



MINISTRY OF SCIENCE
AND HIGHER EDUCATION
OF THE REPUBLIC OF KAZAKHSTAN

New Educational Models in Kazakhstan: Alignment with Labor Market Needs and Societal Demands



AI



DEVELOPMENT OF A HUMAN CAPITAL ECOSYSTEM

(Articles 3 and 33 of the Constitution of the Republic of Kazakhstan)

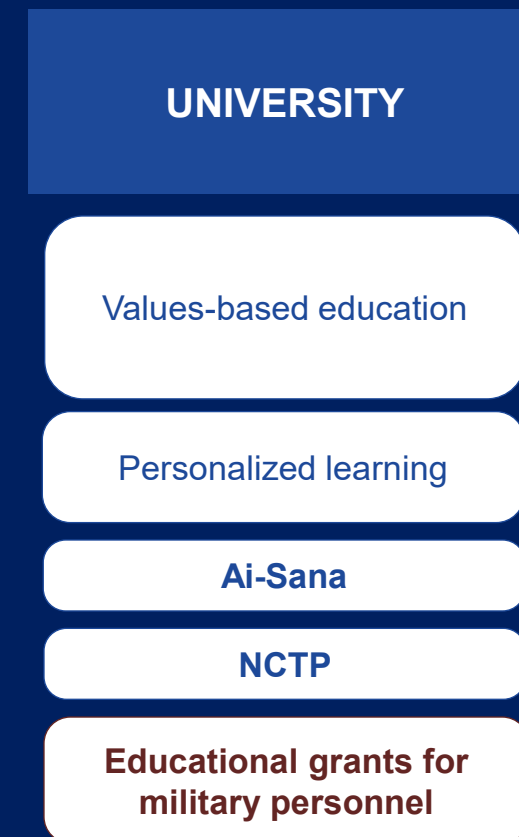
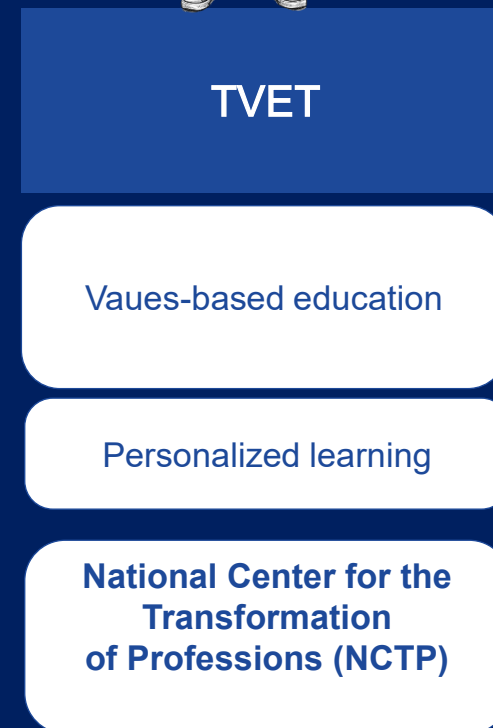
Universities - 123

