Version 2017_2 (following meeting 50)

REQUIREMENTS FOR REGISTRATION OF EUROPEAN ERGONOMISTS (Eur.Ergs.)

1. Background

This document replaces the document "Harmonising European Training Programmes for the Ergonomics Profession" (HETPEP) of 1992 and the revision of June 2007. It was accepted by the CREE Council on 18th June, 2010 and revised by Council decisions on 26th November 2011 and 23rd November, 2012.

Registration as a European Ergonomist (Eur.Erg.) is intended to demonstrate that someone has attained specified levels of education and experience to be competent to practise as an ergonomist within Europe. This paper specifies the minimum common standard as agreed by the participating European ergonomics societies. A guideline to the interpretation of the standards is attached as an appendix for the use of the National Assessment Boards (NABs).

1.1 Objectives of this document

1. Assessment

   To provide a framework for assessing the professional competence of ergonomists within Europe.

2. Standardisation

   To define a minimum standard for customers requiring the services of professional ergonomists.

3. Flexibility

   To accomplish the objectives under 1 and 2 in a way that leaves flexibility for training institutions in designing ergonomics courses.

4. Mobility

   To facilitate the mobility of qualified ergonomists between the various countries in Europe.

5. Image

   To improve the professional image of ergonomists.

1.2 Definition of a European Ergonomist

A European Ergonomist can integrate knowledge and experience from a range of disciplines to design and evaluate products, processes, activities, organisations and environments taking account of human characteristics, limitations, needs and capabilities, such that performance, health and wellbeing are optimised. In doing this he or she generates ergonomics knowledge about activity

analysis and the implementation of improvements. He/She has been peer-assessed as meeting the requirements set forth in this document.

The requirements are compatible with the core competencies of an ergonomist according to the International Ergonomics Association (IEA)[1]. CREE is accredited by IEA as a certification body.

A candidate for the title European Ergonomist is assessed by a National Assessment Board (NAB) on the basis of the components described in Section 2 of this document. The member society of CREE responsible for the geographic area where the candidate works mandates a NAB for this task. The NAB's decisions are ratified by the CREE Council. The NAB may request the certification of the candidate with deviations from the minimum requirements. The reasons for exceptions will be recorded by the CREE Council. In cases of doubt about the interpretation of the minimum requirements, the CREE Council should be consulted.

2. General Framework of Professional Development

2.1 Introduction

The minimum requirements for registration as a European Ergonomist cover the following components:

1. Education: Three years at university level, at least one of which is dedicated to ergonomics.
2. Supervised Training: One year.
3. Professional Experience: Two years following supervised training.

The title European Ergonomist (Eur.Erg.) will be granted to a candidate who provides satisfactory evidence of all three components.

The three essential components for Eur.Erg. registration

2.2 Components for Assessment

2.2.1 Education

Generally ergonomics education is at the level of a Masters Degree, following a Bachelors Degree in a related field. A post-graduate university level course of 60 European Credit Transfer System credit points (ECTS), or equivalent, in ergonomics is the minimum requirement. As a **rough**

[1] See www.iea.cc

guideline, 1 ECTS may be considered as equivalent to a minimum of 25 hours of education including lectures, practical work, private study and exams (or 10 hours of direct contact between teacher and student). In some countries, it is possible to do a specialist Bachelors Degree in ergonomics, which fulfils the educational requirements provided that at least three years of university-level education are completed.

2.2.1.1 Areas of Knowledge (A – K)

CREE requires evidence of a **basic education** across the following Areas of Knowledge:

A. Principles of Ergonomics
B. Populations and General Human Characteristics
C. Design of technical systems
D. Research, evaluation and investigative techniques
E. Professional issues
F. Ergonomics: Activity and/ or Work Analysis
G. Ergonomic Interventions
H. Ergonomics: physiological and physical aspects
I. Ergonomics: psychological and cognitive aspects
J. Ergonomics: social and organisational aspects
K. Project work

A minimum of 2 ECTS is required for each of these Areas of Knowledge (except K). Recommendations for topics to be assessed as part of these Areas of Knowledge are listed in Appendix B. It is necessary to have covered most of the recommended topics within an Area of Knowledge but not necessarily all of them.

