



# Ergonomics Essentials

A Comprehensive Training Course for Health & Safety Professionals

Delivered by:



## Introduction

'Ergonomics Essentials' is a comprehensive 5-day training course, which is intended for a variety of health and safety related professions. The course is aimed at enabling delegates to optimise the application of ergonomics within their organisations, but it also enables the delegate to take the optional British Occupational Hygiene Society (BOHS) module examination (W506), which leads to a module certificate from BOHS.

The Keil Centre is an established Chartered Institute of Ergonomics and Human Factors registered consultancy, working with a wide range of clients in the public and private sectors. Our consultants are able to bring their extensive knowledge to the training course to make it practical, applied and relevant to your working situations.

Our consultants have successfully guided several hundred delegates through the 'Ergonomics Essentials' course over the last 20 years. Our pass rate is currently 100% and we have excellent feedback from previous delegates.

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## Course Leaders

**Janette Edmonds** BSc(Hons) MSc CErgHF FIEHF CMIOSH  
Director, Principal Consultant Ergonomist, The Keil Centre Limited  
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Janette is qualified to master's degree level in ergonomics and has 23 years industrial and consultancy experience, within various industries. Janette is a Chartered Ergonomics & Human Factors Specialist, Fellow of the Institute of Ergonomics and Human Factors (FIEHF) and a Chartered Member of the Institution of Occupational Safety & Health (CMIOSH). She was awarded the William F Floyd Award in 1999 by the Ergonomics Society for her outstanding contribution to ergonomics. Janette has been a course tutor for the Ergonomics Essentials course since 1997. She has tutored over 400 delegates from a vast range of backgrounds.

**James Bunn** BSc(Hons) MSc  
Principal Human Factors Consultant, The Keil Centre Limited  
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James is qualified to master's degree level in ergonomics with a bachelor's degree in psychology with geography. He is a Graduate member of the Chartered Institute of Ergonomics and Human Factors (CIEHF). James has 15 years' experience and a broad experience base, having worked for the UK health & safety regulator and the energy sector in Norway. James has worked on several design projects and is an experienced human reliability analyst. He was the human factors specialist member of the investigation team for the terror attack on the In Amenas Tigantourine gas facility site in Algeria.

## Delegate Feedback

*"The course presentation and content was excellent."*

*"Thanks for the fun and excellent teaching that got me through the exam."*

*"This Certificate will be a valuable addition to my CV. My thanks to you for steering me through the course."*

*"I found the course very informative and extremely interesting, obviously delivered by 2 very knowledgeable instructors who have a deep passion for the subject. I feel relatively confident that I could apply the learning in my area of work and it certainly opens the mind to an array of possibilities."*

*"I would like to congratulate you for presenting an excellent course in a very professional, friendly and interesting way. My colleague and I thoroughly enjoyed the course and we learnt many new aspects of ergonomics, which we have found to be of great value. The course contents, visual aids, practical exercises and lectures provided were very relevant, effective and the overall week exceeded my expectations. As skilled presenters, you both had great patience when you were regularly interrupted with questions and comments throughout the course and you always took the time to answer questions and interact with the group, which was extremely helpful. The facilities were excellent and I found the venue very convenient, staff helpful and friendly"*

## Course Overview

The 5-day course provides a broad based introduction to ergonomics principles and their application in the design of work, equipment, jobs and the workplace. The course follows the BOHS syllabus, which ensures that it covers the range of skills and disciplines required to understand and apply ergonomics in an occupational setting. Particular consideration is given to understanding musculoskeletal disorders and their prevention through appropriate workplace design; this includes consideration of manual handling tasks, and display screen equipment use. Time is also spent in understanding ergonomics methods and developing ergonomics risk assessment skills. The course is illustrated with examples and case studies from different industries ensuring that theory is clearly applied to practical situations. Delegates take part in group exercises including workplace design and risk assessment. The tutors encourage delegate participation through questions and discussions, and delegates are welcome to bring specific ergonomics issues for consideration during the week.

The course supports candidates seeking to qualify for the BOHS Certificate of Competence in Ergonomics (see <http://www.bohs.org/> for more information). On successful completion of this course, delegates will be able to:

- understand and apply ergonomics principles for the creation of a safer, healthier and more efficient workplace
- undertake ergonomic risk assessments
- identify appropriate risk reduction measures to reduce ergonomic risks
- understand the causes of musculoskeletal disorders, and know how to prevent them
- apply ergonomics principles to the design of workplace layout and design or selection of equipment
- appreciate environmental aspects of good ergonomic design

The course is suitable for anyone who would like to develop a practical understanding of how ergonomics can be applied within their organisation, including managers, health & safety advisors, occupational health professionals, engineers, physiotherapists and other related professions. No previous experience of ergonomics is required for attendance on the course.

