



TRAINING MODULE

FINISHING, PRINTING and FUNCTIONALIZATION

Course: Basic Principles of Textile Printing

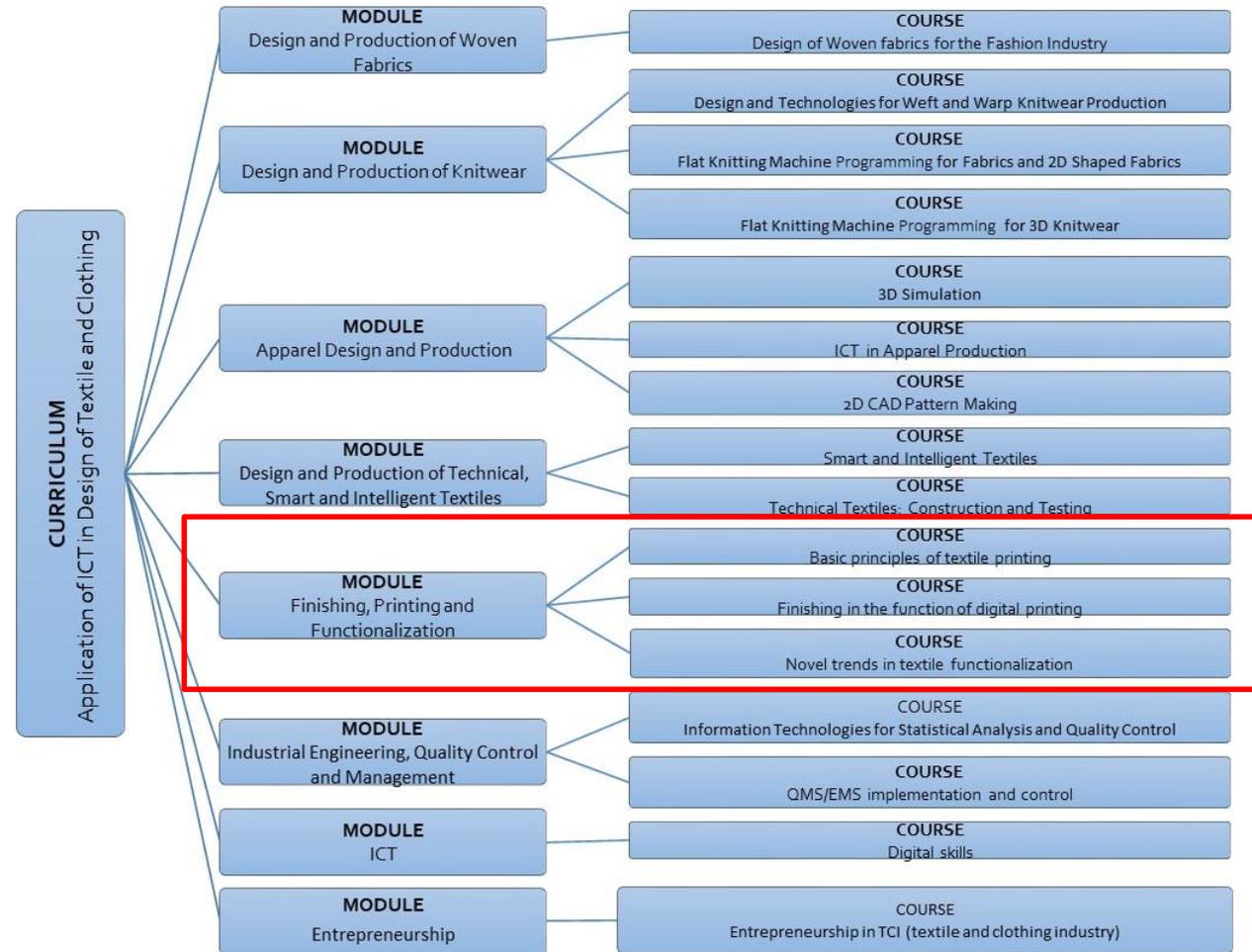
Partner: P4 – University of Zagreb Faculty of Textile Technology

Prof. Martinia Glogar, Ph.D.