Building on this basic education, the applicants must show studies at an **advanced level of knowledge in ergonomics,** with a minimum of 60 ECTS. An advanced level of knowledge can be achieved within cognitive, physical or organisational ergonomics or in a combination of these.

The supervised **project work** (**K**) must be more than 9 ECTS and can be given a maximum of 20 ECTS.

At least 48 ECTS must be in F, G, H, I, J and K.

A maximum of 2 ECTS may be credited from related fields of study (Optional courses, **L**). See the guidelines in Appendix C for a list of related fields of study.

Laboratory exercises are essential and include hands-on experiences with ergonomics measuring equipment and tools.

Areas of knowledge and levels of competence.

Area of Knowledge	Level of competence
A. Principles of Ergonomics (min. 2 ECTS)	The candidate is able to integrate his or her knowledge of the definition, aims and approach of ergonomics into work activities.
B. Populations and General Human Characteristics (min. 2 ECTS)	The candidate has a basic understanding of fundamental human physiological and psychological characteristics and can analyse problems taking them into account.
C. Design of technical systems (min. 2 ECTS)	The candidate has a basic understanding of fundamental engineering principles and systems design and can solve problems taking them into account.

D. Research, evaluation and investigative techniques (min. 2 ECTS)	The candidate can evaluate results using appropriate statistical methods and instruments and is able to evaluate the quality of ergonomics research reports written by other people.
E. Professional Issues (min. 2 ECTS)	The candidate knows the laws and standards that are applicable to his or her work and can synthesise this knowledge into his or her recommendations. The candidate understands the ethical requirements and limits of his or her work and can reflect on his or her activities using this knowledge. The candidate can communicate his or her professional knowledge effectively to other people and synthesise his or her knowledge into comprehensible and legally adequate project documentation.
F. Ergonomics: Activity and/ or Work Analysis (min 2 ECTS)	The candidate knows the methods for conducting an activity or work analysis and is able to choose an appropriate method, reflecting on its strengths and weaknesses.
G. Ergonomic Interventions (min 2 ECTS)	The candidate understands the theoretical aspects of designing and evaluating appropriate ergonomics intervention projects.
H. Ergonomics: physiological and physical aspects (min. 2 ECTS)	The candidate must have a **basic knowledge** across all areas H, I, and J (each with a minimum of 2 ECTS per item). Where a candidate is specialised in one knowledge area, he or she should have enough knowledge and understanding of the other areas to take appropriate action when problems arise relating to them.
I. Ergonomics: psychological and cognitive aspects (min. 2 ECTS)	
J. Ergonomics: social and organisational aspects (min. 2 ECTS)	
K. Project work (min. 9, max. 20 ECTS)	The project must include carrying out an ergonomics intervention and demonstrate the ability to integrate knowledge from different areas.

2.2.1.2 Exceptions to the rules ("grandfather" clause)

Exceptions to the educational requirements can be made during a period of 18 months from the beginning of national CREE membership for exceptional candidates.

All of the following conditions must be met for candidates applying for this exception:
a. At least 3 years or an equivalent number of hours of university level education in a field closely related to ergonomics.

b. An exceptionally high level of recognized competence in the field of ergonomics (e.g. nationally recognized expert in the field).

c. Broadly fulfils the minimum requirements in terms of breadth and depth of knowledge, as demonstrated by professional work.

2.2.2 Supervised Training

The candidate should have been supervised by an experienced ergonomist, ideally another Eur.Erg., for at least one year of full-time work, following training. The supervised training should begin after academic courses and projects have been completed. In cases where a period of supervised work is required as part of the educational components (e.g. internship or "practicum"), but before an

educational certificate is granted, a maximum of six months may be counted towards the supervised training requirement.

