

Possibilities for the Theoretical and Practical Education in Technology for the Specialty “The Shoe Production”

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ABSTRACT

New curricula for the secondary education on “Theory and Training Practice” for the specialty “Shoe Products Manufacturing” have been presented. Every curriculum contains the aim of the education, school hours in accordance with the educational content. It is divided into sections and themes, too. The knowledge and skills of the students results of the theoretical and practical education have been noted.

Keywords: curricula, shoe products manufacturing, theory, training practice.

INTRODUCTION

The training of the staff in the up-to-date conditions is determined by the peculiarities of the contemporary economics characterized with the increased competition between the enterprises, internationalization of the markets as well as the introducing of new technics and technologies.

To obtain results by the training of students, it is necessary to define clear and concrete aims, consistent with the needs of the enterprises.

The elaboration of the curricula has to be consistent with the idiosyncrasy of the students. Their educational level and labour background have to be taken into account when the structure of the educational matter and the methods of teaching are choosing. The educational content has to be connected with the practice in order to motivate the participants’ study and to prepare them for their future work. That is why, the con-

tent of every curriculum is constructed by units with logical connection between them.

For the subsector “Shoe Products Manufacturing” the qualification and the competency of the staff is determined by their training, which have to be equivalent with those in the countries in the European Union. Only then, our shoe enterprises will be competitive to the foreign enterprises. To reach this aim, it is necessary to create curricula for higher and secondary education permitting to prepare specialists that are familiar with the current technics and technologies.

RESULTS AND DISCUSSION

The presented new curricula are designed for secondary education on “Theory and Training Practice” for the specialty “Shoe Products Manufacturing”, profession “Operator of shoes and fancy goods products”, professional trend

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

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

Table 2. Educational content of the curriculum “Technology of the specialty-Theory” [2 - 7].

Names of the sections and themes
Section I. Basic concepts and information for the shoe manufacture
1. Introduction to the technology of the shoe products manufacture – essence, subject and tasks
2. Stages and peculiarities in the developments in the shoe manufacture
3. Development of the construction and technology of the shoe products
4. Factors influencing on the request and offering of the shoe products. Indexes for the formation of the production assortment
5. Classification of the shoes – indications for classification, general characteristics
6. Details of the shoes – details of the sayashoe and the foot. Classification, function, purpose and requirements for the details
7. Anatomy and physiology of the human foot. Work of the foot, characteristics and deformations of the foots
8. Numeration of the shoes – systems for designation of shoe size
9. Shoe lasts – functions, types and basic characteristics
10. Production process and structure of the shoe enterprises – general scheme of the production process, basic workshops
Section II Shoe details cutting
1. Organization of the production process in the workshop for cutting of sayadetails – basic sectors of production and equipment
2. Preparing of the materials for cutting of obverse and lining details of the saya
3. Methods for cutting and systems for arrangement of details in cutting of natural leathers, artificial leathers and textile
4. Technology of cutting, requirements and peculiarities in the cutting of obverse and lining details from various types natural mild leathers
5. Technology of cutting, requirements and peculiarities in the cutting of details from artificial leathers and textile
6. Preparing of solid leathers and leather substituents for cutting of shoe medial details
7. Methods and systems for cutting of solid leathers and leather substituents
8. Technology of cutting, requirements and peculiarities for solid leathers cutting
9. Use of basic materials – waste types in cutting, measuring of the details area, capacity of the details and factors influencing on the utilizable of the materials, determining the utilizable of the basic materials
Section III. Processing of the fabricated details and preparing of details for tailoring
1. Processing of the saya details and preparing for cutting – processing types. (shpaltning, numbering, emblem, shagging, etc); Function and technological requirements.
2. Processing of shoe medial details - processing types. Function and technological requirements.
Section IV. Sayassewing
1. Organization of the production process in the workshop for the sayas cutting – main sectors and equipment
2. Sewing needles – mechanism and types
3. Sewing types – classification and function. Formation of closed sew. Factors influencing on the sewing strength.
4. Instalation operations in sayas sewing – types, technological requirements
5. Ready-made operations in sayas sewing – types, technological requirements
6. Sequence of the technological process and peculiarities in the sewing of sayas with various construction
7. Quality of the prepared says – indexes for the quality control
Section V. Ready-made of shoe products
1. Classification of the technological methods for shoe production
2. Preparatory operations in the moulding of the saya on the last
3. Methods for the moulding of the saya on the last – types, scheme of connecting, specific

(continued)

Table 2. (continued)

4. Instalation operations in sayas sewing– types, technological requirements
5. Ready-made operations in sayas sewing – types, technological requirements
6. Sequence of the technological process and peculiarities in the sewing of sayas with various construction
7. Quality of the prepared says – indexes for the quality control
Section V. Ready-made of shoe products
1. Classification of the technological methods for shoe production
2. Preparatory operations in the moulding of the saya on the last
3. Methods for the moulding of the saya on the last – types, scheme of connecting , specific peculiarities
4. Mechanical methods for fixing of obverse and foot details – sewing methods, forged methods, technological fulfilment of the operation. Factors influencing on the strength of connection
5. Chemical methods for fixing of observed and foot details: - Glue method – nature, technological process in connection of observed and foot details. Factors influencing on the strength of the glue sew; Shoe production and shoe details obtained through polymers casting
6. Glued – sewed methods for shoe production
Section VI. Mechanical and chemical finish processing of the shoe products
1. Finish processing of the observed shoe part
2. Finish processing of the foot shoe part
3. Final operations in the shoe production
Section VII. Basic requirements to the shoe products
1. Comfort of the shoes – indexes
2. Amortization characteristics and shoe strength
3. Frictional properties, flexibility and elasticity
4. Sanitary – hygienic and protective properties
Section VIII. Assessment of the quality of the prepared shoes
1. Indexes, characterized the shoe products quality–reliability and ergonomy
2. Methods for assessment of quality– organoleptic and laboratory method
Section IX. Basic tendencies in the development of the technology for shoe products manufacturing
1. Basic problems in the mechanization and automatization of the shoe manufacturing
2. Tendencies connected with the improving of the current and new technologies for cutting. CAD/CAM systems.
3. Automatization of the processes for sayas production and introduction of technologies using high-frequency current and supersound
4. Optimization of the technology and organization of the production in the workshops for shoe fitting by automatic module systems for moulding of say on the last