Faculty - 38,000

Students - 724,000

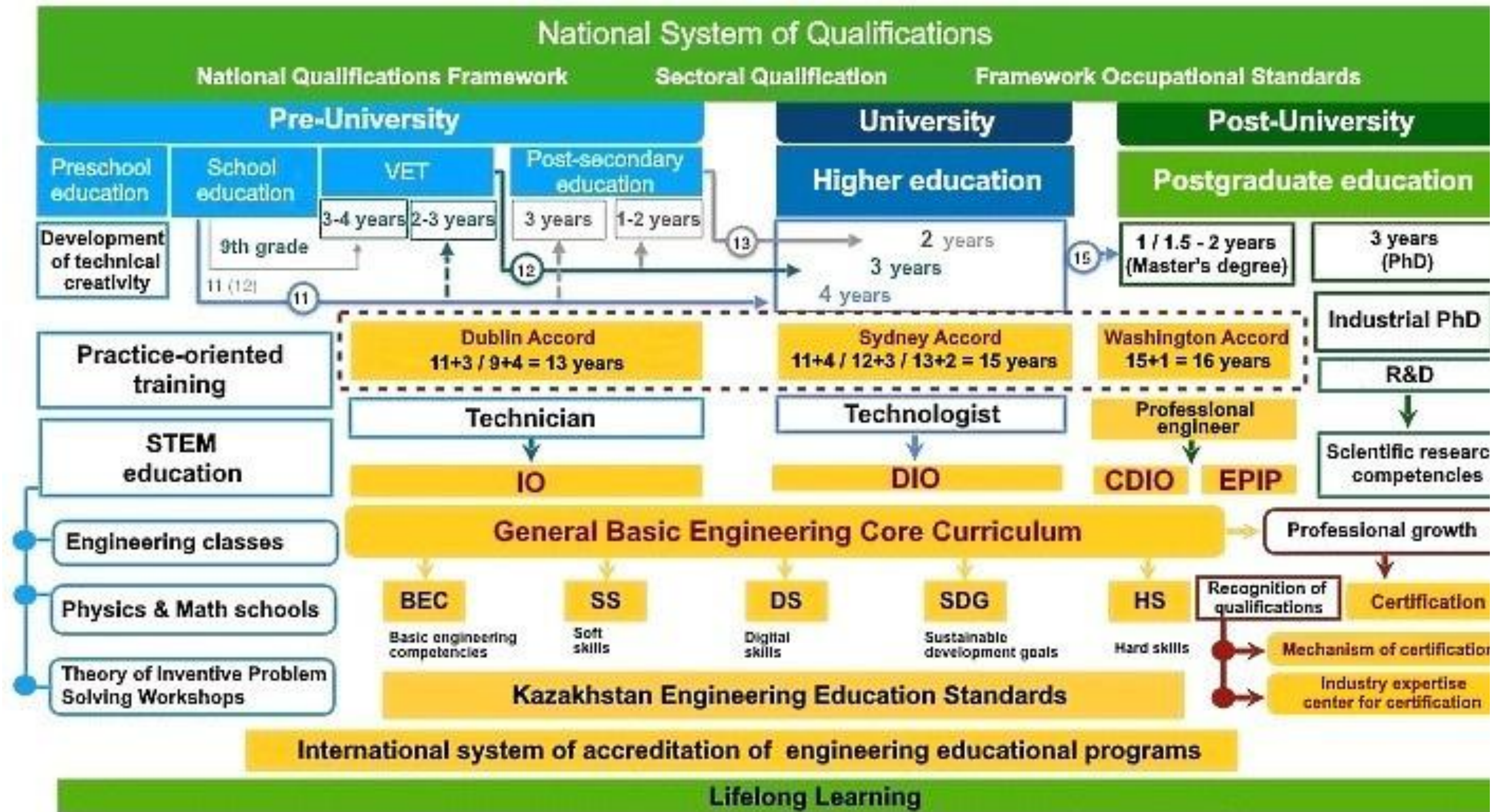
Building a continuous lifelong development trajectory for citizens
A people-centered approach as the foundation of Kazakhstan's economic development