Although supervised training is required for registration, the CREE Council can waive this requirement at the request of the National Assessment Boards (NAB). The NABs have discretionary power to recognise appropriate alternatives to supervised training. This may be achieved, for example, by a mentoring system when direct supervision is not possible at the workplace. In this case, a more detailed examination of the standard of professional work is to be conducted by the NAB and an extra year of experience is necessary (see below). Some guidelines for assessing the general levels of competence related to supervised training is included in the Appendix.

2.2.3 Professional Experience

Ergonomics must be the main occupation of the candidate, although his or her position may have a different name.

A minimum of two years of independent professional practice is required, following the education and supervised training period. Where the supervised training period has been waived according to 2.2.2 above, the equivalent period must be added to the independent professional practice. For example, if no supervised experience was obtained, the independent professional practice must be for at least three years.

The assessment of the quality of professional experience is based on project reports and professional references. Other sources such as logbooks and mentor reports may also be consulted.

Assessment must include an assessment of the following points:

- Does the work show a **systems approach** to achieving the goal?
  Competently investigates and analyses the problem to ensure an appropriate interaction between work, product and environment, and human needs, capabilities and limitations.
- Does the work involve **recommendations for the design or redesign of a tool, workplace or work system?**
  Develops an appropriate project plan for the ergonomic design of a product or workplace intervention.
- Does the work show a **positive outcome** in terms of worker **well-being?**
  Appropriately determines the compatibility of human capabilities with planned or existing demands and makes recommendations to improve health or well-being.
- Does the work show a **positive outcome** in terms of improved **performance?**
  Makes appropriate recommendations for ergonomics changes in terms of improved human performance and evaluates the outcome of implementing the ergonomic recommendations.

The candidate must demonstrate a plan for **Continuous Professional Development** (CPD). Personal development goals and how the candidate intends to achieve them should be documented. The candidate must show that he or she is aware of the importance of keeping up to date with developments relevant to the field in which he or she works.

3. Prolongation of Registration

Registration expires after five years. If the candidate applies for prolongation of registration, he or she must show how he or she has carried out **Continuous Professional Development** (CPD). Progress and integration of new learning in the work situation are parts of the re-assessment. A plan for the future remains essential.

The candidate must demonstrate that his or her primary occupation continues to be ergonomics. An exception may be granted for people who have retired after at least five years of registration (see A9).

APPENDIX A

GUIDELINES FOR INTERPRETATION OF THE REQUIREMENTS

A1. General comments

Assessment is undertaken by the National Assessment Boards mandated by the local ergonomics society. The NABs recommend applicants to the CREE who in their view fulfil the educational requirements, have worked independently as an ergonomist for the required period of time and can show an adequate level of quality in their professional work.

The main criterion on which assessment is based is that of competence in performing on the job. Whilst this will always be to some extent subjective, it is assessed by submission of, for example;

- Project Reports
- Referee Reports
- Published papers
- Client satisfaction
- Log-books
- Mentor reports

Local application forms should be designed to get this information and referees should be consulted. NABs are encouraged to bring borderline or unusual cases for discussion to the council meetings. To avoid unnecessary conflict, these cases should be clearly marked on the summary forms with the argumentation of the NAB clearly expressed.

A2. Educational paths

Generally, it is expected that candidate obtained a degree in a topic related to ergonomics before he or she obtained their education in ergonomics. A large degree of variation exists amongst registered European Ergonomists regarding first degrees and CREE does not wish to be prescriptive about this.

CREE requires a basic education in all areas of ergonomics that is the same for everyone. This basic education requires 20 ECTS[2]. The remaining 40 ECTS of the ergonomics education can be spread across cognitive, physical and organisational ergonomics in any way. Additional studies in activity analysis and the management of intervention projects can also be counted as long as the content is strongly related to ergonomics. A maximal of 2 ECTS can be credited for studies from the "**List of related fields of study** listed in Appendix C, even when it has no direct ergonomics content. If the course contains substantial ergonomics content, it should be counted towards the ergonomics areas.