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Cooperation for innovation and the exchange of good practices Knowledge Alliance

ICT IN TEXTILE AND CLOTHING HIGHER EDUCATION AND BUSINESS

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MODULE – FINISHING, PRINTING AND FUNCTIONALIZATION

Course: Basic Principles of Textile Printing

Duration: 20 hours

Course objectives

The entry of ICT into analogue, conventional textile printing technology, which involves the use of rotary or flat screens, has revolutionized its development. It is the most demanding stages of the process, such as sample design and sample-to-screen preparation, that become the points of the most significant implementation of information technology. With the introduction of the CAD system, the printing process itself is being digitized, enabling automation in the management of the printing machine and control of the handling of the printing paste. The aim of the course is to acquire the skills and knowledge of conventional screen printing, aiming in mastering the abilities of using the ICT tools in designing and overall printing process, and to point out the role of textile printing techniques in smart textile production.

Topics

- ICT in textile printing methods and techniques
- Smart printing pastes
- CAD application in textile screen printing
- Dyes and pigments with special effects (thermochromic, photochromic, phosphorescent, fluorescent, biomimetic)
- Dye and pigment based textile printing

Learning outcomes

Knowledge	Skills	Responsibilities/autonomy
<ul style="list-style-type: none"> - To consider all possibilities of ICT tools applications in technology of analog textile printing - To select printing methods in response to market demands, with economy and environmental acceptability - To know the basics of rheology as the foundation of the printing pastes preparing process - To understand the creative aspect of textile printing technology and get acquainted with new printing methods for special and smart effects realization - To understand the difference of bonding mechanism of dyes and pigments 	<ul style="list-style-type: none"> - To make a screen for performing printing using new techniques - To select the thickener depending on the printing technique, dye and textile material used - To select and apply the appropriate printing method for a certain type of material, a particular purpose and to achieve a certain effect - To define the relevant parameters regarding the effect and the print quality desired - To perform different textile printing techniques 	<ul style="list-style-type: none"> - To be responsible for the application of environmentally and economically sustainable printing paste as well as printing method - To be able to optimize quantities of printing paste in order to avoid significant waste of chemicals - To propose a short project of industrial design by using the textile printing techniques as the main creative tool - To be responsible for developmental approach to the scope of exploring and applying new techniques and smart dyes and pigments



MODUL: Finishing, Printing and Functionalization

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DESCRIPTION OF THE COURSE:

- ✓ The course in **Basic Principles of Textile Printing** includes basic aspects of textile printing technology in the context of automation, modernization and implementation of ICT tools in the technological process of printing from the stage of design and pattern preparation to the final product.
- ✓ it presents the basic features of the printing process, from the design phase and preparation of patterns and screens, to the selection and implementation of appropriate printing techniques with reference to the rheological and structural properties of printing pastes.
- ✓ It provides an overview of the automation and digitization of the printing process and introduces participants to the important role of textile printing in the production of smart textiles.
- ✓ It introduces to dyes and pigments of special properties such as thermochromia, photochromia, phosphorescence, fluorescence, biomimetic, nanoparticle printing pastes with effects for smart textile production (e.g. electrical conductivity).



THE AIMS and OBJECTIVES OF THE COURSE:

- ✓ The aim of the course is to acquire the skills and knowledge of conventional screen printing, aiming in mastering the abilities of using the ICT tools in designing and overall printing process, and to point out the role of textile printing techniques in smart textile production.

CONTACTS

Coordinator:

Technical University of Sofia
Department of Textile Engineering

Project Manager of ICT-TEX:

Prof. ANGEL TERZIEV, PhD

e-mail: aterziev@tu-sofia.bg

Web-site: ICT-TEX.eu



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