

## FROM EMPIRISM TO ERGONOMICS

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**Abstract.** *Empiricism means to rely only on experience, without theoretical content. in Romania the premises are marked by numerous researches, such as: Occupational medicine, Philosophy, Psychology, etc., that have led to practical applications. It is known the initiative of the ECOFOREST Association of Neamț County, Romania which has regulated the profession of Ergonomist that is already implemented by 28 graduates in Romania. The topic of the work is the regulation of the „Ergonomics Technician” profession for high-school graduates. The paper includes: Justifying memorandum, Appendix to the justifying memorandum covering the studies and analyses on the labour market carried out by The Ecoforest Association of Neamț. Description of Occupation.*

**Keywords:** initiative, profession, occupation, C.O.R. (Classification of occupations in Romania), memorandum, Ergonomics Technician

**DOI** <https://doi.org/10.56082/annalsarsciagr.2022.1.72>

### 1. Introduction

**In literature**, there are presented several variants of empiricism, from which we have learned that the empiric focuses only on experience that denies the objective existence of the material world and considers the sensory experience as the first source of knowledge. Nevertheless, there were times when the organization could be traditionally performed, with a minimum of information on previous progress, common sense, talent, creative spirit and a lot more work.

**Nowadays**, however, neither the common sense nor the talent can solve the problems of progress. Computers, genetic engineering, in high tech devices in general are the result of a long-term training, the same is the organization and scientific leadership and the development of ergonomics. Common sense and talent are of great value, especially when doubled by a high level training otherwise they remain sources of stagnation or even regression.

So, in today's world, the post-industrial era or the STR (the scientific and technical revolution) there are ongoing changes in the way we understand the basis of progress in the most various areas from which we need to start, from what is already known, from the latest-reached level of development.

A brilliant mind can make progress that institutions in the most civilized countries cannot sometimes achieve.

We need technical competence, technology and "top" organization and ergonomics must be based on high scientific, technical and professional competence to cope with the speed of progress. Today, we are asked a judgement facing the new realities, in terms of our future.

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The literature of ergonomics, economy, management, human resources, interior design, psychology, occupational health, sociology, environmental protection, legislation (Ordinance 129 of 2000 on adult training) [9], etc. created the background/basis for the documentation on the legislation of the occupation of **Ergonomics Technician**.

## 2. Materials and methods

The aim of this work/study is to present the historical stages from empiric to specific, namely “Legislating on the profession of **Ergonomics Technician**”, with the introduction in the Classification of Romania Occupations (C.O.R.) of the profession of **Ergonomics Technician** with six characters 325729, which opens the doors to vocational training for graduates with med-level education over sustainable periods.

Informative materials used to draft this work:

Professional or trade literature: books of ergonomics, management, human resources, sociology, professional training, occupational safety and health;

Up-to-date books elaborated by the authors: Susana Geangălău - coordinator and her colaborators ”**Ergonomie aplicativă în sistemul OM – COMPUTER – MEDIU**” – 2012, Aurel Manolescu - coordinator and his colaborators – ”**Ergonomie organizațională**” – 2015, Valentin Nedeff and colaborators – ”**Ergonomie**” – 2021

Mass media articles: (The magazine ECONOMISTUL, February, the 21<sup>st</sup>, 2005, Interview with Univ. Prof. Petre Burloiu, Adjunct Professor with the Academy of Economics of Bucharest

Methods:

Specific methods: study of working methods, interrogative method, methods of measuring

the working time, method of organizing the workplace, the ergonomic Check-list, RNUR method, LEST method, SAVIEM method, ERGOS method, IEMRCM method, etc.

Non-specific methods (borrowed from other sciences): anthropometric methods, statistic-

economic methods, heuristic methods, brainstorming, ELECTRE, Philips, Delphi, the interview method and target groups, etc.