A knowledge area can be covered in one course, or more than one, or a cross-section of several courses. However, the greater the number of courses, the greater the importance for the candidate to demonstrate proper integration of the knowledge. This is assessed in Section **2.2.1.2**. General Levels of Competence.

A3. Defining when education ends and when experience starts

Getting the degree is not necessarily the time when courses finish. Experience cannot (logically) begin until the last element of the final qualifying training course has been completed. This may be a degree course (under- or post-graduate) or a short course. This is because an "ergonomist" is not fully a practitioner until he or she can make professional judgements based on an integration of

[2] Standardised European credit point according to Bologna Agreement on tertiary education.

ALL the contributory disciplines. *The difficulty is deciding exactly when this point occurs in time.* If a degree course includes supervised practical project work or activities, then this has to be regarded as training and not as experience. This is because there is no professional responsibility associated with the work of a trainee, however valuable the work may be. Where the work is largely independent, it may be counted towards the supervised training requirement.

It may not be possible for the NAB to identify exactly when training/education is sufficient. If some qualifying topics have not been completed, the logic is that training has not been completed. However, NABs may overlook this if the shortfall is marginal AND the candidate's work output is believed to be of a sufficient overall quality. The final decision will be made by CREE council so adequate documentation of responsibilities and projects is essential.

A4 Factors to consider when assessing general levels of competence related to minimum education and supervised training.

I. Knowledge and Skills

The candidate can integrate knowledge and skills from different sources. He or she is able to reflect and apply this knowledge appropriately within a design process. He or she can synthesize complex sources of information and plan a suitable course of action. He or she can reflect on and explain the results of measurements and the choice of measures.

II. Planning, Analysis, Implementation and Evaluation using Ergonomics Principles

The candidate has an understanding of the tools and methods for analysing the design process. He or she is able to reflect and choose a suitable approach and plan the implementation of ergonomic interventions. He or she can carry responsibility for the project evaluation during or after implementation.

III. Integration of Knowledge

The candidate understands how his or her work fits in with the work of other professionals. The candidate can assess results from research and integrate new knowledge.

IV. Professional Communication

The candidate can cooperate and communicate with different professionals. He or she can clearly explain and document the aims and objectives of his or her actions to non-ergonomists. He or she can communicate professional knowledge effectively. The candidate can carry responsibility for adding value to the design process by improving performance and well-being. He or she is a good representative for the profession of ergonomist.

V. Professional Role in Society

The candidate understands and can reflect on their professional role within the context of the economy, environment, culture and legal system. He or she can assess and communicate the costs and value of ergonomic interventions within their environment and culture. He or she understands how ergonomic factors relate to the overall objectives of an organisation. He or she can reflect on the role of ergonomics as a driver for change and improvement. He or she knows and can integrate into their activities the legal requirements in relation to ergonomics.

A5. Verifying continual professional development – Integration of plans and intentions

An absence of continual professional development (CPD) is not acceptable.
It would be unrealistic to lay down strict rules regarding CPD, as different forms of CPD are appropriate for different people, depending on their circumstances. For example, university researchers need to be at the "leading edge", consultants have to be able to meet their clients'

current requirements, teachers have to be informed of current accepted opinions, etc. The reference to, or use of, mentors should be encouraged and acknowledged (provided that the mentors have a good history of CPD). It is essential that the candidate is able to show what he or she has learnt from the CPD experience and not only what he or she has been able to present to their peers (eg, in publications or conferences or seminars, etc.).

It has to be the decision, ultimately, of the NAB whether the CPD undertaken or reported (NB– not necessarily the same thing) is appropriate for the particular candidate. This is a serious responsibility for the NAB and must not be overlooked or treated lightly.

