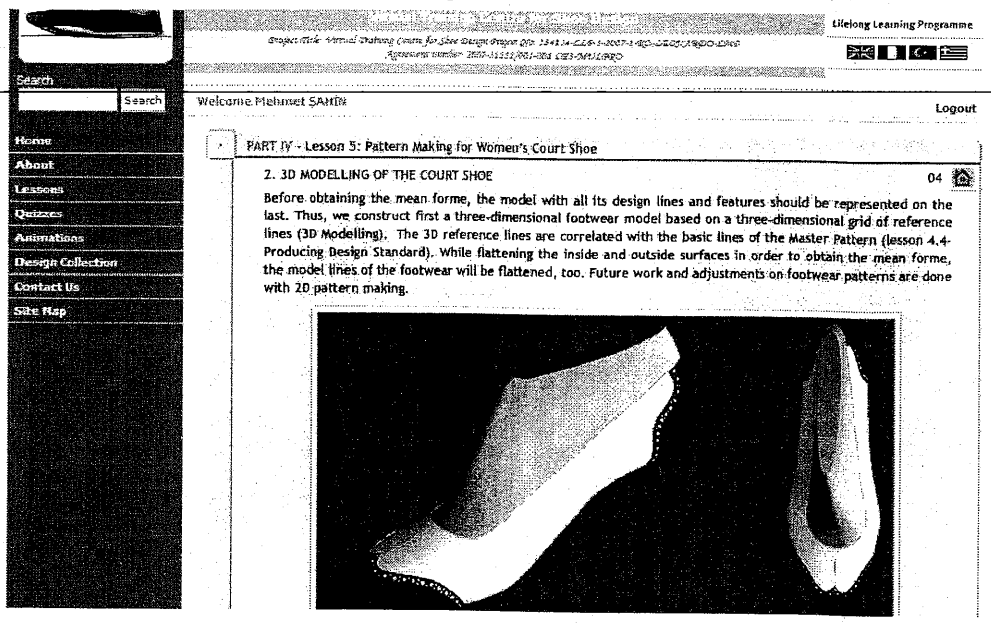
The following is the sample lesson and how it is displayed as a text supported by audio, pictures, animations and video, which are the essentials of a Virtual training environment. The following is Lesson 5: Pattern Making for Women's Court Shoe.



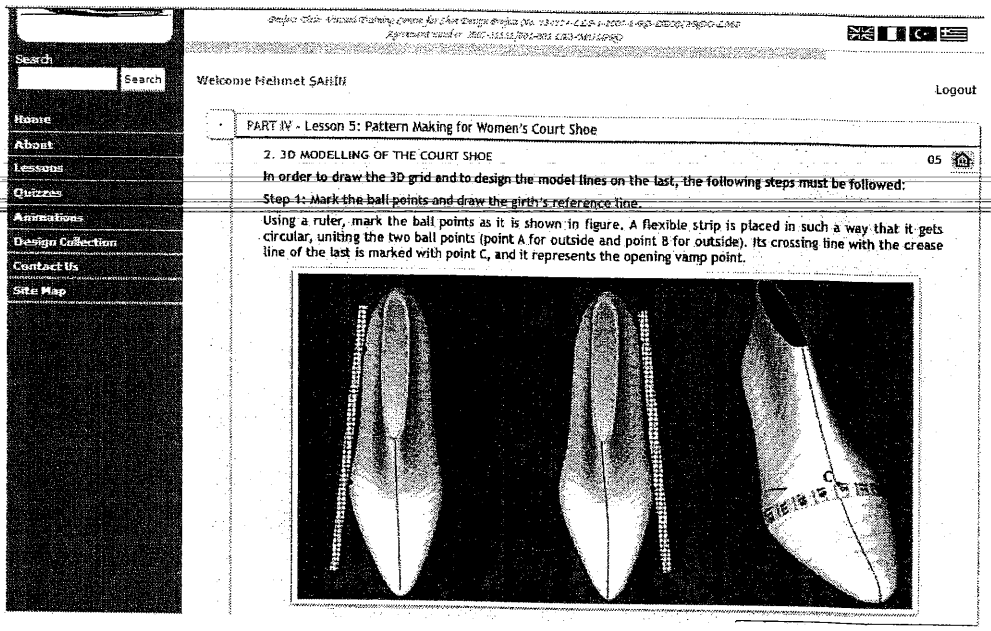
The following is the piece of lesson about how to select the last to meet the design specification as a preparatory stage for pattern making.