Training citizens for the economy of the future



Identification, support, and development of talents at all stages

MODEL OF ENGINEERING EDUCATION



BY 2030, AN INCREASE OF 78 MILLION WORKPLACES IS EXPECTED, ALONG WITH HIGH DEMAND FOR TECHNOLOGIES AND AI SKILLS*



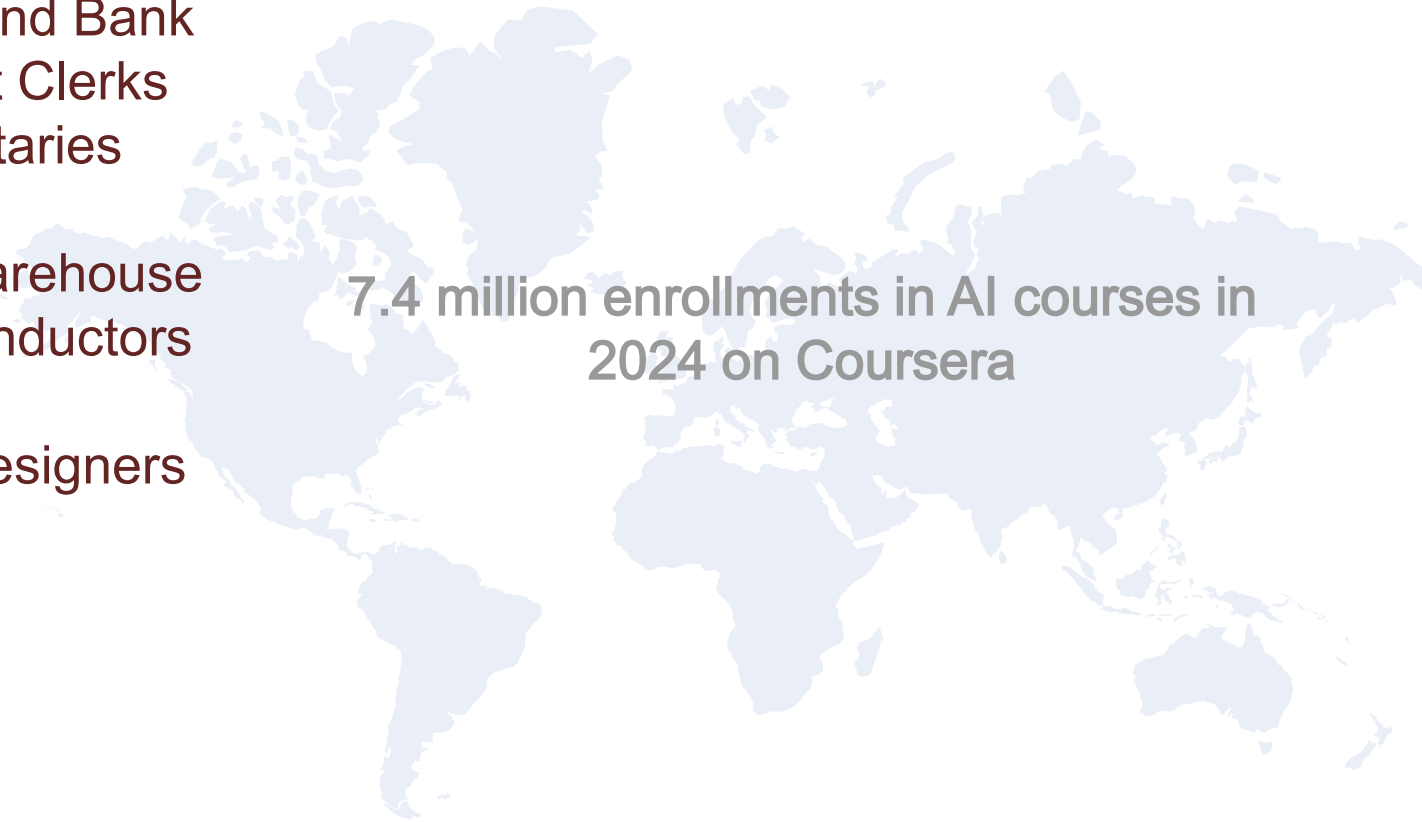
Fastest-Growing Occupations:

Big Data Specialists FinTech Engineers Artificial Intelligence and Machine Learning Specialists Software and Application Developers Information Security Management Specialists Data Management Specialists Autonomous and Electric Vehicle Specialists UI/UX Designers (User Interface and User Experience Designers) Light Truck and Delivery Drivers Internet of Things (IoT) Specialists



Fastest-Declining Occupations:

Postal Service Workers Cashiers and Bank Tellers Data Entry Operators Ticket Clerks and Cashiers Administrative Secretaries Printing and Publishing Workers Accountants and Payroll Clerks Warehouse and Inventory Clerks Transport Conductors and Workers Street Vendors and Newspaper Distributors Graphic Designers



Adapting Companies to Future Labor Market Changes Through Strategic Actions:

50% intend to reorient their business in response to the development of artificial intelligence

80% plan to **train employees to work with AI**, and two-thirds intend to hire specialists with relevant skills