A6. Obtaining sufficient information about the quality of people's professional activities: The 3-Year rule

It is competence and experience at a sufficiently responsible level that is being assessed.

The 3-year rule is rather arbitrary in that an ergonomist working alone in a major technical department of a company usually has to deal with more and wider-ranging issues than an ergonomist working in a specialised ergonomics group. In the latter case, the ergonomist i) may have relatively little responsibility for the work, ii) may have support and back-up of colleagues and iii) may have his/her worked checked. Any mistake would be an embarrassment rather than a potential disaster. With this background, it is difficult to set objective rules.

The confidence of the employer in deciding whether the candidate is fit to sign off ergonomics project work is considered a good indication of the candidate's competence, capabilities and professional respect. Thus, the level of responsibility conferred by the employer would be a useful indicator of competence and experience.

It has to be the NAB's opinion, based on a very clear insight into the quality of the candidate's professional work and by checking references that determines whether the professional experience is sufficient.

A7. The 50% rule for ergonomics practice

Whilst the 50% rule was not mentioned in the original HETPEP Document, it has been a part of the assessment procedure since the beginning of CREE. Under this rule, applicants are required to be currently practicing ergonomics for a minimum of 20 hours per week. This rule should be kept as a general principle but the following guidelines should be observed by the NABs.

There have been many cases where it was difficult to determine what constitutes practice as compared with research or teaching (of ergonomics). The CREE has decided with this revision to include ergonomics research, which by its nature is concerned with practical problems, under the definition of ergonomics practice. Teaching ergonomics can also be included, provided that some field work is regularly undertaken.

There is no reason why someone should not remain registered even though he or she is only working for a few hours each week, providing he or she can still demonstrate their competence and have kept up to date by CPD, etc. For example, practitioners who are reaching retirement age may reduce their time on consultancy, etc. He or she may be engaged in research, writing a book on their work, passing on their knowledge and experience to younger practitioners, etc. Management of a consultancy company, or a group of people largely engaged in ergonomics work, should also be accepted as ergonomics practice.

Generally, if someone calls themselves an ergonomist and satisfies the other criteria, then he or she should be eligible for registration. Limited periods of professional inactivity should not prevent registration (birth of children, unemployment, further study, etc). The NAB can make decisions on individual cases and communicate them to CREE such that experiences are exchanged and a unity of doctrine is upheld. In borderline cases, *the CREE Council should be asked to adjudicate* – but the relevant NAB still has to provide all the necessary information to reach a proper decision.

The 50% rule should not be applied such that it is unfair to the individual nor have a negative effect on CREE. In no case should leading ergonomists be excluded from registration solely on the basis of this rule.

A8 Prolongation of registration as a European Ergonomist after prolonged professional absence(s)

It may happen that a registered European Ergonomist has worked for a prolonged period in another occupation during his term of registration or had periods of unemployment. Many different situations may occur such as unemployment, pregnancy, illness, travel, etc. In these cases, the work performed before and after the break should be used to assess the professional competence of the candidate. Prolongation of the registration can be sought while the absence continues if it is considered to be temporary. Generally, if the full-time equivalent of the ergonomics employment has been at least three years since the date of last registration, renewal should be accepted, assuming all other necessary criteria are met. In cases in which the applicant was out of the profession for more than three years, the following additional criteria should be met:

- At least one previous renewal
- Causes for absence from profession out of control of EurErg, or pregnancy.
- Activities during the absence display a continued interest in the ergonomics profession (closely related activities, further training, etc)

In other cases, the applicant should wait until they have resumed work as an ergonomist for two years before reapplying.

A9. Registration as a European Ergonomist after retirement.

