

## CONTENTS

### **INNOVATIVE TECHNOLOGIES AND THEIR IMPACT ON INDUSTRIAL ENGINEERING DURING THE WAR**

#### **SECTION 21. INNOVATIVE METHODS AND TECHNOLOGIES FOR MAKING MANAGEMENT DECISIONS IN PRODUCTION**

(Andrushkevych N. V., Poliova N. M., Poliova A. V.) .....	1
1. Modern technologies for developing management decisions.....	2
2. Innovative methods for making management decisions in production .....	6
3. Basic principles of managing production processes in an enterprise in the context of digital transformation .....	12

#### **SECTION 22. THE ROLE OF THE STATE, PUBLIC ORGANIZATIONS AND INTERNATIONAL INSTITUTIONS IN SUPPORTING AND DEVELOPING THE HIGHER EDUCATION SYSTEM IN CONDITIONS OF MARTIAL LAW AND POST-WAR RECONSTRUCTION OF UKRAINE (Bovsunivska I. V.) .....**

1. State policy in the field of higher education: challenges, support and strategic priorities in the context of martial law and post-war reconstruction .....	25
2. The role of public organizations and international institutions in supporting and developing the higher education system in conditions of martial law and post-war reconstruction.....	30

#### **SECTION 23. THE IMPACT OF TRANSNATIONAL CORPORATIONS ON THE ECONOMY OF UKRAINE DURING THE WAR**

(Gudz Yu. F., Yahodzinskyi S. M.) .....	40
1. Multinational companies and their impact on the economy of developing countries .....	41
2. The role of transnational corporations in the Ukrainian economy .....	53

#### **SECTION 24. DEVELOPMENT AND JUSTIFICATION OF TECHNOLOGIES FOR GLUTEN-FREE CUSTARD SEMI-FINISHED PRODUCTS USING RICE FLOUR (Danyliuk I. P., Strutynska L. T.) .....**

1. Current state and prospects of gluten-free confectionery technologies...	63
2. Technology and quality of gluten-free custard semi-finished products based on rice flour.....	68

SECTION 25. THE FINANCIAL SYSTEM OF UKRAINE: BALANCING THE GUIDELINES OF THE SUSTAINABLE DEVELOPMENT PHILOSOPHY AND THE CHALLENGES GENERATED BY THE RUSSIAN FEDERATION'S MILITARY AGGRESSION (Donii N. Ye., Nishchymna S. O.) .....	85
1. Review of the Source Base and Publication Methodology .....	86
2. Basic Provisions of the Sustainable Development Philosophy: Author's Interpretation .....	90
3. Key Coordinates of the Sustainable Development Philosophy for the Financial System of Ukraine in the Landscape of Challenges Determined by the Russian Federation's Military Aggression .....	92
SECTION 26. TECHNOLOGICAL INNOVATIONS AS A KEY FACTOR IN THE STABILITY AND DEVELOPMENT OF LIGHT INDUSTRY IN UKRAINE IN TIMES OF WAR (Yevtushenko V. V.) .....	108
1. Theoretical foundations of innovation in light industry .....	108
2. Innovative technologies in light industry during the war .....	114
3. Prospects for the development of light industry in the post-war period .....	122
SECTION 27. INNOVATIONS IN THE USE OF GRAIN RAW MATERIALS IN FOOD TECHNOLOGY (Kichura D. B., Subtelnyi R. O., Sobeckho I. B.) .....	133
1. Ancient Grains, a Brief Overview .....	134
2. Use of Cereal Carbohydrates in the Food Industry .....	137
3. Classification of dietary fibers .....	139
4. Factors affecting the use of dietary fiber .....	140
5. Application of dietary fibers on an industrial scale .....	145
SECTION 28. MINERAL RESOURCES OF UKRAINE IN THE CONTEXT OF THE NEEDS OF THE WORLD ECONOMY (Kulchytska H. O., Chernysh D. S., Sietiaia L. D.) .....	158
1. Rare and rare earth elements .....	158
2. Critical raw materials of the European Union .....	160
3. Mineral resource base of the United States of America .....	161
4. Undisclosed potential of Ukrainian bowels .....	162
SECTION 29. STRATEGIES FOR MANAGING CYBER RISKS IN EXCHANGE ACTIVITIES AMID DIGITAL TRANSFORMATION DURING WARTIME (Kustov V. P.) .....	170
1. Theoretical Foundations of Cyber Risks in Exchange Activities Amid Digital Transformation .....	171
2. Key Technological Solutions for Mitigating Cyber Risks .....	175
3. Features of Multi-Level Cybersecurity in Exchange Infrastructure .....	180

