# Table of Contents

Foreword ....................................................................................................................................................................... xxxiii

Preface ............................................................................................................................................................................xxxiv

Acknowledgment .......................................................................................................................................................xxxvi

Section 1
General of Estimation and Control Techniques in E-Learning Systems

Chapter 1
Critical Review of Publications in IGI Global 2011-2015 about Avatars-“HHH”-Technology-Education as a Gateway for Improvement of Feedback Control in DE ...........................................................1
   Susanna Agadjanyan, Armenian Institute of Tourism, Armenia
   Robert Minasyan, Armenian Institute of Tourism, Armenia

Section 2
The Dialectics of Research on Estimation and Control Techniques in E-Learning Systems

Chapter 2
Questions, Problems, and Analysis of the Answers in Intelligent Educational Systems ...................... 13
   Iliya A. Hodashinsky, Tomsk State University of Control Systems and Radioelectronics, Russia

Chapter 3
Competence-Based Approach to Training in the Virtual Educational Environment ........................ 22
   Mikhail Kataev, Tomsk State University of Control Systems and Radioelectronics, Russia
   & Yurga Institute of Technology (Branch) of National Research Tomsk Polytechnic University, Russia

Chapter 4
The Problems of Competence Approach: The Estimation and the Control in World E-Learning Systems ............................................................................................................................................................................... 31
   Vladimir Zelichenko, Tomsk State Pedagogical University, Russia
   Irina Bushueva, Russian State University for Tourism and Service, Russia

Chapter 5
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>The Pedagogical and Engineering Features of E- and Blended-Learning of Adults Using Triple H-Avatar in Russian Federation</td>
<td>Vardan Mkrttchian, HHH University, Australia&lt;br&gt; Lubov Beljanina, Astrakhan State University, Russia</td>
</tr>
<tr>
<td>7</td>
<td>Sliding Mode Control Techniques in E-Learning Systems</td>
<td>I. Boiko, The Petroleum Institute, UAE&lt;br&gt; H. Hussein, The Petroleum Institute, UAE&lt;br&gt; A. Al Durra, The Petroleum Institute, UAE</td>
</tr>
<tr>
<td>8</td>
<td>The Analysis of Degree of Formation of Competences on the Basis of Model of the Expert and Cluster Approach</td>
<td>Sergey Kataev, Tomsk State Pedagogical University, Russia&lt;br&gt; Zoya Skripko, Tomsk State Pedagogical University, Russia&lt;br&gt; Ekaterina Alekseeva, Tomsk State Pedagogical University, Russia</td>
</tr>
<tr>
<td>9</td>
<td>Explore the Possibility of Recourses and Elements of online Teachers Training Program</td>
<td>Marina Vayndorf-Sysoeva, Sholokhov Moscow State University for the Humanities, Russia&lt;br&gt; Tatiana Grjaznova, Sholokhov Moscow State University for the Humanities, Russia</td>
</tr>
<tr>
<td></td>
<td>Section 3</td>
<td>Taking Side Informational Problems of Research on Estimation and Control Techniques in E-Learning Systems</td>
</tr>
<tr>
<td>10</td>
<td>An Integrated Approach to Automated Testing Knowledge</td>
<td>A. A. Mitsel, Tomsk State University of Control Systems and Radioelectronics, Russia&lt;br&gt; Tomsk State University, Russia&lt;br&gt; A. A. Poguda, Tomsk State University, Russia</td>
</tr>
<tr>
<td>11</td>
<td>Control Engineering at High Schools and Universities: Project-Based Learning</td>
<td>Ilya Shirokolobov, Saint Petersburg State University, Russia&lt;br&gt; Sergey Filippov, Presidential Phys &amp; Math Lyceum 239, Russia&lt;br&gt; Roman Luchin, Saint Petersburg State University, Russia&lt;br&gt; Kirill Ovchinnikov, Saint Petersburg State University, Russia&lt;br&gt; Alexander Fradkov, Saint Petersburg State University, Russia&lt;br&gt; Georgy Oblapenko, Saint Petersburg State University, Russia</td>
</tr>
</tbody>
</table>
Chapter 12
About Masters in Distance Education Experts for E-Learning Systems .....................................................171
Dietrich Brandt, RWTH Aachen University, Germany
Alexander Andreev, Lomonosov Moscow State University, Russia
Vladimir Kukharenko, National Technical University, Ukraine
Aleksey Kochetkov, Russian State University for Tourism and Service, Russia
Ludmila Uljanchenko, Russian State University for Tourism and Service, Russia