European Ergonomists who are in the end of their working life, and whose contract, during their actual term of registration, changes into a situation where they work less than 50% of a full time position as an ergonomist, can continue their ongoing registration till the end of their 5 year term. After that term, when applying for prolongation, they can apply to continue their registration as a retired ergonomist. On the summary form the retirement status must be clearly indicated.
These applications are assessed on the basis of the following criteria:

- The candidate must have been a European Ergonomist for a minimum of ten years, of which at least five years directly precede their application to continue as a European Ergonomist after retirement.
- The candidate must show proof of continuous professional development.

For a retired European Ergonomist, the NAB pays 60% of the regular registration fee to CREE if the application is accepted. After a positive decision by the CREE Council, the retired European Ergonomist receives a letter from CREE (no certificate) and he/she remains published on the website in the list for their country and are counted as one of the European Ergonomists in that country. Application for prolongation is possible, providing proof of continuous professional development is provided.

A10 Assessment of professional competence

Consideration should be made of the following IEA requirements for the practice of an ergonomist[3]:

1. Investigates and analyses the demands for ergonomics design to ensure appropriate interaction between work, product and environment, and human needs, capabilities and limitations.

2. Analyses and interprets findings of ergonomics investigations.

3. Documents ergonomics findings appropriately.

4. Determines the compatibility of human capabilities with planned or existing demands.

5. Develops a plan for ergonomics design or intervention.

6. Makes appropriate recommendations for ergonomics changes.

7. Implements recommendations to improve human performance, health and well-being.

8. Evaluates outcomes of implementing ergonomics recommendations.

9. Demonstrates professional behaviour and does not work outside his/her area of competence.

[3] For further details of these items see the IEA document: "Summary of Core Competencies in Ergonomics: Units and Elements of Competency". www.iea.cc

APPENDIX B

RECOMMEMDED CONTENT WITHIN AREAS OF KNOWLEDGE

The recommended topics listed are for a guide only. Not all topics are essential, and other topics may be included.

Area of Knowledge	**Recommended Topics**
A. Principles of Ergonomics	Definitions Aims Approach Introduction to complex systems User-centred design Theory of ergonomics practice.
B. Populations and General Human Characteristics	Anatomy, Physiology and Biomechanics Work physiology Cognition Perception Circadian Rhythm Age and gender differences Disabilities
C. Design of Technical systems	Design for assembly Production system design (e.g. mechanization, automation, cycle time, buffers, variation) Materials handling Design for maintenance Architectural design
D. Research, evaluation and investigative techniques	Experimental design and evaluation Survey methods Qualitative and quantitative measurements Descriptive and inferential statistics Information systems and information technology
E. Professional Issues	Ethics Standards, laws and legal activities Reporting and documentation Client/consultant relationships Teaching and instructing
F. Ergonomics: Activity and/ or Work Analysis	Task and system analysis and evaluation Methods and instruments for measuring human activity Methods of activity analysis
G. Ergonomic Interventions	Methods and design of intervention projects Evaluation of ergonomics projects
H. Ergonomics: physiological and physical aspects	Workplace layout and design Anthropometry Posture Repetitive workloads Manual Handling / Heavy loads Work-rest cycles <u>Physical environmental factors</u> Methods and instruments for measuring physical environment

	Climatic and thermal factors Lighting Sound Vibration and acceleration Pressure Air quality Electromagnetic radiation
I. Ergonomics: psychological and cognitive aspects	Human information processing Human reliability Allocation of functions Information design Controls and displays Human machine interaction Fatigue/workload/vigilance Emotional aspects of design
J. Ergonomics: social and organisational aspects	Systems theory Organisation design Work organisation / work flow / logistics / work load Group vs individual work Job allocation and design Participation and autonomy Organisation culture Management of change(s) Motivation and attitude change

APPENDIX C

LIST OF RELATED FIELDS OF STUDY (see notes in Section 2.2.1 and A2)

Architecture
Engineering / Systems Engineering
Epidemiology
Health, Safety and Well-Being at work
Industrial Design
Information Technology / Computer science
Occupational Hygiene
Occupational Medicine
Occupational Therapy
Physiotherapy
Psychology
Sociology
Statistics