542 “Production technologies - textile, clothes, shoes and leathers”. The aim of the training for the specialty “Shoe Products Manufacturing” is to give to the students professional knowledge for the technological requirements and the technological processes in the shoe products manufacturing. 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 nine 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

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

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

Table 4. Educational content of the training curriculum of “Shoe Product Manufacture” [2, 3, 5, 6, 8].

Names of sections and themes
Section I. Introduction to the shoe products manufacture
1. Requirements for healthy and safe working conditions in the manufacture of shoe products– initial instruction 2. Familiarization with the production process and manufacturing structure of the shoe enterprise – types of workshops, used machines and equipment
Section II. Cutting of shoe details and treatment of the cutting details
1. Requirements for healthy and safe working conditions in cutting out the shoe details 2. Purpose, organization and structure of the workshop for cutting and treatment of the saya details. Organization of the cutter working place. 3. Cutting and treatment of the observe and lining details of the saya: - Preparation of the materials for cutting of the sayadetails ; - Documents accompanying the process of the cutting – uncut card; -Cutting details from natural observe and lining leathers; -Cutting details from artificial leathers and textile; - Treatment of the observed and lining details (shpaltng, numbering, emblem, shagging, etc); - Completing, control and expedition of the cutting details; 4. Cutting and treatment of intermediate details of the shoe: - Preparation of the materials for cutting the intermediate details; - Cutting out the details from solid skins and skin replacements (sole, forts, bowlers, etc) - Treatment of the cutting details (tracing, numbering, forestation, etc); -Completing, control and expedition of the intermediate details
Section III. Sayas sewing
1. Requirements for healthy and safe working conditions insaya sewing 2. Purpose, organization and structure of the workshop for sayas sewing 3. Familiarization with the organization and working place in the tailoring section 4. Preparation for sayassewing– preparatory and assembly operations 5. Working with sewing machines: - Preparation of the sewing machine for work; - Execution of straight line sewing; - Execution of sewing in form; 6. Connecting of details with execution of different types of sewing 7. Specific operations in thesayas sewing 8. Completesewing of basic constructions of sayas 9. Qualification, completing and expedition of the prepared sayas
Section IV. Moulding of the saya on the cast and completing the shoe products
1. Requirements for healthy and safe working conditions in the shoes completing 2. Purpose, organization and structure of the workshop for shoes completing 3. Preparation of the sayaand the cast 4. Moulding od the saya on the cast 5. Preparation for connecting the saya with the foot 6. Connecting the saya with the foot using mechanical and chemical methods 7. Finishing the shoe product 8. Qualification of the shoe products 9. Marking, packing, storage and transport of the shoe products
Section V. Completing theshoe products production
1. Production of various in type and construction women`s shoes</li> <li>2. Production of various in type and construction men`s shoes 3. Production of various in type and construction children`s shoes

the potentialities and the interests of the students, methods of teaching and the extended professional training planned in the syllabus.

To connect the theoretical education with the practice, a new curriculum for secondary education is designed. The aim of the curriculum is to help the students to obtain practical knowledge and skills for production of various shoe 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

The new curricula for secondary education on "Theory and Training Practice" for the specialty "Shoe Products Manufacturing" ensure the conditions for highly qualified specialists preparation acquainted with the theory and practice of the up-to-date shoe manufacture. Their education

will permit them to apply not only current but new techniques and technologies, too.

REFERENCES

1. Curricula and syllabuses professional trend 542 "Production technologies – textile, clothes, shoes and leathers" <https://www.mon.bg/bg/40>, (in Bulgarian).
2. S. Vassilev, Z. Popchev, S. Panayotova, Shoe Products Technology Part I, Tecknika, Sofia, 1992, (in Bulgarian).
3. S. Vassilev, Z. Popchev, A. Zarev, Shoe Products Technology Part II, Tecknika, Sofia, 1992, (in Bulgarian).
4. Yu. Zibin, Shoe Technology, 1992, <https://www.twirpx.com/file/1771936/>, (in Russian).
5. P. Tscvetkov, N. Mickailiva, Shoe Products Technology, Tecknika, Sofia, 1987, (in Bulgarian).
6. P. Tscvetkov, Shoe and fancy goods products technology, Tecknika, Sofia, 1982, (in Bulgarian).
7. Centre national du cuir et de la chaussure, formation CNCC, 2015, <http://www.cnccleather.nat.tn/medias/2015/Guide.pdf>
8. E. Vassilev, S. Gadjanov et al., Handbook of shoe manufacture, Tecknika, Sofia, 1990, (in Bulgarian).