

CONTENTS

1. The Human Factors Function	1
1. The Discipline of Ergonomics and Human Factors <i>Waldemar Karwowski</i>	3
2. Human Factors Engineering and Systems Design <i>Sara J. Czaja and Sankaran N. Nair</i>	32
2. The Human Factors Fundamentals	51
3. Sensation and Perception <i>Robert W. Proctor and Janet D. Proctor</i>	53
4. Selection and Control of Action <i>Robert W. Proctor and Kim-Phuong L. Vu</i>	89
5. Information Processing <i>Christopher D. Wickens and C. Melody Carswell</i>	111
6. Communication and Human Factors <i>Ronald E. Rice and Cynthia Stohl</i>	150
7. Cultural Ergonomics <i>Nuray Aykin, Pia Honold Quaet-Faslem, and Allen E. Milewski</i>	177
8. Decision-Making Models and Decision Support <i>Mark R. Lehto and Fiona Nah</i>	191
9. Mental Workload and Situation Awareness <i>Pamela S. Tsang and Michael A. Vidulich</i>	243
10. Social and Organizational Foundations of Ergonomics <i>Alvaro D. Taveira and Michael J. Smith</i>	269
11. Human Factors and Ergonomic Methods <i>V. Kathlene Leonard, Julie A. Jacko, Ji Soo Yi, and François Sainfort</i>	292
12. Anthropometry <i>Kathleen M. Robinette and Jeffrey A. Hudson</i>	322
13. Basic Biomechanics and Workstation Design <i>W. S. Marras</i>	340
3. Design of Tasks and Jobs	371
14. Task Analysis: Why, What, and How <i>Erik Hollnagel</i>	373

15.	Task Design and Motivation	384
	<i>Holger Luczak, Tanja Kabel, and Torsten Licht</i>	
16.	Job and Team Design	428
	<i>Frederick P. Morgeson, Gina J. Medsker, and Michael A. Campion</i>	
17.	Personnel Selection	458
	<i>Jerry W. Hedge and Walter C. Borman</i>	
18.	Design, Delivery, and Evaluation of Training Systems	472
	<i>Eduardo Salas, Katherine A. Wilson, Heather A. Priest, and Joseph W. Guthrie</i>	
19.	Human Factors in Organizational Design and Management	513
	<i>Karen M. Dettinger and Michael J. Smith</i>	
20.	Situation Awareness	528
	<i>Mica R. Endsley</i>	
21.	Affective and Pleasurable Design	543
	<i>Martin G. Helander and Halimahtun M. Khalid</i>	
4.	Equipment, Workplace, and Environmental Design	573
22.	Workplace Design	575
	<i>Nicolas Marmaras and Dimitris Nathanael</i>	
23.	Vibration and Motion	590
	<i>Michael J. Griffin</i>	
24.	Sound and Noise	612
	<i>John G. Casali</i>	
25.	Illumination	643
	<i>Peter R. Boyce</i>	
5.	Design for Health, Safety, and Comfort	671
26.	Occupational Health and Safety Management	673
	<i>Bernhard M. Zimolong and Gabriele Elke</i>	
27.	Human Error	708
	<i>Joseph Sharit</i>	
28.	Ergonomics of Work Systems	761
	<i>Stephen M. Popkin, Heidi D. Howarth, and Donald I. Tepas</i>	
29.	Psychosocial Approach to Occupational Health	801
	<i>Mika Kivimäki and Kari Lindström</i>	
30.	Manual Materials Handling	818
	<i>David Rodrick and Waldemar Karwowski</i>	
31.	Work-Related Upper Extremity Musculoskeletal Disorders	855
	<i>Carolyn M. Sommerich, W. S. Marras, and Waldemar Karwowski</i>	
32.	Warnings and Hazard Communications	889
	<i>Michael S. Wogalter and Kenneth R. Laughery</i>	
33.	Use of Personal Protective Equipment in the Workplace	912
	<i>Carolyn K. Benseel and William R. Santee</i>	
34.	Human Space Flight	929
	<i>Barbara Woolford and Frances Mount</i>	

35.	Chemical, Dust, Biological, and Electromagnetic Radiation Hazards <i>Danuta Koradecka, Małgorzata Pośniak, Elżbieta Jankowska, Jolanta Skowroń, and Jolanta Karpowicz</i>	945
6.	Performance Modeling	965
36.	Modeling Human Performance in Complex Systems <i>K. Ronald Laughery, Jr., Christian Lebiere, and Susan Archer</i>	967
37.	Mathematical Models in Engineering Psychology: Optimizing Performance <i>Donald L. Fisher, Richard Schweickert, and Colin G. Drury</i>	997
38.	Supervisory Control <i>Thomas B. Sheridan</i>	1025
39.	Digital Human Modeling for CAE Applications <i>Anders Sundin and Roland Örtengren</i>	1053
40.	Virtual Environments <i>Kay M. Stanney and Joseph Cohn</i>	1079
7.	Evaluation	1097
41.	Accident and Incident Investigation <i>Patrick G. Dempsey</i>	1099
42.	Human Factors and Ergonomics Audits <i>Colin G. Drury</i>	1106
43.	Cost–Benefit Analysis of Human Systems Investments <i>William B. Rouse and Kenneth R. Boff</i>	1133
44.	Methods of Evaluating Outcomes <i>Paula J. Edwards, François Sainfort, Thitima Kongnakorn, and Julie A. Jacko</i>	1150
8.	Human–Computer Interaction	1189
45.	Visual Displays <i>Kevin B. Bennett, Allen L. Nagy, and John M. Flach</i>	1191
46.	Information Visualization <i>Chris North</i>	1222
47.	Online Communities <i>Chadia Abras</i>	1246
48.	Human Factors and Information Security <i>E. Eugene Schultz</i>	1262
49.	Usability Testing <i>James R. Lewis</i>	1275
50.	Web Site Design and Evaluation <i>Kim-Phuong L. Vu and Robert W. Proctor</i>	1317
51.	Design of E-Business Web Sites <i>Jonathan Lazar and Andrew Sears</i>	1344
52.	Augmented Cognition in Human–System Interaction <i>Dylan Schmorrow, Kay M. Stanney, Glenn Wilson, and Peter Young</i>	1364

9. Design for Individual Differences	1385
53. Design for People with Functional Limitations <i>Gregg C. Vanderheiden</i>	1387
54. Design for Aging <i>Timothy A. Nichols, Wendy A. Rogers, and Arthur D. Fisk</i>	1418
55. Design for Children <i>Juan Pablo Hourcade</i>	1446
56. Design for All: Computer-Assisted Design of User Interface Adaptation <i>Constantine Stephanidis, Margherita Antona, and Anthony Savidis</i>	1459
10. Selected Applications in Human Factors and Ergonomics	1485
57. Human Factors and Ergonomics Standards <i>Bohdana Sherehiy, Waldemar Karwowski, and David Rodrick</i>	1487
58. Human Factors and Ergonomics in Medicine <i>Pascale Carayon and Wolfgang Friesdorf</i>	1517
59. Human Factors and Ergonomics in Motor Vehicle Transportation <i>David W. Eby and Barry H. Kantowitz</i>	1538
60. Human Factors and Ergonomics in Automation Design <i>John D. Lee</i>	1570
61. Human Factors and Ergonomics in Manufacturing and Process Control <i>Dieter Spath, Martin Braun, and Lorenz Hagenmeyer</i>	1597
Index	1627