

Course Syllabus

Ergonomics: Optimizing Efficiency, Quality & Safety in Foundries



Course Code 7-210	CEUs 0.6 CEUs
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Course Introduction

This course covers the use of ergonomic principles to recognize, evaluate, and control work place conditions that cause or contribute to employee safety and productivity issues. Topics include the definition and three components of ergonomics; work physiology; anthropometry; musculoskeletal disorders; common risk factors such as vibration, temperature, material handling, repetition, and lifting; computer workstations; elements of an ergonomic program; and developing the business case for ergonomic improvements. Course emphasis is on office and foundry “shop floor” examples, covering analysis and design of workstations, equipment and workflow.

Benefits to Taking the Course:

Participants who attend this course will leave with the knowledge necessary to either initiate a new or improve an existing ergonomics program for controlling health and performance problems; to educate and convince management of the cost benefits of an ergonomically sound workplace; to proactively identify potential risks and determine cost effective and sustainable jobsite modifications; and to increase the effectiveness of existing lean and Six Sigma programs by integrating ergonomics to improve work processes which result in increased employee engagement, greater efficiency and better margins.

Learning Outcomes:

After completing this course, participants should be able to:

1. Define ergonomics and its three major components.
2. Outline the components of an ergonomics program.
3. Describe the components of office and shop floor ergonomic evaluations.
4. List the common risk factors and areas for ergonomic improvement within foundries.
5. Describe how to evaluate, select and implement ergonomic solutions.
6. Describe the essential elements for an effective ergonomics business case.

Lesson Outline

- Fundamentals of Ergonomics
 - Introduction to ergonomics including key definitions
 - Physical ergonomic principles and issues
 - Cognitive ergonomics principles and issues
 - Organizational ergonomic principles and issues
 - Ergonomic Assessments
 - Ergonomic Programs
- Industrial (Shop Floor) Ergonomics
 - Ergonomic program/process steps
 - Common risk factors associated with upper extremity and low back ergonomic injuries
 - Common areas to look for ergonomic improvement
 - Ergonomic assessment tools used in industrial/manufacturing environments
 - How to identify, select and implement ergonomic solutions
- Return on Investment for Ergonomics
 - Essential business case components
 - Business case mistakes
 - Presenting and winning the business case

Instructional Methods: <ul style="list-style-type: none"> • Facilitator-led discussions • Activities • Q&A sessions • Case studies • Games
Assessment Methods: No formal assessment will take place in this course; however, attendees will participate in informal activities such as knowledge check and Q&A sessions with the facilitator to verify that learning outcomes are being met. Assessment of successful achievement of learning outcomes must be included throughout the course in order to meet the ANSI/IACET 1-2013 standard for continuing education programs and for CEUs to be awarded.
Course Prerequisites: For this 200 level course, attendees should have some metalcasting experience and knowledge of metalcasting technology.
Pre-course Activities: None
Texts, Books or other Resources available for purchase : AFS <u>Metalcasting Ergonomics, 2nd Ed.</u> http://www.afsinc.org/ProductDetail.cfm?ItemNumber=4282
Attendee Requirements to Earn CEUs: <ol style="list-style-type: none"> 1. Present at least 5.5 hours of the total 6 hours of instructional time (90%), which does not include meals or breaks. 2. Active participation (can include asking questions, communicating with other attendees during and taking part in group activities, providing responses during whole class or group discussions). 3. Successful achievement of learning outcomes.
Who Should Attend? <ul style="list-style-type: none"> • Safety Personnel • Human Resources Personnel • Operations Manager