This set of research projects is based on Sustainable Development Goal 9 — Industry, Innovation, and Infrastructure. It presents advanced technological solutions such as fiber-optic sensors for road surface monitoring, intelligent “smart home” systems, and cybersecurity measures in the electric power sector. In addition, the potential of the Trans-Caspian International Transport Route and the development of small and medium-sized enterprises in the context of an innovative economy are comprehensively examined.

To promote innovative industry, the studies explore the synthesis of biopolymers, the production of sorbents from agricultural waste, and new methods for manufacturing bimetallic elements. These projects contribute to accelerating the country’s transition to a digital economy and directly support the development of sustainable and high-tech infrastructure through the advancement of EdTech and media literacy in the education sector.

1

Title	Research of a Fiber Sensor Based on Fiber Bragg Grating for Road Surface Monitoring
Authors	Kashaganova, G.| Kozbakova, A.| Kartbayev, T.| Balbayev, G.| Togzhanova, K.| Alimseitova, Z.| Orazaliyeva, S.
Year	2023
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85161571642&origin=resultslist
DOI	10.3390/electronics12112491

2

Title	A Comprehensive Review of New Generation Plant Growth Regulators
Authors	Zhumanova, N.| Akimbayeva, N.| Myrzakhmetova, N.| Dzhiembaev, B.| Kuandykova, A.| Diyarova, B.| Seilkhanov, O.| Kishibayev, K.| Meldeshov, A.| Saparbekova, I.| Yerezhepova, A.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85207789944&origin=resultslist
DOI	10.30919/esfaf1190

3

Title	Selecting the rational parameters for restoring filtration characteristics of ores during borehole mining of uranium deposits
Authors	Kenzhetaev, Z.| Togizov, K.| Abdraimova, M.| Nurbekova, M.
Year	2022
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85139422893&origin=resultslist
DOI	10.33271/mining16.03.001

4

Title	UNVEILING THE DIGITAL EQUATION THROUGH INNOVATIVE APPROACHES FOR TEACHING DISCRETE MATHEMATICS TO FUTURE COMPUTER SCIENCE EDUCATORS
Authors	Suranchiyeva, Z.| Bostanov, B.| Kenesbayev, S.| Idrissov, S.| Turganbay, K.
Year	2023
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85177031565&origin=resultslist
DOI	10.28945/5208

5

Title	Real-Time Road Damage Detection System on Deep Learning Based Image Analysis
Authors	Kulambayev, B.| Gleb, B.| Katayev, N.| Menglibay, I.| Momynkulov, Z.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-86000673800&origin=resultslist
DOI	10.14569/IJACSA.2024.01509107

6

Title	Media Literacy in Kazakhstan: Educators' Perspectives and Policy Implementation
Authors	Yeleussiz, A.| Qanay, G.
Year	2025
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-86000502642&origin=resultslist
DOI	10.46303/jcsr.2025.1

7

Title	Biopolymers synthesis and application
Authors	Kunarbekova, M.| Shynzhyrbai, K.| Mataev, M.| Bexeitova, K.| Kudaibergenov, K.| Sailaukhanuly, Y.| Azat, S.| Askaruly, K.| Tuleshov, Y.| Zhantikeyev, S.U.| Ybyraiymkul, D.
Year	2023
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85150600282&origin=resultslist
DOI	10.1016/j.matpr.2023.02.367

8

Title	Digital economy within the eurasian economic union: Current state and development prospects
Authors	Kalybekova, D.B.| Sansyzbayeva, G.N.| Koishybaeva, M.O.| Ospanbek, T.| Kulmaganbetova, A.B.
Year	2021

Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85107260999&origin=resultslist
DOI	

9

Title	Regional development of small and midsize businesses in the conditions of forming of innovative economy of Kazakhstan: A case study
Authors	Zamanbekov, S.| Dogalov, A.| Zamanbekov, D.| Bildebayeva, A.| Cheirkhanova, A.| Bakirbekova, A.| Sikhimbayeva, B.
Year	2020
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85090258283&origin=resultslist
DOI	10.9770/jesi.2020.8.1(43)

10

Title	STUDY OF THE CURRENT STATE AND PROSPECTS FOR THE DEVELOPMENT OF TOURIST FLOW IN THE CITY OF ALMATY, KAZAKHSTAN
Authors	Zheldibayev, A.| Kulazhanov, Y.| Moldagaliyeva, A.| Abdildayeva, N.| Zhoya, K.| Sarkitkan, K.| Savanchiyeva, A.| Aldasheva, A.| Askarova, M.| Pavlichenko, L.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85213885987&origin=resultslist
DOI	10.30892/gtg.574spl09-1362

11

Title	Production of ethyl alcohol from plants of the Asteraceae family
Authors	Azimbayeva, G.E.| Kamysbayeva, A.K.| Sagimbayeva, A.E.| Yessenova, M.D.| Bakibaev, A.A.
Year	2023
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85138194308&origin=resultslist
DOI	10.1007/s13399-022-02840-3