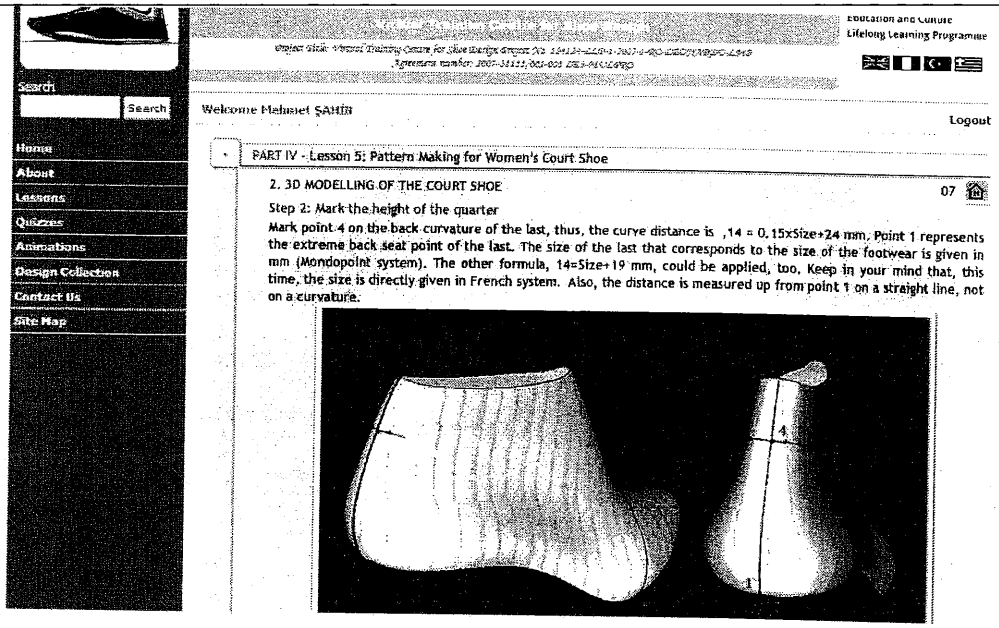
The following lesson is to display how to make 3D modelling of the Court Shoe.



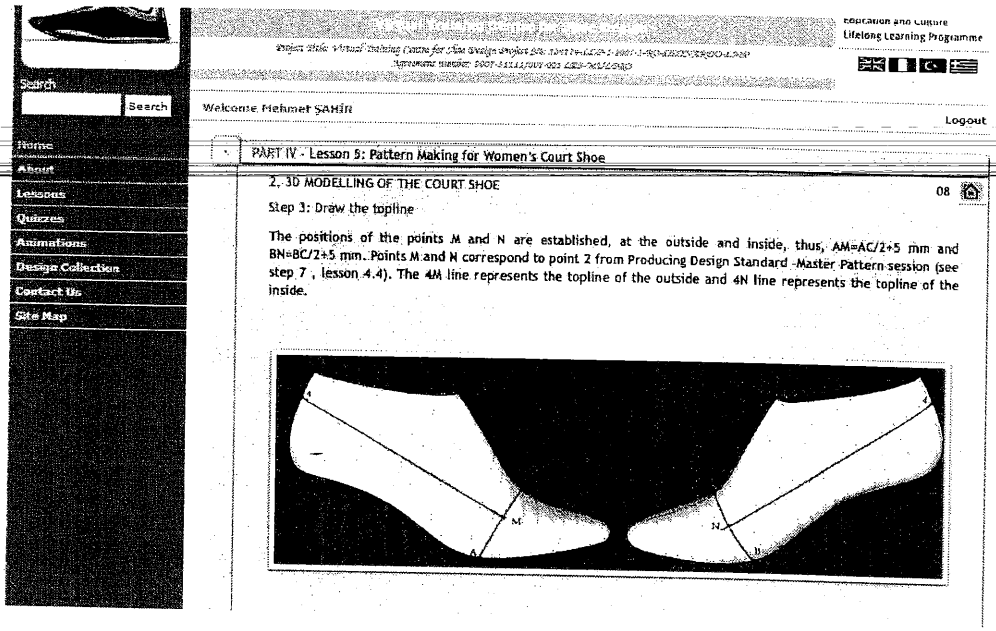
The following is the first step about how to make 3D modelling of the Court Shoe. The illustration and the flashed points in the virtual environment display how to mark the ball points and draw the girth's reference line.