Chapter 13
Vocational Training of Masters Using E-Learning Systems as the Basis of a Professional Teacher... 184
Elena Rumbesha, Tomsk State Pedagogical University, Russia
Irina Bushueva, Russian State University for Tourism and Service, Russia

Section 4
The Nature of Research on Estimation and Control Techniques in E-Learning Systems in Cyber-Physical Learning-Study Environment

Chapter 14
Bronyus Aysmontas, Moscow City State University of Psychology and Education, Russia
Md. Akther Uddin, Moscow City State University of Psychology and Education, Russia

Chapter 15
Educational Interactions Quality in E-Learning Environment ................................................................. 216
Tatiana Noskova, Herzen State Pedagogical University of Russia, Russia
Olga Yakovleva, Herzen State Pedagogical University of Russia, Russia

Chapter 16
Estimation and E-Control at Educational Routes as Means of Improvement of Cognitive Interests of Bachelors and Masters .................................................................................................. 233
Elena Rumbesha, Tomsk State Pedagogical University, Russia
Vladimir Zelichenko, Tomsk State Pedagogical University, Russia
Olga Ponomareva, Penza branch of Military Academy of MTS, Russia

Section 5
Modeling E and Classic Communication/Education-Study Systems

Chapter 17
Models, Methods, and Algorithms for Control over Learning Individual Trajectory ............................ 245
Artur Mitsel, Tomsk State University of Control Systems and Radioelectronics, Russia & Tomsk Polytechnic University, Russia
Nina Cherniaeva, Tomsk Polytechnic University, Russia
Chapter 18
Models for Cooperation Continuing Educations of Specialist with Life Cycle of E-Learning
Resources and Educational Programs.................................................................258
Igor Krevskiy, Penza State University, Russia
Tatiana Glotova, Penza State University, Russia
Mikhail Deev, Penza State University, Russia
Sergey Matyukin, Moscow State University of Technologies and Management, Russia
Elena Sheremeteva, Penza State University, Russia

Chapter 19
Creating Model of E-Course: As an Object of Computer-Aided Design .........................286
Irina Sidorkina, Volga State University of Technology, Russia
Aleksey Rybakov, Omega-R Inc., USA

Chapter 20
Modeling, Developing, and Promoting a Culture Safety for E-Training at NPP ..................298
Vahram Petrosyan, Armenian Scientific Research Institute for Nuclear Plant Operation
“Armatom”, Armenia

Section 6
Estimation and Control in Cross-Cultural Transformative E-Learning Systems

Chapter 21
The Control of Didactics of Online Training of Teachers in HHH University and Cooperation with
the Ministry of Diaspora of Armenia ........................................................................311
Vardan Mkrttchian, HHH University, Australia

Chapter 22
Using Programmer Products iSpring in Educational Technologies ............................323
Tatyana Ankudinova, Saint-Petersburg School # 683, Russia

Chapter 23
Structural, Information, and Regulation Aspects of Political Online and Classic Communication ..329
Ekaterina Aleshina, Penza State University, Russia

Section 7
Modeling and Developing E-Learning Support Systems

Chapter 24
Hierarchical Semantic Database Structure of the E-Learning Systems..........................343
Nikita Vanyasin, Volga State University of Technology, Russia
Chapter 25
Development and Support of E-Learning Systems in Tomsk State Pedagogical University .......... 350
Timur Gazizov, Tomsk State Pedagogical University, Russia
Tatyana Prishepa, Tomsk State Pedagogical University, Russia
Mikhail Chervonnyy, Tomsk State Pedagogical University, Russia