The structure of the work:

**a) Justifying memorandum**

**b) Appendix to the justifying memorandum**

**c) Description of occupation.**

*a) Justifying memorandum* - for revising the C.O.R. list with the occupation of “Ergonomics Technician”, in accordance with **Order no. 270/273 of the 12<sup>th</sup> of June 2002** issued by the **Ministry of Labor and Social Solidarity and the National Institute of Statistics** [4], regarding the approval of the procedure for updating the normative act of the Romanian occupations, Art. 8.

➤ **DESCRIPTION OF OCCUPATION**, in Romanian, for which it is applied for into COR: - **Ergonomics Technician**

➤ **THE C.O.R. CODE FOR THE MAJOR GROUP**, as well as the C.O.R. code for occupation to be entered in the **NATIONAL CLASSIFICATION OF OCCUPATIONS OF ROMANIA**:

*The major group*

*3 – Technicians and associate professionals*

*32 – Health associate professionals*

*325 – Other health associate professionals*

*The National COR code for the major group:*

**3257 – Environmental and Occupational Health inspectors and Associates**

This major group refers to the environmental and occupational health inspectors and associates who investigate the implementation of the rules and regulations relating to environment factors likely to affect human health and safety in the workplace, as well as safety of the processes for the production of goods and services. They may implement and evaluate programs to restore or improve safety and sanitary conditions under the supervision of a health professional.

*The National COR code for the proposed occupation to be introduced into C.O.R.:*

**325729 –Ergonomics Technician**

➤ **THE ECONOMIC ACTIVITY CODE of the Classification of Economic Activities in European Community (CAEN), which involves the introduction of the proposed occupation, in order to achieve the consistency between the activity and the occupation;**

**Ergonomics Technician**

**Classification list CAEN REV.2**

**SECTION M – Professional, scientific and technical activities**

**DIVISION 74 – Other professional, scientific and technical activities**

**GROUP 749 – Other professional, scientific and technical activities n.e.c.**

**CLASA 7490 - Other professional, scientific and technical activities n.e.c.**

### 3. Results and discussions

*The studies and analyses carried out by the “ECOFORREST” Association of Neamț on the labour market, showing the need and opportunity to revise the classification of Romanian occupations (COR) for the occupation of “Ergonomics Technician”.*

#### b) Appendix to the justifying memorandum –

**Changes in the structure of the national economy** (Article 5(a) ORDER No. 270/273 of June, 12<sup>th</sup>, 2002 concerning the approval of the procedure for updating the **Classification of occupations of Romania**)

➤ **The adaptation of Ergonomics to changes** in the structure of the national economy over the last 30 years is completely differentiated by the division of active enterprises, by activities of the national economy and by size classes between 0-9 employees, 10-49 employees, 50-249 employees and over 250 employees (NACE Rev. 2) [2]. This division has also led to changes in the organizational structure of small-sized, medium-sized and large-sized companies, with an impact on employees' duties and responsibilities, based on the need to assimilate new professional knowledge, skills, professional competences and particularly the Ergonomics technician's ergonomic skills, (CNC qualification level 4<sup>th</sup> — high-school upper education). The impact of these changes requires additional knowledge for the high school graduate of ergonomics mainly, but also other knowledge, which will help him to combine tasks in the job description, under normal work intensity and a scientific level of employment.

➤ **The adaptation of Ergonomics to the changes** that have taken place and will take place in our country due to scientific, technical, technological, economic, social, cultural, information, IT progress, etc., makes it research, link and adapt its content to the fast-moving evolution of these changes, which aim to: the development of electronic-based segments; e-government; research-production-innovation partnerships; public companies; the ICT (information and communication technology) expansion; the promotion of production systems; the promotion of innovation for competitiveness and new work places creation; complex skilled work increases; home working – teleworking proliferates and expands rapidly.