73% plan to automate more processes

70% intend to attract employees with new skill set

QS Big Data: Exploring the possibilities



SURFACE CRITICAL OCCUPATIONS TO DELIVER NATIONAL STRATEGIES

Advanced Manufacturing

Advanced Man Engineer

Mechatronics Engineer

Materials Engineer

Robotics Engineer

Manufacturing Eng Manager

Clean Energy

Electrical Power Sys Engineer

Hydrogen Systems Engineer

Wind Power Systems Engineer

Solar Energy Engineer

Battery Storage Technician

Creative Industries

Creative Director

Digital Content Producer

User Interface (UI) Designer

Video Game Developer

Motion Graphics Designer

Defense

Cyber Security Architect

Weapon Systems Engineer

Cyber Intelligence Analyst

Drone Operator

Opto-Mechanical Engineer

Digital & Technology

AI Research Scientist

Machine Learning Engineer

Quantum Computing Engineer

Cloud Security Specialist

Software Architect

Financial Services

Digital Payments Specialist

Digital Securities Specialist

Algorithmic Trading Developer

Catastrophe Risk Modeling

Quantitative Finance Analyst

Life Sciences

Computational Biologist

Bioinformatician

Molecular Biologist

Clinical Trial Manager

Drug Safety Scientist

Prof & Business Services

Operations Research Analyst

Business Analyst

Data Analytics Manager

Digital Transformation Manager

Contract Lawyer



IMPLEMENTATION OF THE COURSERA PROJECT



Award

2025 - Learning Hero Award (Coursera Award)

235 341
learners

503 749
Certificates
awarded

2023



2024



2025

Full and partial integration of 4,097 Coursera courses into 1,747 university disciplines, with 22,931 academic credits assimilated

Full and partial integration of 43,109 Coursera courses into 6,466 university disciplines, with 33,820 academic credits assimilated

Full and partial integration of 5,027 Coursera courses into 2,914 university disciplines, with 32,234 academic credits assimilate



DeepLearning.AI



L&T EduTech
AI & ML
Applications in Oil
and Gas Industry



Macquarie University
Artificial Intelligence
(AI) Education for
Teachers



Lund University
AI & Law



IBM
Machine Learning
with Python



Coursera
Prompt Engineering
Generative AI for
Marketing & Advertising



Stanford
The AI Awakening:
Implications for the
Economy and Society



Northeastern University
Business Application of
Machine Learning and AI
in Healthcare



