## Contents

### Part I  Safety Management

**At What Age Is the Occupational Accident Risk High?**
*Analysis of the Occurrence Rate of Occupational Accidents by Age* .......................... 3
Akiko Takahashi and Takashi Miura

**Human Factor in Occupational Risks Prevention: From Error Theories to Responsibility and Liability Theories** .......................... 11
Ángel Crescencio Martínez Ortiz

**Management of Public Safety Artifacts Through Design** .......................... 21

**A Case Based Approach to Assess Waiting Time Prediction at an Intensive Care Unity** .......................... 29
Ana Quintas, Henrique Vicente, Paulo Novais, António Abelha, M. Filipe Santos, José Machado and José Neves

**Safety Coordination in Large Construction Project (Completion Process of Unit 3 and 4, Mochovce Nuclear Power Plant, Slovak Republic)** .......................... 41
Ivan Pekár and Ján Donič

**The Promotion of Software Applications as Important Part of Effective Management of Occupational Safety and Health at Work** .......................... 47
Ján Donič
<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nektarios Karanikas, Pedram Soltani, Robert J. de Boer and Alfred L.C. Roelen</td>
<td></td>
</tr>
<tr>
<td>Effects of Work Organization in the Health and Wellness of Seniors Workers</td>
<td>65</td>
</tr>
<tr>
<td>Luciana Gusmao, Catarina Silva and Filomena Carnide</td>
<td></td>
</tr>
<tr>
<td>Olivia Anku-Tsede</td>
<td></td>
</tr>
<tr>
<td>Determining Empirical Donning and Doffing Times for Complex Combinations of Personal Protective Equipment (PPE)</td>
<td>89</td>
</tr>
<tr>
<td>LuAnn Sims, Gerard Davis, Richard Sesek, Sean Gallagher, Mark Schall and Prafful Bhardwaj</td>
<td></td>
</tr>
<tr>
<td>Using Semantics to Improve Information Fusion and Increase Situational Awareness</td>
<td>101</td>
</tr>
<tr>
<td>Valdir A. Pereira Junior, Matheus F. Sanches, Leonardo C. Botega, Caio S. Coneglian, Natália Oliveira and Regina B. Araújo</td>
<td></td>
</tr>
<tr>
<td>A New Proposal of Lighting Design Layout for Workplaces</td>
<td>115</td>
</tr>
<tr>
<td>Cristina Caramelo Gomes and Sandra Preto</td>
<td></td>
</tr>
<tr>
<td>Testing the Effect of Audio, Visual, and Heat Stimuli on Pilots Generated by an Aircraft Bird Strike Avoidance System</td>
<td>129</td>
</tr>
<tr>
<td>Blake Abrecht and Jeffrey Newcamp</td>
<td></td>
</tr>
<tr>
<td>The Importance of Ergonomics Analysis in Prevention of MSDs: A Pilot Study</td>
<td>139</td>
</tr>
<tr>
<td>César Coelho, Paulo Oliveira, Emidio Maia, Jorge Maia and Mónica Dias-Teixeira</td>
<td></td>
</tr>
<tr>
<td>Key Parameters of Occupational Safety for Sustainable Manufacturing Units: A Review</td>
<td>153</td>
</tr>
<tr>
<td>Vikramjit Singh, Arshveer Singh and Prabhdeep Kaur</td>
<td></td>
</tr>
<tr>
<td>Anthropometric Measurements of the External Auditory Canal for Hearing Protection Earplug</td>
<td>163</td>
</tr>
<tr>
<td>Wen Ko Chiou, Ding Hau Huang and Bi Hui Chen</td>
<td></td>
</tr>
<tr>
<td>Development of a User Interface for the Enrichment of Situational Awareness in Emergency Management Systems</td>
<td>173</td>
</tr>
<tr>
<td>Natália Oliveira, Fábio Rodrigues Jorge, Jéssica Souza, Valdir Pereira Júnior and Leonardo Botega</td>
<td></td>
</tr>
</tbody>
</table>
Semi-visible Face Detection for Safety in Unconstrained Crowd Environment ........................................ 185
Shazia Gul and Humera Farooq

Part II Construction Safety

The Psychological Contract of Safety: The Missing Link Between Safety Climate and Safety Behaviour in Construction Sites ............. 199
Mohammad Tanvi Newaz, Peter Davis, Marcus Jefferies and Manikam Pillay

Manikam Pillay

The Integration of Worker Safety and Health into Sustainable Construction Practices: A Review .......................... 223
Ibrahim Mosly

Practical Guide for Safety on Construction Site ................. 231
Marek Rolinec, Karol Balog and Robert Bulla

Health and Safety Regulation and Its Compliance Among Small and Medium-Sized Enterprises Contractors in Ghana .......... 243
Zakari Mustapha, Clinton Aigbavboa and Wellington Thwala

Utilization of Viewing Aids for Safe Operations with Excavators .... 251
Markus Koppenborg, Michael Huelke, Peter Nickel, Andy Lungfiel and Birgit Naber

Manikam Pillay

Part III Risk Management

Risk Assessment of Aluminium Foundry SME Using Ergonomics Approach ......................................................... 275
Amarria Dila Sari, Muhammad Ragil Suryoputro, Ratih Dianingtyas Kurnia and Hari Purnomo

Domestic Safety and Accidents Risk Perception by Active Elderly ..... 285
Laura Martins, Béda Barkokébas Jr., João Baptista and Pedro Arezes