➤ **Changes in the content of occupations and the emergence of new occupations**, according to C.O.R, version updated on the 31<sup>st</sup> of December 2020, such as:

Environmental Systems Manager – COR code 325702

Expert / standardization specialist - COR code 325704

Environmental associate inspector – COR code 325705

Risk Management System Manager - COR code 325708

Occupational Safety and Health System Manager - COR code 325709

Working and safety conditions Technician - COR code 325722

It seems that the proportion of intellectual work in all areas of activity will continue to increase. The interest of adults increases in knowledge and professional training complementary to basic occupations and expertise with a positive impact on productivity growth, efficiency and effectiveness. The professional specialization of the profession/occupation of "Ergonomics Technician" is also included in this context.

➤ **Development and extension of digital technology in all economic and social structures:**

From enterprises, institutions, organizations, etc. to private houses in villages and communes, it demonstrates the need and opportunity to update the COR with the profession/occupation of "Ergonomics Technician". This requires the correlation of hardware, which is rapidly expanding compared to the software that is lagging behind, virtually the equipment of computers is not linked to the professional training for working on computers and at the same time to the profession of "Ergonomics Technician".

➤ **The emergence of novelty** in the alignment of the classification system to the Standard Systems. In order to make comparison between data on occupations of the Member States of the European Union and the rest of the world, the International Labour Organization has revised the version of the International Standard Classification of Occupations ISCO-88 by providing a new version, i.e. the revised **ISCO-08 classification** (Romania's Government, Decision no. 1.352 of December 23, 2010 (\*republished\*) on the approval of the structure of Classification of the occupations in Romania- basic group level, according to International Standard Classification of Occupations - ISCO 08\*), published in Official Gazette no. 300 of April 24, 2014.) required for the following reasons:

- increase in possibilities of knowledge, evaluation, comparison and communication of development and approach indicators;
- ensuring accurate and comparable information according to the same criteria and principles;
- acquaintance by users and the "Ergonomics Technician" of the classification system and the standards mentioned above.

**Necessity and opportunity to introduce the profession of "Ergonomics Technician" into C.O.R.**

By Government Decision No. 1352/2010 [8], the structure of the Classification of Romanian Occupations was approved beginning with 01.01.2011 on the basis of the International Standard Classification of Occupations — **ISCO 08** up to the

level of the major groups, followed by the approval of a new COR structure on occupation (six digits) by **ORDER No 1.832/856/2011, Issuer Ministry of Labour, Family and Social Protection (No 1832 of the 06<sup>th</sup> of July 2011), National Institute of Statistics (No 856 of the 11<sup>th</sup> of July 2011 published in THE OFFICIAL GAZETTE No 561 of the 8<sup>th</sup> of August 2011 [3].**

➤ **The necessity to modify and complete the C.O.R. with the "Ergonomics technician" occupation (6 digits) is justified as follows:**

The need for intervention and the provision of specific data and information which have arisen in connection with the development of certain micro-ergonomic activities which require macro-ergonomics to interfere in order to improve processes and products or increase productivity, as well as to ensure occupational safety and health, thus gradually entering the engineering. The Ergonomics has always had the tendency to focus on the projection of specific, individual jobs or on the resolution of particular problems, focusing exclusively on the human-machine interface, human-task, individual operator - the immediate working place or physical factors of the environment, for this affects the work performance in general and the occupational safety and health in particular. The Micro-ergonomics, the traditional classic ergonomics, has in view to design isolated, specific jobs or individual tasks and to solve some particular unique problems. Therefore, the ergonomic micro level interventions produce an immediate and obvious impact, providing some benefits to both the individual operator and management. Moreover, if in the case of micro-ergonomic interventions, the benefit cost ratio is evident for the high levels of management, the importance of the role of ergonomics becomes an integrated aspect of the workplace culture.