## BOHS Module Examination

As well as gaining practical experience in applying ergonomics, the course will prepare delegates for the module examination set and marked by BOHS. This is an optional exam, held on the final day, for which an exam fee is charged. An optional revision session will be held on the Thursday evening to support delegates preparing for the exam. Delegates will be awarded a BOHS Certificate upon successfully passing this examination. Those who do not wish to be examined will be presented with a certificate of attendance.

## Recommended Reading

BOHS recommend that delegates spend 30 hours of private study in addition to the taught component of the course. To facilitate this, the course books will be sent to each delegate prior to the course, and are included in the course fee.

## Course Syllabus

Delegates will learn fundamental ergonomics skills and techniques in a series of practical, workshop-based sessions, which will allow them to advise on the creation of safer, healthier and more efficient workplaces. There will be plenty of opportunities to ask questions, practise skills and share experiences with other delegates. The module syllabus is set out overleaf.

Our course tutors have experience of applying ergonomics in a wide variety of industries, which they will use to illustrate key learning points. The participative teaching approach ensures that, following attendance on the course, delegates feel prepared and confident to apply the knowledge they have gained to their own workplace or organisation. The detailed syllabus is overleaf.

## 1. Introduction to Ergonomics

**Educational Objectives:** To recognise relevant problems at work and approach solutions via the application of ergonomics principles.

**General Principles:** Aims, objectives and benefits of ergonomics; Definition and scope of ergonomics and systems of work; The role of the ergonomist; Fitting the job to the person and the person to the job; Human characteristics, capabilities and limitations; Human error; Teamwork and ageing; Interfaces between job, person and environment; Human computer interaction

**Biological Ergonomics:** Body systems - musculoskeletal and nervous; Anatomy, static and dynamic anthropometry, biomechanics; Applying work physiology: body metabolism, work capacity and fatigue; Static and dynamic postures; Measuring health and illness

**Psychology at Work:** Perception of risk; Motivation, attitude and behaviour; Memory; Signal detection theory and vigilance; Work 'stress' - causes, preventive and protective measures; Work organisation - shift working and overtime

**Developing Ergonomics at Work:** Culture of an organisation - commitment and decision making; Macro ergonomics' and participatory ergonomics teams; Ergonomics at the design stage and ergonomics audits; Devolving ergonomics, professional ergonomists and competence

## 2. Ergonomics Methods and Techniques

**Educational Objectives:** To understand how to apply ergonomics at work, and where to obtain information and advice for using ergonomics.

**Work Design:** Task analysis and allocation of functions; User trials; Problem solving - scientific method

**Ergonomics Risk Assessment:** Definitions of hazard, risk and danger; Priorities; Risk evaluation quantity and quality of risk; Assessment systems: Overall ergonomics approach; Control measures monitoring and feedback

**Measurements and Information Gathering:** Ergonomics standards; Observational techniques; Rating scales, questionnaires and checklists; Use of models and simulation

## 3. Musculoskeletal Disorders

**Educational Objectives:** To appreciate where musculoskeletal disorders may occur and reduce them by an ergonomics approach.

**Manual Handling:** Risk assessment; Job design and training; Principles of handling; Disorders - causes, preventative and protective measures

**Work Related Upper Limb Disorders (WRULD):** WRULD / repetitive strain injuries / cumulative trauma disorders; Causes, preventative and protective measures; Case studies

## 4. Workplace, Job and Product Design

**Educational Objectives:** To have a basic understanding of how ergonomics principles can improve the design of work, workplaces and products.

**Workplace Layout and Equipment Design:** Design of equipment, tools and furniture; Display screen equipment; Principles of workstation and system design

**Controls, Displays and Information:** Visual, auditory and other displays; Quantitative and qualitative information; Compatibility and population stereotypes; Warnings, signs and labels; Sources and selection of data; Principles of software ergonomics.

## 5. Ergonomics Aspects of the Environment

**Educational Objectives:** To recognise problems in the physical environment in relation to human responses and appreciate how to reduce these problems.

**Sight and Lighting:** Visual acuity and colour vision; Lighting levels, contrast and glare; Reflections, shadowing and flicker fusion

**Hearing and Sound:** Noise induced hearing loss; Distraction, annoyance and emergency signals; Sound pattern and information content

**Thermal Sensation Heat and Cold:** Body temperature regulation and acclimatisation; Subjective assessments

**Other Environmental Effects:** Smell, taste and tactile senses; Sick Building Syndrome; Vibration - effects and subjective assessment

**Clothing and Protective Equipment:** Risk perception, and wearability; Objective and subjective effects; Design, style and fit

## 6. Legal and Social Aspects

**Educational Objectives:** To acquire a knowledge of social aspects, and of the sources and main UK legislation and Case Law implications, regarding ergonomics at work.

**Legal Aspects:** Relevance of criminal and civil law to ergonomics, expert witness information; European developments including 'balanced participation'

**Selection and Training:** Training needs analysis; Testing and interview techniques

**Education and Instruction:** Health information, legal requirements