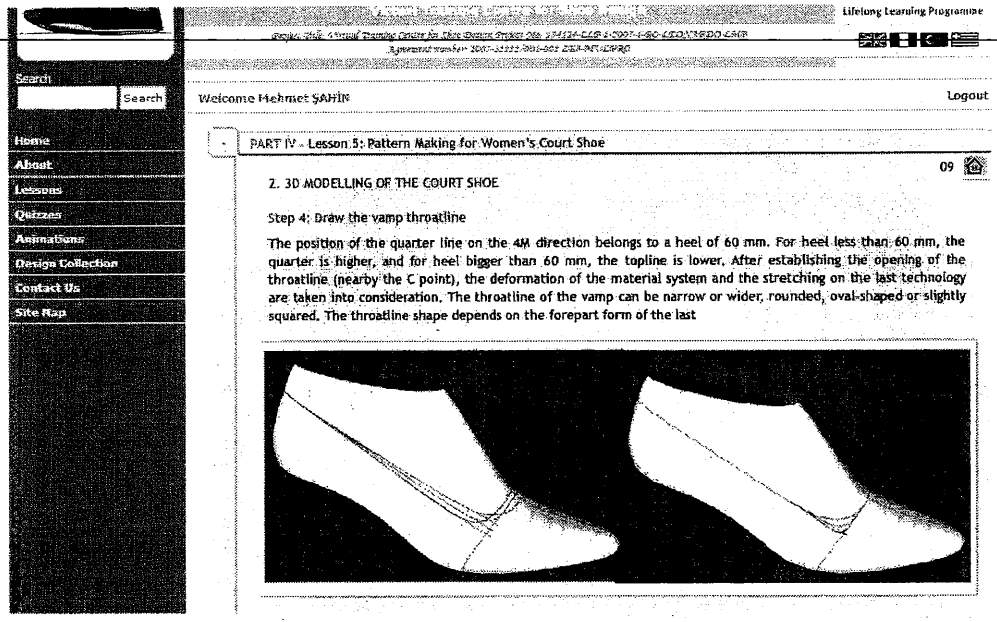
The following is the second step about how to make 3D modelling of the Court Shoe. The illustration and the flashed points in the virtual environment display how to mark the height of the quarter.



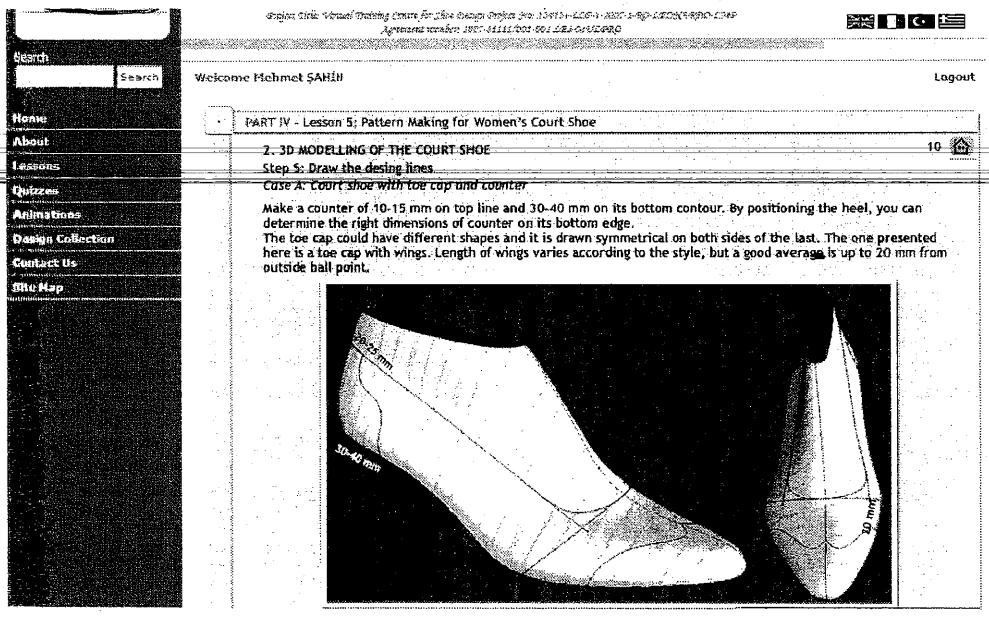
The following is the third step about how to make 3D modelling of the Court Shoe. The illustration and the animation in the virtual environment display how to draw the topline.