➤ **Opportunity to update the Classification of Occupations of Romania (COR) for the profession /occupation of "Ergonomics Technician".**

We can illustrate the interdisciplinary research "*Study on the organization of ergonomic work principles of the B II clothing workshop within the company "8 Martie" Piatra Neamț (today "EMA") - Studiu privind organizarea pe principii ergonomice a activității Atelierului de Confecții II B din cadrul Întreprinderii "8 Martie" Piatra Neamț*" on 368 employees in 1989. The pilot study was interdisciplinary and the group of 36 specialists from various fields was made up of economists, engineers, architects, doctors, psychologists, sociologists, computer scientists, radiestists, masters and technicians. The study comprises 118 pages plus appendix. The research has been carried out using the systemic method, namely:

- **SUBSYSTEM I** – the ergonomic organization of the management of the clothing workshop B II. It has been divided into grade 1, grade 2, etc. subsystems until the problems end;

- **SUBSYSTEM II** – The overall ergonomic organization of the production program of the B II clothing workshop;
- **SUBSYSTEM III** – the ergonomic organization of the workforce at the workplace.

The final results were that the company met great success.

Before 1990 the Ergonomics was coordinated by the Ministry of Labour and the Council of Economic and Social Organization, which established County Cabinets throughout the country and in Neamț County (Director – PhD. EC. Susana Geangalău) practical works, studies and projects were developed on work organization based on ergonomic principles, which materialized in important socio-economic results, involving specialists interested in implementing measures and projects carried out on ergonomic principles, and on this occasion they acquired the ergonomic knowledge requested by each company. After 1990, new laws and regulations have been issued, which have passed over in silence an important and unique labor science that can make significant contributions to the local and national economy by increasing the workplace comfort, preserving people's health and increasing business profits, living standards, etc.

**To be noted that the profession/occupation of “Ergonomics Technician” has never been included in the Classification of Romanian Occupations, although Ergonomics has a history in our country of over 40 years (and internationally history of over 65 years).**

- **Local concerns** for preparing documentation for legislating the profession/occupation of “**Ergonomics Technician**”.

Between 2018-2021 the **ECOFORREST Association of Neamț – President of the NGO, PhD. EC. Susana Geangalău** in collaboration with the **Neamț Chamber of Commerce and Industry - President Mihai Apopii, General Manager Elena Aurora Emilia Miron** intensified the preparation of documentation by carrying out a series of actions, during the general meetings within this period, where the **ECOFORREST Neamț Association presented the need and importance of acquiring ergonomics knowledge** and its application in business, institutions, services and other organizations, a scientific field of practical application with multiple positive effects;

We have to mention that the **Neamț Chamber of Commerce and Industry** provided us with the necessary space for performing a training course for **the profession/occupation of ERGONOMIST**, carried out in a mixed, physical (more than 30 participants) and online system on the 28<sup>th</sup> of May 2021, which gathered, for the first time, business representatives, employees signed in the above mentioned course of ergonomist, thus opening the door to certifying the profession/occupation of “Ergonomics Technician”, respectively to promote the employees in companies and the future students, high school graduates or other similar forms of training, contributing to the progress of enterprises, institutions

and organizations, with an effect on productivity, economic efficiency and profit. Within the event three specialists in ergonomics introduced papers that had an impact on the participants and ended up with positive feedback. It is obvious that the competitive position of the new economic structures cannot be achieved without integrating ergonomics with the **profession/occupation of “Ergonomics Technician”** in the management of economic agents and organizations.

➤ **Ergonomic Standards in Romania provided by the Romanian Association for Standardization - ASRO**

In Romania the **Association for Standardization – ASRO** [7] is established as a national standardization body regulated. **ASRO is a full Member of the European Committee for Standardization (CEN) and the International Organization for Standardization (ISO)**. In the European context, **the certification** has become almost a prerequisite for any Romanian company, a guarantee of the quality of the products or services offered by the company. Thus more and more companies are certifying their **Quality Management System (ISO 9001), the Environmental Management System (ISO 14001), the Management System for testing laboratories (ISO 17025), the Occupational Health and Safety Management System (OHSAS18001)**. Most European Ergonomic standards reproduce the ISO standards, and some of them are also aligned in Romania. In Romania there are over 30 harmonized international and European standards on Ergonomics, of which we can exemplify:

- **ISO 10075-3:2004** - Ergonomic principles related to mental workload — Part 3: Principles and requirements concerning methods for measuring and assessing mental workload - in English
- **SR EN 29241-2 ISO 9241-2** – Ergonomic principles related to the office activity developed through video-terminals – in Romanian Part 2: – Guideline on work-related tasks
- **STAS 6909-75** – Organization and work rate setting – terminology in Romanian

➤ **DESIGN – Ergonomic design of the office of the ECOFOREST Neamț Association**

In order to correctly design the work area **in ergonomic terms**, we must present the activity of the **ECOFOREST Neamț Association**, which directly affects the Ergonomics of the workplace, but there are also general provisions and/or national standards which are inherent to each job. The field of activity of **the ECOFOREST Neamț Association** is as follows:

- Promotion of management adapted to company functions
- Training for professional initiation and retraining, qualification, specialization and further training, acquisition of key competences,



development of other forms of education to prepare adults for scientific, technical, economic and social research.

- Promotion of Ergonomics in economic and social activity, setting demonstrative examples with practical, functional and educational role.
- Development and implementation of European Finance projects and other sources. For the purpose of ergonomic design of the **ECOFORREST Association Office** (a completely simple space, which required redecoration by painting and finishing) there was set up a working group of four employees to fulfil an interior design project, before the start of the ergonomic observations:
  - PhD. ec. Susana Geangalău – Coordinator
  - Economist computer scientist - Geta Rotaru
  - Economist - Dorina Paleu
  - Manager Assistant - Daniela Ciubotariu – Texts drafting

Before starting the project, we made observations and tested various ideas and experiments to get a right concept and, on the other hand, the crystallization of the feeling and style that would be pleasant to others / customers. The ergonomic observations were made by the whole working group, were presented individually and, for each item or material needed to set up the office, a consensus was reached and a decision was made to acquire it, which we afterwards applied. The space itself has a total surface area of 26,28 m<sup>2</sup> divided into two distinct surfaces:

- **The entrance hall** – comprising storage spaces, closed cabinets 50 cm deep (which represent the width of a ring folder) up to the ceiling.
- **The work place with 4 workposts** (desk + ergonomic chair), metallic locker for money and valuable documents, mobile printer stand, coffee table and 4 guest seats.
- **The living plants** are an important aspect for the decoration of the ECOFOREST Neamț office, particularly because they bring a natural element into an artificial materials environment. Decorating the windowsill with green plants, variously coloured (pink bites, red roses, yellow orchids, etc.) using cylindrical and "V" shaped vases, fitted with the room itself and the window positioning, creates an enjoyable atmosphere.
- **The Colours** - help improve the working comfort, preserve health, increase productivity and efficiency.

**Motto:**                    **”Let's enter the fascinating world of colours  
That has always impressed MAN” [5]**

The knowledge of the affective colour characteristics allows making colourful pleasant arrangements that contribute to the creation of improved comfort conditions in the ECOFOREST Neamţ working space. The concept of functional colour refers to the use of colours in the process of employees' work to enhance work results, maintain health and good mood, as well as safety at work, with esthetical decorative and comfort role at work.

➤ **Techniques approached from literature [6]:**

- Funnel technique
- "Pie" chart
- Overall sensation/final image

By drafting an interior design project, we saw its affection, beauty and functionality. But as well as having to be pleasant for the eye, a person needs to feel comfortable and nothing should affect his health, whether we are talking about a laptop or the entire office. Of course, not everyone should agree with the actions we have taken, but ...how they say: **A nice office is the best part of life!**

**Consequently,** the studies, analyses, including the design project presented in this material fully justify the regulation of the profession of "**Ergonomics Technician**" by introducing it into the Classification of the occupations of Romania (COR) and the Classification of Economic Activities in European Community (CAEN), as well as the approval of the occupational standard on this basis by the National Qualifications Authority.

