

Theoretical and Practical Education in Technology for Leather Production

Nikolay Karev*

University of Chemical Technology and Metallurgy,
Department of Economy and Management, Sofia, Bulgaria

Received 04 September 2020, Accepted 22 October 2020

ABSTRACT

Possibilities for conduction of theoretical and practical education using developed education curricula for subject technology of the specialty “Theory and Training Practice” for the students educating the specialty “Leather Products Manufacturing” have been presented. Every curriculum contains the aim of the education, hours in accordance with the educational content. It is divided into sections and themes, the knowledge and skills of the students’ result of the education have been noted.

Keywords: education, curriculum, leather products manufacturing.

INTRODUCTION

Nowadays key factor for competition are conditions of development of the economy knowledge and skills. The dynamic changes in the surrounding environment are taking to their discrepancy with the requirements for employment, which means that the acquired yesterday knowledge and skills today are not enough for the competition. This imposes the enterprises and the work force continuously to update their knowledge and skills and to acquire new [1]. One of the ways for achieving this is the education.

Over last years in the area of education and development of the human resources more widely is used the concept competence. The interest to this issue has grown up with the popularization

of the use of the Informational system for assessment of the competence in our country. The essence of this concept is clarified into regulations and strategical documents, which are considered in this issue. One of those documents is the “Law for professional education and training” [2].

The insurance of qualitative professional education needs on one hand modern educational area having updated specialized equipment with accordance with the developed new technologies, on the other hand the development and update of the educational plan, curricula, national examination program and training textbook for professional education and training. The performance of those actions will lead to increase in the quality of the professional preparation with accordance to the new requirements of the national and regional

* Correspondence to: Nikolay Karev, University of Chemical Technology and Metallurgy, 8 Kliment Ohridski, 1756 Sofia, Bulgaria, E-mail: nkarev@uctm.edu

Table 1. Variants of total school hours according standard syllabus [3].

	Variant I	Variant II	Variant III	Variant IV
School hours according standard syllabus	166	119	195	177

economics and will help with the collaboration between the educational system and the business in Bulgaria. This will lead to modernization of the professional education.

RESULTS AND DISCUSSION

For acquisitioning the main competences in education for the specialty “Leather Products Manufacturing”, profession “Operator of shoes

Table 2. Educational content of the curriculum “Technology of the specialty- Theory” [4 - 8].

Names of the sections and themes
Section I. Overview of the production of the leather goods
1. Introduction into the technology for production of the leather products – subject, tasks, stages and features in the development of the production of the leather goods
2. Factors influencing over the searching and offering of the leather products
3. Classification of the leather products – signs for classification, common characteristic, features and requirements for the leather goods
4. Details of the leather products – details for bags, suitcases, wallets, gloves e.t. Classification, function, purpose and requirements for the details
5. Production process and structure of the leather goods enterprises – sequence of the production process. Scheme of the production structure.
Section II. Cutting the details of the leather products
1. Organization of the production process in the industrial unit for cutting the leather products – main sections and equipment.
2. Preparation of the materials for cutting the front, intermediate and lining details of the leather products
3. Methods for cutting and systems of fitting the details in the process of cutting the leather products.
4. Technology of cutting, requirements and features in the process of cutting the details made from natural soft leather.
5. Technology of cutting, requirements and features in the process of cutting the details made from artificial leather and textiles.
6. Technology of cutting, features and requirements in the process of cutting the details made from solid materials.
7. Usability of the materials – types of waste from cutting, measuring the area of the details. Factors influencing over the usability of the materials. Determine the usability of the basic materials.
Section III. Processing the cut details and preparation for joining
1. Processing preparing the details for sewing – trashement, splitting, perforation, marking e.t. Purpose and technological requirements for performing operations
2. Processing improving the physics-mechanical properties and the aesthetic appearance of the details – duplication, lamination, shagreen, eyeliner, hemming e.t. Purpose and technological requirements needed for implementation
3. Mounting operations – types, features for implementation
4. Shaping the details, nodes and group details – purpose, essence and way of implementation
5. Technology for manufacturing the different types of handles, headsets and more semi-finished products.

Section IV. Methods for joining the details in making the leather products			
1. Mechanical methods for joining the details:			
- Sewing needles – set, types			
- Types finite seams – classification and purpose. Forming double-ended closed seam. Factors influencing over the strength of the finite seams;			
- Structural seams depending from the disposal of the details relative to each other – types, practice, technological sequence implementation;			
- Features in the joining the details depending on the type of material;			
- Metal details – types, classification, methods for mounting. Technological requirements for fastening the facing.			
2. Physics-chemical methods for joining the details:			
- Glued method – essence of the process gluing, types of glue. Factors influencing over the strength of the adhesive seam. Methods for putting the adhesive layer;			
- Method casting – essence and types of materials of casting. Casting details, nodes and whole (all casted) products made from polyvinyl chloride, polyurethanes and more polymers. Way of the technological process, parameters and equipment;			
- Method joining with high frequency current and ultrasound – practice, essence, types and parameters of the technological process. Factors influencing over the strength of the welder seam.			
Section V. Technology for manufacturing the basic types of leather products			
1. Technology for manufacturing small leather products with different size and purpose – cases, wallets, pencil bags e.t.			
2. Technology for manufacturing woman`s bags with different constructions, system for closing and purpose			
3. Technology for manufacturing man`s bags with different purpose, construction, size and way of closing			
4. Technology for manufacturing products with sport`s nature, for special and everyday use			
5. Technology for manufacturing gloves and accessories for clothing – hats, ties, leather jewelry and art products made from leather			
Section VI. Finishing operations			
1. Mechanical finishing operations – types, purpose, technological features in the implementation			
2. Chemical finishing operations – types, purpose, technological features in the implementation			
Section VII. Evaluating the quality of the ready leather products			
1. Types of control – signs of classification			
2. Methods for evaluating the quality of the leather products – organoleptic method, physico-mechanical and chemical methods			
Section VIII. Trends in the developments of the production in the leather goods			
1. Basic problems with the mechanization and automation the production of the leather goods			
2. Introduction into the new materials and methods for cutting the details			
3. Automation of the production process with the confectioning the leather products			

Table 3. Variants of total school hours according standard syllabus [3].