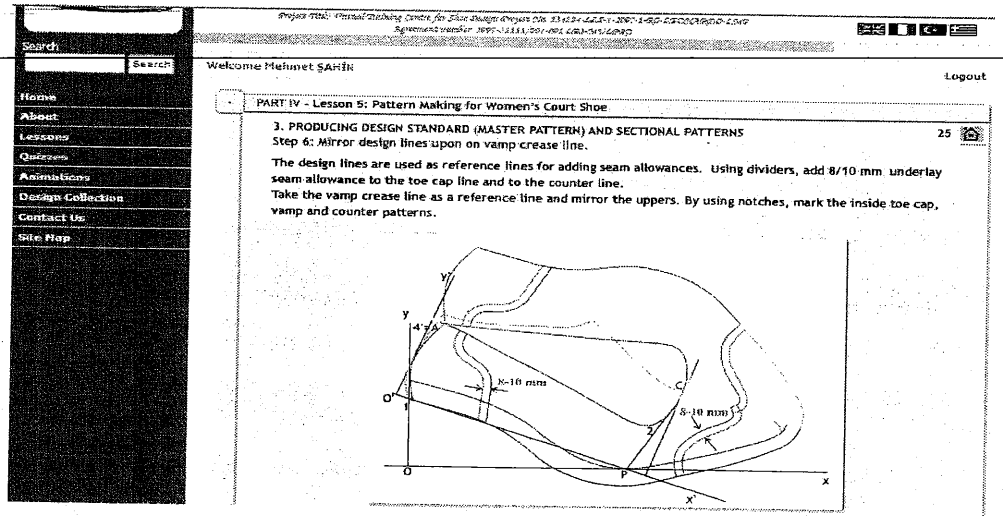
The following is the forth step about how to make 3D modelling of the Court Shoe. The illustration and the animation in the virtual environment display how to draw the vamp throatline.



The following is the fifth step about how to make 3D modelling of the Court Shoe. The illustration and the animation in the virtual environment display how to draw the design lines.



The following is a window from "Producing Design Standard (Mater Pattern) and sectional patterns. Step 6 shows with animation how to mirror design lines upon vamp crease lines.



5. CONCLUSION

VTC-SHOE is a virtual environment in which the shoe design training is served according to the curriculum developed for this purpose at elementary and intermediate level. As a training tool, the curriculum on which the virtual training centre is based is in accord with the approach, methodology and techniques required for virtual training. As it is accessible by anyone who has membership or permission, anyone who is interested in shoe design training can benefit from this training tool. The audio and other visual aids contribute to its attractiveness for a trainee or trainer in this field. In addition, the animations, quizzes and design collection can further contribute this tool to become more attractive and effective in training. In addition, this training tool is multilingual. That means it has English, Romanian, Turkish and Greek version. This can also help its scope and effect as a training tool internationally. In this way, it can be transferred to similar fields such as furniture, textile, air conditioning etc. The approach, methodology and techniques used in this training centre can be used as a model in developing and improving other training programmes in particular in the area of new information technology applications in related sectors.

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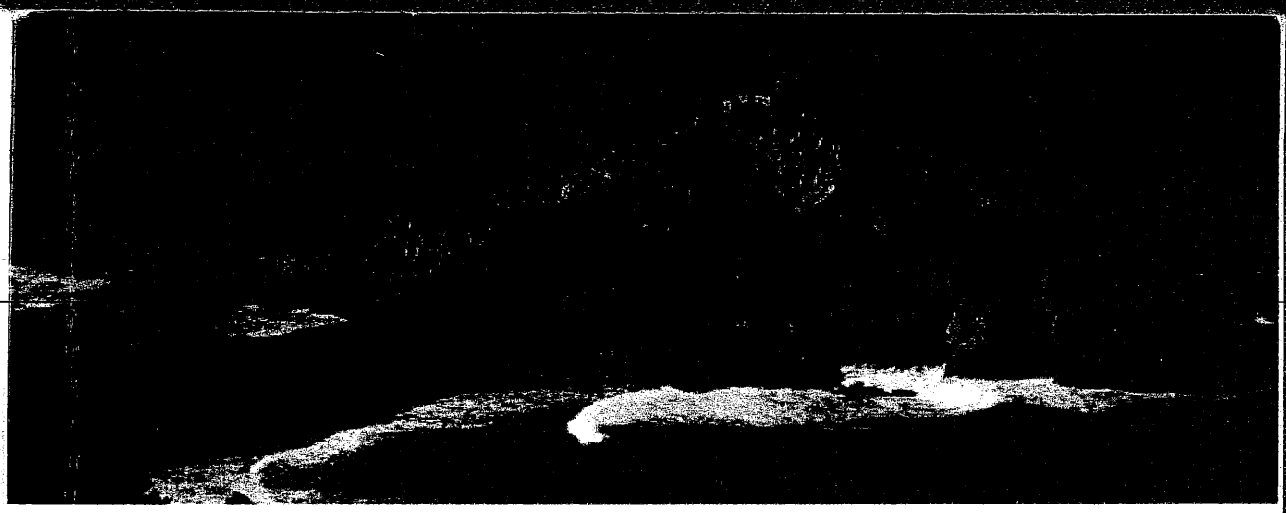

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