Enforcing Ergonomics as science and profession requires increased concerns and increased interest of professionals in relation to the scientific basis of human development in general, of our lives and work in particular.

*"The mission of ergonomics is everlasting. It ends, abolishes itself when there are no people on earth. Until then, we need ergonomics and ergonomists today."*

*PhD. ec. Susana Geangălău [1]*

c) **Descriptor of occupation** - for revising the Classification of the occupations of Romania (COR) with the occupation of "**Ergonomics Technician**", in accordance with Order no. 270/273 of the 12th of June 2002 issued by the Ministry of Labour and Social Solidarity and the National Institute of Statistics, regarding the approval of the procedure for updating the normative act of the Romanian occupations, Art. 8.

### **Duties and responsibilities**

- **Responsibilities under CNC:** Self-administering within the

framework of guidelines for generally predictable but possibly changing work or study content; supervising the routine work of others, taking responsibility for evaluating and improving work or study activities.

➤ **Duties of the Ergonomics Technician**

- turns into practice, under the supervision of the ergonomist, some models of design of socio-technical or work systems.
- plan tasks and deals with ergonomics issues by providing the staff with the necessary information on the ways and the obtained results.
- applies the occupational safety and protection, environmental and emergency rules.
- plans objectives and ergonomic measures, in collaboration with the HR Department on improving the working conditions through ergonomic structure: identification of non-ergonomic workplaces, design and application of techniques and methods of analysis and ergonomic improvement of workplaces, application of research results and evaluation of the technical, economic and social results achieved, reflected in increased productivity, efficiency, effectiveness, raising of the living standard.
- has accurate knowledge of product quality compliance, integrating quality, ergonomics and environment, which implies a critical understanding of theories and principles in an interdisciplinary context.
- takes part into the analysis process of labour systems and socio-technical systems structures, as well as of characteristics of the two-sided work study: Study of methods and measurement of work and summary economic indicators.
- uses mathematical calculations and optimizations in work processes concerning: the determination of economic effort, time saving, work, productivity and profit growth, setting labour standards, analytical work norms and legislation, etc.
- takes part in pilot studies and simulations, spot-checks under justified circumstances, in the organization and ergonomic arrangements of the workplace, general working conditions, environmental factors, etc.

**To support their operating philosophy, the Ergonomic technicians must:**

- perform services only in their areas of competence;
- debate and issue statements in an objective and fair, true manner;
- act as professionals, promoters of change;
- maintain the efficiency parameters, safety, health and well-being;

- build their professional reputation on their own actions and not incorrectly compete.
- act in such a manner as to enhance honour, respect, loyalty, integrity and dignity of the profession;
- continue their professional career development and provide opportunities for the development of other Ergonomics technicians or Ergonomics practitioners.
- possess general skills in Units of competence on business planning, in dealing with ergonomic issues and have job-specific skills in: Ergonomic arrangements planning, ergonomic workplace organization: identification of non-ergonomic workplaces, application of techniques and methods of analysis, sustainable promotion of the internal ergonomic implementation system;

The operations, processes, methods and responsibilities reflect the work that an **Ergonomics Technician** performs in whichever enterprise, institution or organization independently of the activity field.

**Work tools used:**

- personal computer, screen, printer and accessories, scanner, keyboard, mouse, internet connection, Windows operating system, text and computing software, legislation, telephone, fax, flipchart, other logistical equipment
- measuring and control instruments/devices: meter, clock, timer, video cameras, computed stabilometre, digital tachistoscope, tremor-metre, manual coordination test device,
- ergonomics laboratory for testing and evaluating human potential equipped with: computed stabilometre, manual coordination test device, manual dexterity test device, etc.
- technical documentation, standards, ASRO standards, methods, techniques, working instructions, drawings, diagrams, etc.

