

Table of Contents

Preface

Chapter 1: Defects Analysis and Fault Prevention in Engineering Structures

Analysis of a Longitudinal Crack in a Pipeline Loaded with a Certain Internal Pressure, with Recommendations for Further Operation S. Yusubov	3
Calculation of Equal Resistance Riveted Joint S. Charkasov	11
Increase in Resource Reserves due to the Reliability of the Track on the Railways J. Gasimov and H. Ahmadov	19

Chapter 2: Optimisation and Modelling in Engineering

A Detailed Analysis of External Ballistics and a Study of Factors Affecting the Projectile Range N. Nasirov	29
Modeling of Main Gas Pipelines at Change of Pressure at the Beginning and Speed of Movement at the End of Pipe H. Huseynov and C. Yusubov	37
Method for Reducing Fuel Consumption when Roasting Pellets from Magnetite Iron Ore Concentrate L. Azimova and N. Mirbabayeva	45
Application of Artificial Intelligence in the Process of Adsorption Purification of Isobutane, Isobutylene and Benzene from Impurities S. Guliyeva, F. Yusubov and N. Alieva	51

Chapter 3: Industrial Measurements

Correct Installation of Measuring Instruments and Determination of Errors by Checking the Equipment O. Mustafaoglu	61
Determination of the Uncertainty of the Dimensions of Weight Stones in Mass Measurements in Maritime Shipping Y. Hasanov, J. Zuda, T. Shabiyeva and M. Suleymanli	69
Safety of Energy Metering Systems: Optimization of Diagnostics of Measurement Channels S. Bogatenkov, O. Gabbasova, M. Samadov, E. Shabiyev and R. Abbasov	77

Chapter 4: Automation of Technological Processes and Production

Digital Twins for Computer Aided Design on Lathe Operations S. Bogatenkov, N. Sazonova, V. Movlazade, H. Abbasova, R. Dadashov and R. Bazhenov	87
Control Subsystem for Adaptive Control of Technological Processes on Metal-Cutting Machines R. Ahmadov and K. Aliyeva	95
Application of Difference Equations in Automated Production Control Systems Using Abstract Discrete Automata A. Hajiyev, V. Artemyev and V. Kargin	103
Using Statistical Methods to Assess the Accuracy of Production Process Control Systems F. Mamedov, V. Artemyev and V. Kargin	113

Chapter 5: Communication Engineering

Research Information Security and Reliability Critical Infrastructure Control Systems I. Mammadov and U. Sadigov	127
Research of Future Generation Multiservice Telecommunication Networks Based on SDN Technology T. Ismayilov	135
Studies some Aspects Information Security of Wireless Communication Networks E. Abaszada	141
Research Efficiency Functioning Wireless Cellular Networks Taking into Account Modern Energy Saving Technologies B. Ibragimov, A. Nabieva and A. Hamidova	149
Research on the Effectiveness Energy Saving Mechanisms in Mobile Networks when Using the Wi-Fi Radio Interface B. Ibragimov, A. Tagiyev and U. Rafizade	157
Research Capacity Indicators Multiservice Convergent Communication Networks Based on Modern Technologies F. Amanullazada	165

Chapter 6: Information Technologies

Application of Blockchain Technology for the Security of Smart Infrastructures V. Gasimov, S. Aliyeva, M. Asadova and Z. Assanova	175
Application of NDVI Index and Supervised Decoration Methods on Sentinel-2A and Landsat 5 TM Satellite Images in ArcGIS Software N. Valehov and F. Valehova	181
Measuring the Tendency of the Age Groups of the Population to the Digitalization of the Transport Infrastructure in Azerbaijan E. Alizada and N. Mammadov	187