How to Design Usable Physical Products, Devices, Tools, and Cockpits

3 day course

www.humanfactors.com

Human Factors International

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Why take this course?

The most successful devices and tools are created with human factors in mind to achieve compatibility in the design of systems that comprise people, machines, and environments. Using research-based techniques and practices, this course will teach you to:

- Improve user efficiency through effective layouts and feature selection
- Enhance machine device safety through use-case planning and integrated design
- Develop brand loyalty by delivering experiences that are consistent and industry leading
- Reduce development costs by applying effective user experience validation techniques

What you'll learn

We will provide three days of practical guidelines, diverse examples, and hands-on exercises to help you refresh or jumpstart your practice in human factors including:

- How to inform your design through an understanding of the users, tasks, and environment of use
- How to design the initial concept and form factor for a product or device from a human-centered perspective
- Critical considerations for information display, controls, control-display integration, user feedback, workstations, and environmental factors to keep in mind while detailing the design
- Important evaluation methods used in verifying and validating human-system designs

What you get

A comprehensive, graphically-rich participant manual, including resources and references.

What should attend

Human factors practitioners and designers who work with products such as:

- Construction equipment
- Cockpits of planes, trains, automobiles, trucks, boats
- Computer printers, scanners and related hardware
- Control rooms and command centers
- Home appliances and devices such as washers, dryers, thermostats, alarm systems, and others for kitchen and bath
- Home products such as lawn mowers, sprinkler systems, power drills
- Medical devices
- Physical products for older adults and other special populations
- Remote controls such as TV, music, movies

This course is not intended for designers of websites or computer or mobile application software (unless they are embedded within the above products). This software-re;ated content is covered in HFI's Certified Usability Analyst (CUA) and Certified User Experience Analyst (CXA) programs.

Recommended Prerequisites

A background in human factors, ergonomics, usability, industrial design, or user experience is helpful but not required.

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Course Objectives

Participants learn to:

- Describe the product design process from a human factors perspective
- Know the general principles of human-system design
- Analyze end users, human tasks, and environments of use
- Differentiate among options for information displays and controls
- Sketch usable and useful concept designs for specific products
- Create feedback for users of complex systems
- Design workspaces optimized for people who will work or play in them
- Assess environmental factors such as light and noise, and their influence on design
- Justify the need for consideration of maintenance tasks as well as operations

"We see an astonishing lack of consideration of basic human factors principles in the present-day design of everyday objects, such as home thermostats and appliances, and mission-critical 'life and death' equipment, such as medical devices and automation in cockpits.

"We know it is easier to criticize and break than to design and fix products, so let us help you design or redesign the human-in-the-loop to create a safe, effective, efficient and satisfying user experience."

Eric Schaffer
PhD, CPE, CUA, CXA
CEO and Founder

Course Outline

With engaging and informative exercises throughout

1 Lives and dollars are at stake

- Importance of human factors
- Why it is not common sense
- Human factors (HF) engineering and human-centered design process
- Human Factors Internatonal's practical framework
- Overview of HF models
  - Human-system interface and interaction
  - System, function, and task analysis
  - Overview of ecosystems
- UX Enterprise (UXE) as repository for artifacts of analysis, design and testing

2 Ecosystems

- Users and personas
- Tasks and scenarios
- Environments of use

3 Concept design and prototypes

- Starting with ecosystem model of today
- Task flow engineering for ecosystem of future
- Initial form factor
- Concept sketches
- Lower fidelity prototypes
- Higher fidelity prototypes

4 Workplace and environment

- Room or workplace configuration
- Environmental factors
  - Temperature and humidity
  - Ventilation
  - Illumination and emergency lighting
  - Auditory environment
  - Accessibility
  - Vibration

5 Workstations and cockpits

- Anthropometrics (anthropometry measures physical aspects of the human body for use in design)
- Workstation configuration
- Stand-up
- Sit-down
- Desks or workstations and chairs or seats

6 Control-display integration

- Analog and digital
- Control and display device layout
- Stimulus and response compatibility
- Labeling and demarcations

7 Displays

- Design principles
- Selection of type of display
- Detailed design

8 Controls

- Design principles
- Affordance and population stereotypes
- Selection of type of control
- Detailed design

9 Alarms and feedback

- Safety monitoring
- Status and error messages

10 Checklists, documentation, and training

- When to make a design change vs. when to use procedures or training
- Usability of checklists and documentation
- Instructional systems development

Course Outline

11 Maintainability

- The often forgotten persona of maintainer
- Task analysis of maintenance activities
- Task flow engineering and form factor for maintenance

12 Test and Evaluation

- Expert heuristic review
- Formative testing during design
- Summative or validation testing

13 Transhumanism and other future trends

14 Summary

Our Guarantee of Your Satisfaction

Human Factors International, Inc. intends that all participants will benefit from the seminar. We offer the best possible training in this field. If at any time during the first day of the course a participant notifies the instructor of his or her desire to withdraw, he or she may leave and receive a full refund. There is absolutely no risk to the participants or their companies.

Register now!

www.humanfactors.com/training

Featured Instructors

Eric Schaffer
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PhD, CPE, CUA, CXA

Apala Lahiri
Global Chief of Technical Staff, & CEO, Institute of Customer Experience
MA, MSc, CUA, CXA

April McGee
Chief of Technical Staff, North America
MS, CUA, CXA

A partial list of companies where we have taught Human Factors courses

– Agilent Technologies
– Airborne Express
– Ameritech
– AT&T Information Systems
– The BBC World Service
– Blue Cross/Blue Shield
– ChevronTexaco
– Cognizant Technology Solutions
– Deloitte Consulting
– dotMobi
– Ericsson Information Systems
– Ernst & Young
– FedEx
– Fidelity Investments
– General Motors
– Hewlett-Packard
– IBM
– Library of Congress
– McKesson HBOC
– MCI
– Metropolitan Life Insurance
– Motorola
– National Semiconductor
– Nextel
– Northern Telecom
– Pay Pal
– Prudential Life
– RBC Royal Bank
– SAP / SAP Norway

Onsite Training

If you have a group of people who would like to attend this course, please contact us to discuss having a private course at your company or hosting a public course.

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