**Working programme:**

- according to the provisions of the Labour Code
- depending on the activity structure, the program can be organized in 1-2 shifts
- 8 working hours a day

**Activity environment**

**The Ergonomics Technician** operates in a variety of areas or organizational units and in numerous situations.

Many other professions or careers (engineers, managers, system operators,

technical and operational standardizers, human resources or safety and organizational health professionals) are also working together to develop much more efficient and safer socio-technical systems.

The activity is carried out in **enclosed spaces** – offices equipped with ergonomic furniture, enjoyable atmosphere: Lighting and noise according to occupational health and safety regulations, air purity and microclimate conditions: Temperature, humidity, speed of air currents, heat radiation and odour.

The work can also be carried out in **open areas**, such as: the construction works where specific standards must be obeyed, the environment, circulation within the company, from a workplace to another, etc.

In various working environments where physical/intellectual demands are concerned.

### **Risks situations**

**Beginning with the need to develop a thorough study on the working system**, specialists from the ECOFOREST Association of Neamț together with businessmen, those awarded the **Ergonomist** title (certified in July 2021) have identified – in order to legalize the profession of “**Ergonomics Technician**” with medium level studies – new dimensions of the profession on the **ergonomic relationship – occupational safety and health**, which requires a specific approach. Thus, the working system in which the worker interacts with work equipment in order to perform tasks/activities within a working environment is the place where a series of disturbances (hazards or risk factors) occur which may affect the overall balance. Apart from the usual dangers: exposure to noise, vibration, dust and chemical agents, UV radiation, extreme temperatures, etc. - which may affect the workers' safety and health, new risks have emerged in the working system, which are linked to the situations and dynamics of the labour market.

**The labour market** has been affected in recent years by demographic changes, technological changes leading to job insecurity, long-term work, increased work, the introduction of new modern and automatized equipment, the inadequate balance between professional and private life, etc. In this respect the “**Ergonomics Technician**” is involved in actions to prevent accidents at work and occupational diseases in order to avoid and combat occupational risks, to develop and implement accident prevention programs, to adapt work to mankind, taking into account the technology development and stage, appropriate training of workers. **The Ergonomics Technician** must also act for the application of the general principles established by **Law 319 / 2006 – the Law on Safety and Health at workplace** [10] and other legislation concerning **ergonomic matters** on professional training for medium level studies.

## Requirements for the exercise of the occupation

**Educational requirements:** Graduates of upper secondary education (falling within CNC qualification level 4) and of the qualification course in the profession/occupation of **Ergonomics Technician**.

**Medical requirements:** Normal speech, normal visual and auditory acuity, good physical and mental health (according to the skills sheet issued by the occupational doctor, specific to the workplace).

**Psychic requirements:** Taking responsibility, being able to assess and make decisions, being a keen observer, analytical thinking, team work ability.

## Training requirements

- Secondary education/high-school
- Training course with authorized provider of adult training according to the republished Government Ordinance No. 129/2000 for the pursuit of an occupation requiring an occupation level 4 qualification. Level 4 qualification according to the national qualifications Framework, equivalent to reference level 4 of the European qualifications Framework. For assignment to level 4 of CNC qualification (according to HG 918/20.11.2013 on the approval of the national qualification KCA — CNC — Appendix 2):
  - Graduates from upper secondary education (theoretical, technological or vocational schools) who have passed the baccalaureate exam and are awarded the baccalaureate diploma issued by the educational unit — theoretical, technological, vocational high school;
  - Graduates from upper secondary education (technological or vocational schools) who have passed the certification of the professional qualification and are awarded certificates of qualification and the descriptive supplement of the certificate issued by the educational unit — technological or vocational high school;
  - Upper secondary education graduates without a baccalaureate diploma who own a certificate of qualification/completion and the descriptive supplement to the certificate for the pursuit of an occupation requiring a level 4 qualification issued by an authorized vocational training provider.

