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ΕΡΓΟΝΟΜΙΑ

2η έκδοση

Abstract

This handbook presents basic knowledge on Human Factors and Ergonomics, and it is mainly addressed to students of Engineering Schools. Two categories of knowledge are included: (i) knowledge about human capabilities to interact with the working environment to accomplish goals, and the results of this interaction to the worker (e.g. capabilities to adopt postures and apply forces and their effects to human health, capabilities to perceive information and possible errors), (ii) methodological knowledge on how we can intervene in a work situation to assure and improve human well-being, enhance productivity and minimise negative effects, such as workload (physical and cognitive), accidents and human errors. The interventions may be design or re-design of material and nonmaterial artefacts (e.g., tools, human-machine interfaces, work procedures, software, training programs). After an introduction to the discipline of Human Factors and Ergonomics, a generic model of work situations and the process of ergonomics work analysis, based on system's approach, are presented. The following chapters deal with what is usually called Physical Ergonomics, i.e., anthropometrics and biomechanics, musculoskeletal activity, and the design of workplaces and tools. The next chapters deal with the parameters of work environment (i.e., temperature, noise, lightening), the physiology of human thermal regulation, audition and vision, methods for assessing environmental parameters, and means to alleviate their negative effects. The second part of the handbook deals with what is usually called Cognitive Ergonomics. A chapter on elements of cognitive activity (e.g., perception, problem solving, decision-making) and related models (e.g. action cycle, SRK model) serve as the base for the next chapter on the design of artefacts to support cognitive work (e.g., human-machine interfaces, human-computer interfaces, software to support complex cognitive work). The final chapter deals with the human error and ways to enhance human reliability.