<b>SECTION 30. METHODOLOGICAL TOOLS FOR PREDICTING THE BEHAVIOUR OF SPECIALISTS OF DIFFERENT PSYCHOLOGICAL TYPES IN EXTREME CONDITIONS (Miroshnychenko O. A.)</b>	193
1. The current state of the research problem	194
2 Materials and methods for studying individual personality types	199
3. The results of the study of individual character type and the forecast of behaviour of different types of winterers	216
<b>SECTION 31. INFLUENCE OF INFLUENCERS ON THE FORMATION OF PUBLIC OPINION IN TIMES OF WAR (Ovsienko N. V., Navrotska T. A., Ovsienko V. V.)</b>	224
1. The main problems and mechanisms of shaping public opinion through opinion leaders in the digital environment	225
2. Transformation of digital marketing strategies and tools in wartime	229
3. Solving the identified problems and measuring the effectiveness and assessing the impact of influencers on public opinion during a military conflict	232
<b>SECTION 32. UKRAINE'S OPPORTUNITIES FOR IMPLEMENTING A SUSTAINABLE DEVELOPMENT PROGRAM: ENVIRONMENTAL ASPECTS AND THE IMPACT OF INNOVATIVE ENERGY TECHNOLOGIES (Ostapenko O. P.)</b>	238
1. Economic and environmental aspects of implementing the principles of sustainable development in Ukraine	238
2. The impact of innovative energy technologies in the context of implementing the principles of sustainable development in Ukraine	248
3. Analysis of the status of heat pump implementation in Ukraine in the context of sustainable development	249
4. Environmental aspects of implementing innovative technologies in the heat and power industry	251
5. The UBP method (Umweltbelastungspunkte or Environmental Impact Points)	254
6. UBP (Environmental Load Points) method for evaluating heat pumps	256
7. Practical application of the UBP method for heat pumps in Ukraine	261
<b>SECTION 33. DIGITAL TRANSFORMATION OF THE TRANSPORT COMPLEX AS A TOOL FOR SUSTAINABLE DEVELOPMENT IN WARTIME (Remyha Yu. S., Shcherbatykh D. V.)</b>	270
1. Challenges of the transport complex in war conditions	272
2. Digital transformation as a response to modern challenges	274
3. Digital technologies as a factor of sustainable transport development	276
4. Prospects for post-war recovery of the transport sector	278

<b>SECTION 34. MODELS OF INNOVATIVE SUSTAINABLE DEVELOPMENT OF AN ENTERPRISE MANAGEMENT IN THE CONTEXT OF TECHNOLOGICAL TRANSFORMATIONS</b> (Fimyar S. V., Kuksa V. M., Popyk N. V.) .....	284
1. Theoretical basis of the innovative development of an enterprise managing .....	285
2. Features of ensuring sustainable development of industrial enterprises.....	290
3. Characteristics of innovative development management models .....	293
<b>SECTION 35. ANALYSIS OF THE STATE OF THE INNOVATION ENVIRONMENT IN THE CHERNIHIV REGION UNDER MARTIAL LAW</b> (Kholiavko N. I., Hnedina K. V.).....	304
1. Analysis of existing methodological approaches to assessing the innovation environment of the region .....	305
2. Analytical characteristics of the results of the stakeholder survey on the state of the innovation environment of the Chernihiv region .....	307
<b>SECTION 36. MANAGING CREDIT AND INVESTMENT RISKS IN THE RENTAL BUSINESS IN CONDITIONS OF FULL-SCALE WAR: INNOVATIONS AND CHALLENGES</b> (Khoma I. B., Lukianskyi O. B., Korotkyy A. O.).....	326
1. The specifics and problems of the rental business in the conditions of a full-scale war .....	327
2. Analysis of existing methods of solving the problem of credit and investment risk management in the rental business .....	334
3. Modeling the impact of credit payment processes on the state of the rental business .....	342
<b>MODERN ENVIRONMENTAL THREATS IN UKRAINE AND SOLUTIONS</b>	
<b>SECTION 37. THE IMPACT OF HOSTILITIES ON BIODIVERSITY AND ENVIRONMENTAL SECURITY IN UKRAINE</b> (Bondar Yu. O., Didenko I. A., Marchenko O. A.) .....	349
1. Theoretical aspects of the impact of hostilities on the environment .....	351
2. Land resources of Ukraine in times of war.....	354
3. Water pollution.....	361
4. Consequences of hostilities for Ukraine's biodiversity .....	373
<b>SECTION 38. REMEDIATION OF TECHNOGENICALLY CONTAMINATED SOILS</b> (Vinyukov O. O., Samokhvalova V. L., Bondareva O. B.) .....	393
1. Formation of zones of soil contamination by heavy metals under the influence of the Kurakhiv TPP .....	396