## Type of the qualification required for the pursuit of the occupation:

Certificate of qualification/graduation and the descriptive supplement to the certificate

**Specialization obtained by means of the certificate of qualification/graduation in accordance with the law in force:**

**Ergonomics Technician**

The interested persons can become **Ergonomics technicians** after completing a professional training course where they will be awarded a professional certificate of **Ergonomics Technician**.

**Salary**

- according to the employment contract, under the legislation in force
- the specific applicable regulatory framework will also be taken into account for the Ergonomics Technician remuneration.

**Promotion at work**

Promotion requires personal planning before climbing the hierarchical ladder:

- vision of jobs and what impact they have on career development
- assessment of the levels of competence in the concerned areas
- requires graduation of a professional course
- at the same time, it aims to acquire practices regarding professional affirmation
- promoting a new paradigm regarding the integration of organizational ergonomics in organizational management structure - modernization of the traditional Ergonomics.

**The dynamics of the profession on the labour market**

The dynamics of the profession of Ergonomics Technician on the labour market have a rapid and continuous development, driven by the changes driven by the results of scientific research, technical, technological, information, social, cultural, research by the capacity/creativity of inventions and innovations made by researchers concerned in Ergonomics. We refer to occupations superior to the Ergonomics technician: **The "Ergonomist"** (ergonomics systems, ergonomics product design expert, general ergonomics expert, ergonomics manager, etc.) as well as lower level occupations: Labour measurement operator, ergonomics practitioner, analyst on ergonomic workplace organization, etc., in the context of the Europe 2020 strategy:

The dynamics of the profession of the Ergonomics Technician in the labour market are aligned to the growth of the secondary and tertiary industries.

- the tertiary industry will cover three quarters of the occupied population.
- the labour market concerns employment and unemployment and quality of work, productivity, earnings and labour costs.

- promoting an entrepreneurial culture and SME development, which implies and the development of ergonomic culture.
- focus on flexibility in the labour market, as well as security through continuing vocational training for young people, women and the elderly.

The integration of all informational elements, collected in a coherent, unitary and comprised form, which reasoned the usefulness/necessity of introducing this profession into the C.O.R. was meaningful and on the superior institutions appreciation.

The favourable approval on the introduction of the occupation of Ergonomic Technician into the Classification of Occupations in Romania – No. 18744/18619/RG/1086/DPOCMP/ was given on the 28<sup>th</sup> of September 2021 by the Ministry of Labour and Social Protection - Department of Employment Policy, Skills and Professional Mobility in Romania.

#### **4. Conclusions**

The main ideas that have emerged from the research are:

(1) on the labour market, we have managed to take over from companies and organizations, ideas and, above all, convincing arguments about the need to legislate the profession of Ergonomics Technician in order for us to draw up the study to legislate this profession.

(2) the initiative and the idea that persuaded the ECOFOREST Association to legislate the profession of Ergonomics Technician was the one supported by the fact that from Micro-ergonomics we move to Macro-ergonomics. Micro-ergonomics is a helpful solution for long-term benefits, but a more comprehensive assessment of socio-technical systems is needed which can be achieved by leaping forward to macro-ergonomics. Micro-ergonomic interventions have significantly contributed to improving processes and products or increasing labour productivity. Of course, there is also the Mesoergonomics, defined as an open systemic approach to ergonomics theory and practice which study the relationships between variables of at least two different levels of a socio-technical system.

(3) another idea that has emerged from the research is that a part of the 2022 high-school graduates are going to attend an academic form, others would rather pursue a profession such as Ergonomics Technician, and we offer this possibility. But there are also adults who have graduated from their upper secondary education



later and prefer this profession. There are certainly other benefits, for example, relating to the assessment of professional knowledge which raises the level of education, reducing unemployment, etc.

***(4) The creation of this profession/occupation will bring added value to the progress of the Ergonomics, with a positive impact on business and enterprises, with a multiple effect on the indicator of efficiency/effectiveness and productivity that ensures the sustainability, stability and growth of well-being, and the quality of life in Romania.***

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