Chapter 26
Cloud Mechatronic Laboratory for Remote Physical Experiments: Application to E-Learning .... 365
Mikhail Ananyevskiy, Institute of Problems of Mechanical Engineering Russian Academy of Sciences, Russia

Chapter 27
Design of the E-Systems for Training and Researching with Tools of Cloud Services-Based Stereo and 3D Content ................................................................. 376
Javad Avetisyan, Multimedia Technologies Ltd, Russia
Alexander Bozhday, Penza State University, Russia
Natalia Novikova, Russian State University of Tourism and Service, Russia
Jana Kochetkova, Russian State University of Tourism and Service, Russia

Chapter 28
Estimation and Control of the Development of Electronic Resources in Russia .................... 389
Marina Vajndorf-Sysoeva, Sholokhov Moscow State University for the Humanities, Russia
Tatiana Grjaznova, Sholokhov Moscow State University for the Humanities, Russia

Chapter 29
Development of the System for Authoring Three-Dimensional Learning Applications for Use in E-Learning Environment ................................................................. 403
Julia Igorevna Evseeva, Penza State University, Russia
Alexander Bozhday, Penza State University, Russia
Alexei Anatolievich Gudkov, Penza State University, Russia

Chapter 30
Implementation of Embedded Systems and Networks in E-Learning: Creation Science on Services with Cyber Control and Engineering ........................................................................ 432
Larisa Sumzina, Russian State University for Tourism and Service, Russia
Alexander Fedulin, Russian State University for Tourism and Service, Russia

Section 8
Accelerated Opportunity of Research on Estimation and Control Techniques in E-Learning Systems

Chapter 31
Development of Model and Software for Tracking Head Avatars in E-Learning Systems .......... 444
Anatoly Korikov, Tomsk State University of Control Systems and Radio Electronics, Russia
Oleg Krivtsov, Tomsk State University of Control Systems and Radio Electronics, Russia
Chapter 32
System of People-Computer: On the Way of Creation of Human-Oriented Interface
Anatoly Korikov, Tomsk State University of Control Systems and Radio Electronics, Russia
Oleg Krivtsov, Tomsk State University of Control Systems and Radio Electronics, Russia

Chapter 33
The Real Estate Service Activities Using E-Learning
Natalija Platonova, Russian State University for Tourism and Service, Russia
Svetlana Muminova, Russian State University for Tourism and Service, Russia

Section 9
Service-Oriented Interaction in Built-In Intellectual Educational and Research Systems,
Networks, and Services

Chapter 34
E-Design and E-Development of Real Estate Services in Russia
Svetlana Muminova, Russian State University for Tourism and Service, Russia
Yuri Kopylov, Russian State University for Tourism and Service, Russia

Chapter 35
Computer-Aided Design as Carrier of Set Development Changes System in E-Course
Engineering
Irina Sidorkina, Volga State University of Technology, Russia
Aleksey Rybakov, Omega-R Inc., USA

Chapter 36
E-Learning Environment: A New Quality of the Resource Base
Tatiana Noskova, Herzen State Pedagogical University of Russia, Russia
Tatiana Pavlova, Herzen State Pedagogical University of Russia, Russia

Chapter 37
Virtual Training of E-Learning in the Formation of Natural Science Educational Space
Elvira Matveeva, Astrakhan State University, Russia

Chapter 38
Problems of Control by the Technique Creation of Quality Estimation of Electronic of Training
in Realization Conditions of Competition Approach
Alexander Usoltzev, Ural State Pedagogical University, Russia
Tamara Shamalo, Ural State Pedagogical University, Russia
Vera Scherbakova, Ural State Pedagogical University, Russia