12

Title	An Intelligent Fuzzy-PID Controller for Supporting Comfort Microclimate in Smart Homes
Authors	Katayev, N.| Zhakish, A.| Kulmyrzayev, N.| Abuova, A.| Toxanova, S.| Ostayeva, A.| Dossanova, G.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85187226648&origin=resultslist
DOI	10.14569/IJACSA.2024.0150255

13

Title	Trans-Caspian International Transport Route: A Kazakhstani Perspective on Challenges, Opportunities, and Prospects
Authors	Yermekbayev, A.| Delovarova, L.| Kaliyeva, A.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85194900681&origin=resultslist
DOI	10.1177/00207020241257636

14

Title	Analyzing the formation of metacompetence in students using EdTech in the learning process: an economic perspective
Authors	Abueva, N.| Zhussupova, A.| Massakova, S.| Buzelo, A.| Abuyev, O.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105001846165&origin=resultslist
DOI	10.21003/ea.V208-05

15

Title	Transformation of universities in kazakhstan: Research outcomes on the quality of higher education
Authors	Azhibayeva, A.| Issaldayeva, S.| Bakirova, K.| Kudaibergeneva, K.| Saari, D.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85205669783&origin=resultslist
DOI	10.24294/jipd.v8i10.6844

16

Title	Sensor Systems for Measuring Force and Temperature with Fiber-Optic Bragg Gratings Embedded in Composite Materials
Authors	Kalizhanova, A.| Kozbakova, A.| Kunelbayev, M.| Aitkulov, Z.| Utegenova, A.| Imanbekova, U.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85202630694&origin=resultslist
DOI	10.3390/jcs8080321

17

Title	Opportunities for intensive growth of the well-being of students based on interviews in Western Kazakhstan

Authors	Knissarina, M.| Seitenova, S.| Tusseyev, M.| Ussenova, A.| Syzdykbayeva, A.| Khassenov, B.
Year	2025
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85218962347&origin=resultslist
DOI	10.22521/edupij.2025.14.35

18

Title	Optimizing Combustion Characteristics of Ammonium Perchlorate Composites with Nickel-Enhanced Carboxymethyl Cellulose
Authors	Nurguzhin, M.| Janikeyev, M.| Omarbayev, M.| Yermakhanova, A.| Meiirbekov, M.| Zhumakhanov, M.| Lesbayev, A.| Yerezhep, D.| Atamanov, M.| Tulepov, M.| Beksultan, Z.
Year	2025
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105003544517&origin=resultslist
DOI	10.3390/aerospace12040270

19

Title	Cybersecurity Framework for IoT-Integrated Electric Power Information Systems
Authors	Orkena, M.| Abdumauvlenovnab, B.D.| Tursynkanovnac, Z.A.| Mekebayevd, N.| Serikove, T.| Zhazirab, S.| Aizatf, K
Year	2025
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105008383243&origin=resultslist
DOI	10.24867/IJIEM-376

20

Title	Research on the Relative Displacement Distribution of a Composite Plate with Built-In FBG Sensors
Authors	Kalizhanova, A.| Kozbakova, A.| Kunelbayev, M.| Kartbayev, T.| Kashaganova, G.
Year	2025
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105006577726&origin=resultslist
DOI	10.3390/jcs9050198

21

Title	Production of Granular Porous Carbon Sorbent by Thermolysis of Agricultural and Technogenic Waste Co-
Authors	Appazov, N.| Diyarova, B.| Tolegenkyzy, M.| Syzdykbayev, M.| Toibazarova, A.| Niyazova, D.| Yespanova, I.| Kanzhar, S.| Alimkhan, B.| Bekkhozhayev, M.| Serikbayev, M.| Turmanov, R.|

	Zhapparbergenov, R.| Narmanova, R.| Akhatayev, N.| Balykbayeva, G.| Yespenbetova, S.| Nazarov, E.| Askarova, G.| Akylbekov, N.
Year	2026
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-105015364718&origin=resultslist
DOI	10.48309/ajca.2026.535441.1886

22

Title	THEORETICAL AND EXPERIMENTAL SUBSTANTIATION OF THE EXTRACTION PROCESS WITH THINNING BIMETALLIC TUBULAR ELEMENTS OF DISSIMILAR METALS AND ALLOYS
Authors	Titov, V.| Mozghovyi, O.| Borys, R.| Bogomolov, M.| Amirgaliyev, Y.| Aitkulov, Z.
Year	2023
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85164030349&origin=resultslist
DOI	10.35784/iapgos.3497

23

Title	Biotechnology of yogurt producing with specialized fermentation starters: safety indicators assessment
Authors	Kenzheyeva, Z.| Velyamov, M.| Dyuskalieva, G.| Kudiyarova, Z.| Mustafaeva, A.| Alipbekova, A.
Year	2022
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85126125210&origin=resultslist
DOI	10.1590/fst.31221

24

Title	Critical thinking in creativity
Authors	Kabysheva, M.
Year	2024
Abstract in Scopus	https://www.scopus.com/record/display.url?eid=2-s2.0-85199840929&origin=resultslist
DOI	