Risk for First Responders Due to Cognitive Workload and Communication Loss ............................................ 297
Edwin Irwin, Robert Guest and Moin Rahman
Mental Workload Analysis Using NASA-TLX Method Between Various Level of Work in Plastic Injection Division of Manufacturing Company .............................................. 311
Egah Hasta Puspawardhani, Muhammad Ragil Suryoputro, Amaria Dila Sari, Ratih Dianingtyas Kurnia and Hari Purnomo

Safe Distance for Machinery Actuators: Is After-Reach Speed a Constant? .............................................. 321
Roger Jensen and Terrence Stobbe

Beyond the Pleasures of Music: Are Music Teachers at Risk? ............ 333
Rui B. Melo, Filipa Carvalho and Ana Delgado

Assessment of Health Risks for Rescue Workers in Evacuations During Person Transportation with Rescue Devices in Corridors and Stairways ................................................................. 343
Sonja Kwee-Meier, Karsten Müller, Alexander Mertens and Christopher M. Schlick

Analytical Hierarchy Process-Based Methodology for Selection of Safety Parameters in Manufacturing Industry ....................... 357
Satnam Singh, Lakhwinder Pal Singh and Mandeep Kaur

Relationship Between Exposure to Xylenes and Ethylbenzene Expressed Either in Concentration in Air and Amount of Their Metabolites Excreted in the Urine ................................. 367
Mónica Dias-Teixeira, Valentina Domingues, Ana Dias-Teixeira, Rui Rangel, Emídio Maia, Jorge Maia, Serafín de Abajo Olea and Cristina Delerue-Matos

Risk of Exposure to Formaldehyde in Pathological Anatomy Laboratories ................................................................. 379
Mónica Dias-Teixeira, Valentina Domingues, Ana Dias-Teixeira, Teresa Teles and Cristina Delerue-Matos

From Virtual Reality to Neutral Buoyancy—Methodologies for Analyzing Walking Pattern on Moon and Mars .................. 387
Irene Lia Schlacht, Bernard Foing, Mario Benassai, Sabrina Bringeland, Barbara Deml, Antonio Del Mastro, Melchiorre Masali, Margherita Micheletti Cremasco, Salman Nazir, Jörn Rittweger and Hervé Stevenin

Applying HFACS Approach to Accident Analysis in Petro-Chemical Industry in China: Case Study of Explosion at Bi-Benzene Plant in Jilin ................................................................. 399
Yunhua Gong and Yunxiao Fan
Participatory Ergonomic Approach for Workplace Improvements: A Case Study in an Industrial Plant .......................... 407 Hélia Fonseca, Nuno Santos, Isabel Loureiro and Pedro Arezes

Friendly Fatigue Alert Mobile Apps to Help Aviation Workers Prevent, Identify and Manage Alertness and Fatigue ...................... 421 Rosa M. Arnaldo, Fernando Gomez Comendador, Luis Pérez Sanz and Alvaro Rodriguez Sanz

Part IV Safety Assessment

Ergonomics Design in Secure e-Healthcare Information System ........ 435 Goran Jakimovski and Danco Davcev

Ergonomic Work Analysis of a Pathological Anatomy Service in a Portuguese Hospital ..................................................... 449 Filipa Carvalho, Rui B. Melo and Valdemar Costa

Defining the Angles’ Range in Ergonomics Assessment Using 3D Cameras and Surface EMG ........................................... 463 Jose Moar, Delfina Ramos and Pedro Arezes

Application of TRIZ Methodology for Ergonomic Problem Solving in a Continuous Improvement Environment ..................... 473 João F. Alves, Helena V.G. Navas and Isabel L. Nunes

Ergonomic Assessment of Assembly Tasks in a Mexican Automotive Industry ................................................................. 487 Luis Cuautle-Gutiérrez, Jesús Juárez-Peñuela and Luis Alberto Uribe-Pacheco

Work-Related Musculoskeletal Symptoms Among Small Scale Gold Miners and Extraction Workers in the Philippines ........... 495 Benette P. Custodio, Aura C. Matias and Virginia J. Soriano

Work Movements: Balance Between Freedom and Guidance on an Assembly Task in a Furniture Manufacturer ..................... 503 Symone A. Miguez, M. Susan Hallbeck and Peter Vink

A Method to Calculate the Accident Probabilities in Construction Industry Using a Poisson Distribution Model .................... 513 Senem Bilir and G. Emre Gurcanli

Salivary Cortisol Analysis in Shift Workers ........................................ 525 Antônio Moro, Pedro Reis, Israel Santos, Alexandre Pinto and Diogo Reis
Evaluation of the Perception of Knowledge and Occupational Exposure to Xylene, Toluene and Ethylbenzene for the Furniture Industry Workers ........................................ 533
Manuel Pedroso and Mónica Dias-Teixeira

Health Promoting Games as Part of the Strategy of the Organization ......................................................... 541
Katarzyna Lis, Ewelina Wierzejska and Alicja Rytelewska

Cytotoxic Drug Manipulation and Its Impact on Occupational Safety of Hospital Workers ........................................ 555
João Silva, Pedro M. Arezes, Rudolf Schierl and Nêlson Costa
Advances in Safety Management and Human Factors
Proceedings of the AHFE 2016 International
Conference on Safety Management and Human Factors
, July 27-31, 2016, Walt Disney World®, Florida, USA
Arezes, P.M.F.M. (Ed.)
2016, XIV, 562 p. 175 illus., 91 illus. in color., Softcover
ISBN: 978-3-319-41928-2