	Variant I	Variant II	Variant III
School hours according standard syllabus	721	288	924

Table 4. Educational content of the curriculum “Technology of the specialty- Training Practice”[4,6,7].

Names of the sections and themes
Section I. Introduction to the leather products manufacture
1. Requirements for healthy and safe working conditions in the manufacture of leather products– initial instruction 2. Familiarization with the production process and manufacturing structure of the leather enterprise – types of workshops, used machines and equipment
Section II. Cutting of leather details and treatment of the cutting details
1. Requirements for healthy and safe working conditions in cutting out the details of the leather products 2. Purpose, organization and structure of the workshop for cutting. Organization of the cutter working place. 3. Cutting and treatment of the details: - preparation of the materials for cutting the details of the leather products; - documents accompanying the process of the cutting – working with uncut card; - cutting details from natural observe and lining leathers; - cutting details from artificial leathers and textile; - cutting details from solid materials; - treatment of the cutting details; - completing, control and expedition of the cutting details;
Section III. Joining the details in making the leather products
1. Joining with mechanical methods – finite seam (preparing the seam machines for work, making straight right seams and seams in form). Making structural seams depending from the disposal of the details relative to each other 2. Joining with physics-chemical methods: - joining with gluing – putting glued layer, joining surface materials, which have different makeup and type; - treatment and joining details with high frequency current and ultrasound
Section IV. Stages in making leather products
1. Manufacturing handles 2. Manufacturing node – observe details 3. Manufacturing node – lining details 4. Mounting metal details – with feet, riveting and pressure 5. Assembly of node observe and line in ready product 6. Finishing operations 7. Qualification of the leather products 8. Marking, package, storage and transport of the leather products
Section V. Completing the different types leather products production
1. Production of small leather products 2. Production of large leather products – bags for everyday use and special events, with sport character, travel bags e.t. 3. Production of gloves and accessories for clothing – hats, ties, leather jewelry and art products made from leather

and leather products”, professional trend 542 “Production technologies - textile, clothes, shoes and leathers” are presented new curricula for secondary education on “Theory and Training Practice”.

The aim of the training for the specialty “Leather Products Manufacturing” is to give to the students system of knowledge of the main concepts, technological requirements and the technological processes in the production of different type of leather products.

The total school hours for the theory of specialty is noted in the standard syllabuses and is presented in Table 1.

The educational content is structured in eight sections. Model themes, given in Table 2, are included in every section. The school hours are distributed in sections and themes in the beginning of the teaching by the teacher according to the potentialities and the interests of the students, methods of teaching and the extended professional training planned in the syllabus.

With the aim to form into the students practical knowledge and skills is designed a new curriculum for educational training for the same specialty, profession and professional direction. The purpose of the curriculum is to help the students to obtain practical knowledge and skills for themselves for producing different in size, type, construction and purpose leather products.

The total school hours for the theory of specialty is noted in the standard syllabuses and is presented in Table 3.

The educational content is structured in five sections. Model themes, given in Table 4, are included in every section. The school hours are distributed in sections and themes in the beginning of the teaching by the teacher according to the potentialities and the interests of the students, methods of teaching and the extended professional training planned in the syllabus.

CONCLUSIONS

As a result of the conducted theoretical education the trainers will acquire knowledge about the basic and specific concepts, which are linked with the production of leather products, methods of cutting the materials, types of processing of the cut out details and the technological requirements needed for their performance, stages of assembling the leather products and finishing operations over them, trends in the development of the technologies in the leather products manufacture.

After completing the practical education the trainees will be able to perform operations over the basic machines for production of the leather products, to make rational cutting of details, which are made from different materials and have different quality of processing the cut out details, to perform assembly and sewing operations and on their own to manufacture leather products.

REFERENCES

1. S. Hristova, The relationship of human resources training with knowledge management in the organization, 25th anniversary international symposium “Management of energy, industrial and environmental systems”, Bankya, 2017, ISSN1313-2237.
2. M. Atanasova, Education and development of the human resources in the organization / theory and practice/, Avangard Prima, Sofia, 2015, (in Bulgarian).
3. Curricula and syllabuseprofessional trend 542 Production technologies, extile, clothes, shoes and leathers, <https://www.mon.bg/bg/40>, (in Bulgarian).
4. A. Cherneva, A. Mutaftchiiska, G. Apostolov, Technology of the leather manufacture, Technique, Sofia, 1988, (in Bulgarian).
5. P. Tsetkov, Technology of the shoe and leather manufacture, Technique, Sofia, 1982.
6. A. Cherneva, I. Shopova et al., Technology

- of the leather manufacture part I, Technique, Sofia, 1976, (in Bulgarian).
7. A. Cherneva, I. Shopova et al., Technology of the leather manufacture part II, Technique, Sofia, 1977, (in Bulgarian).
8. Centre national du cuir et de la chaussure, formation CNCC, 2015, <http://www.cnccleather.nat.tn/medias/2015/Guide.pdf>