2. Diagnosing the quality of chemically contaminated soils .....	399
3. Method for improving the ecological state of the soil-plant system .....	404
4. Method of activating the biological potential of soil for bioremediation of chemically contaminated soil-plant system .....	409
5. Method of accelerated restoration of agrocenosis, disrupted as a result of military actions .....	413
<b>SECTION 39. ENVIRONMENTAL CONSEQUENCES OF THE KAKHOVSKA HPP EXPLOSION: RISKS OF MALARIA SPREAD UNDER MARTIAL LAW CONDITIONS (Voronova N. V., Horban V. V.).....</b>	
1. The problem's prerequisites emergence and the problem's formulation .....	422
2. Analysis of the Malaria situation in Ukraine.....	424
<b>SECTION 40. PEDAGOGICAL FOUNDATIONS FOR DEVELOPING ENVIRONMENTAL AWARENESS OF SENIOR PRESCHOOLERS (Kalichak Yu. L.).....</b>	
1. The essence of the environmental culture of a person .....	441
2. Peculiarities of the development of environmental awareness of preschool children.....	446
3. Ways of developing the environmental awareness of children of senior preschool age in kindergarten .....	449
4. Pedagogical foundations for developing the environmental awareness of senior preschoolers .....	452
<b>SECTION 41. JUSTIFICATION OF ZERO LIQUID DISCHARGE TECHNOLOGIES FOR DESALINATION OF HIGHLY MINERALIZED WASTEWATER AT KRYVYI RIH IRON ORE BASIN (UKRAINE) (Kovrov O. S., Kulikova D. V.).....</b>	
1. Characteristics of the ecological state of surface water bodies of the Kryvyi Rih iron ore region.....	465
2. Ways to solve problems related to improving the ecological state of surface water bodies of the Kryvyi Rih Iron Ore Region .....	471
3. Justification of the parameters for implementing the proposed ZLD technology for processing highly mineralized mine waters using the example of the Southern group of mines of the Kryvyi Rih iron ore basin .....	479
<b>SECTION 42. FORMATION OF AN INTEGRATED APPROACH TO WASTE MANAGEMENT BASED ON THE INTERACTION OF KEY STAKEHOLDERS: STATE, REGIONS, ENTERPRISES AND HOUSEHOLDS (Matvieieva Yu. A., Rosokhata A. S., Bohdan E. I.)..</b>	
1. Theoretical Foundations of Integrated Waste Management in the Context of Ukraine's Energy Recovery .....	487

2. Modeling the Optimal Interaction of Participants in the "State-Region-Enterprise-Household" System .....	494
3. Waste to Energy Conversion: Prospects for Ukraine's Post-War Energy Strategy .....	499
SECTION 43. MILITARY ACTIONS AS A THREAT TO LAND RESOURCES: DAMAGE ASSESSMENT AND ECOLOGICAL REHABILITATION MECHANISMS	
(Novakovska I. O., Ishchenko N. F., Skrypnyk L. R.) .....	510
1. Impact of military operations on land resources.....	510
2. Assessment of damage from military operations.....	519
3. Mechanisms for ecological rehabilitation of land resources.....	529
SECTION 44. DIRECTIONS FOR THE IMPLEMENTATION OF UKRAINE'S ENVIRONMENTAL POLICY IN THE CONTEXT OF FULL-SCALE ARMED AGGRESSION (Petlin I. V., Major O. V.).....	
1. Theoretical and methodological foundations of the study of environmental policy of Ukraine.....	535
2. Directions for the implementation of the environmental policy of Ukraine.....	544
SECTION 45. CONTROL OF BIOLOGICAL THREATS IN WARTIME AND POST-WAR PERIODS (Fotina H. A., Shkromada O. I., Fotina T. I.)..	
1. Alternative Means of Preventing Infectious Diseases .....	569
2. Monitoring of Disease Pathogens and Development of Disinfectants ..	573
3. Development and Implementation of Alternative Drugs to Antibiotics .....	576