UNIVERSITY of WASHINGTON

University of Washington
Machine Learning
Foundations: A Case
Study Approach



Edureka & Veranda
Enterprise
Gen AI for Data Privacy
& Protection

Implementing

67

HEIs

Higher and Postgraduate Education Institutions

Program Coverage

3 561

EP

Non-formal educational programs

Learners

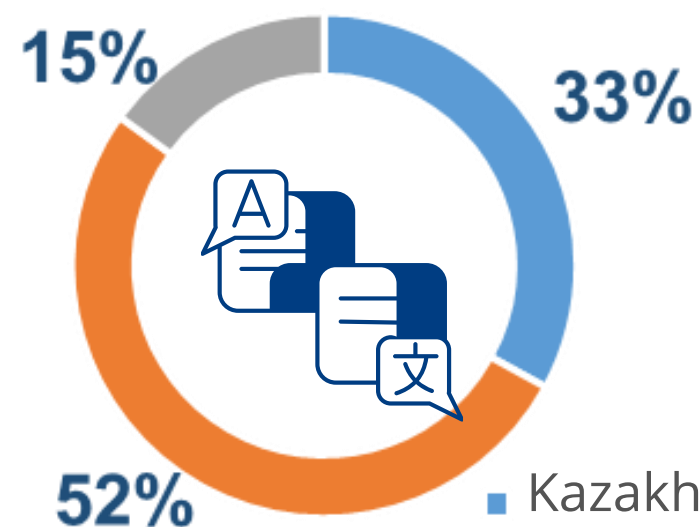
30 371

students

Number of learners enrolled in the programs



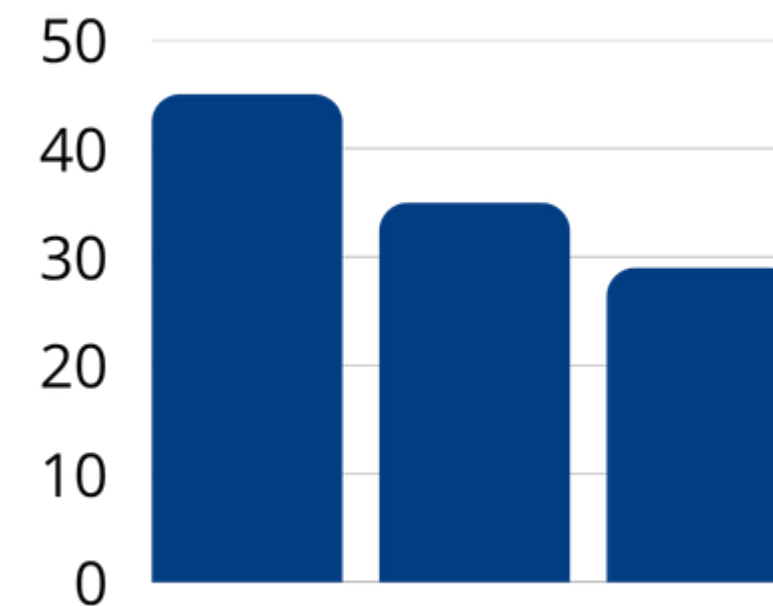
Key areas:



■ Kazakh - 9 141
 ■ Russian - 14 464
 ■ English - 4 198

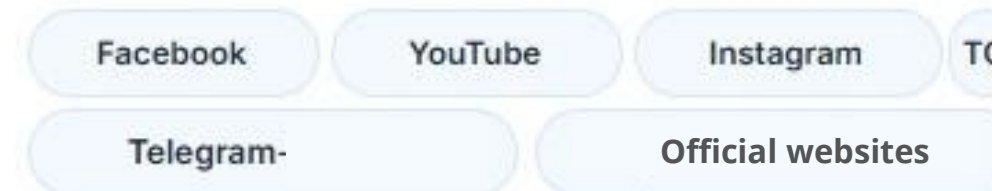
50 universities

205 publications



45 — related to lifelong learning
 35 — non-formal education courses
 29 — related to participation in Silver University courses

Used platforms



The aim of the courses Improving quality of life and developing digital literacy among citizens aged 55+/60+ through accessible courses and social activities

Key Indicators



50 Universities



**Covering
420 EP**



**Reaching
3716
participants**

Key Areas

Digital Literacy

Online services, cybersecurity, eGov, and everyday digital skills



Health and Active Longevity

Prevention, physical activity, and psychological well-being



Creativity and Social Engagement

Interest clubs, volunteering, communication, and leisure activities

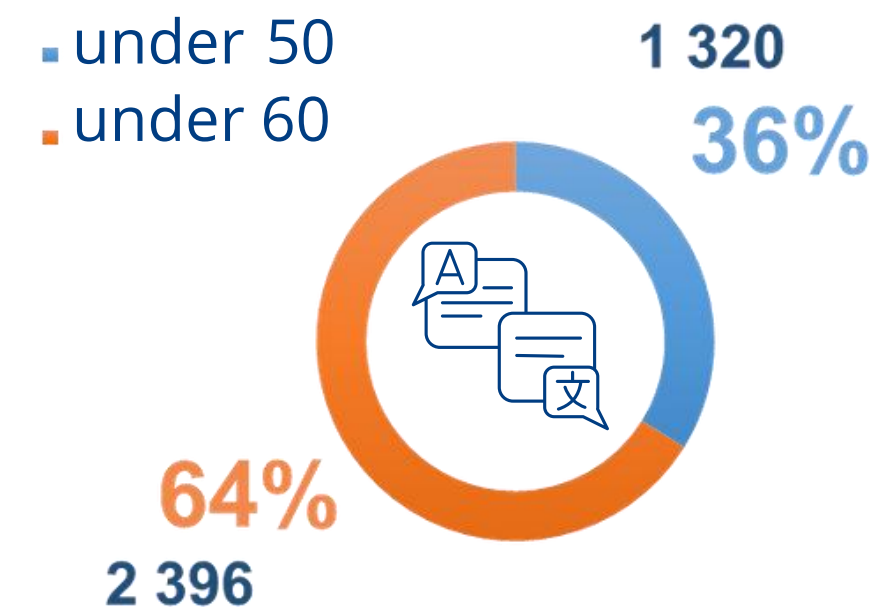


Language Courses

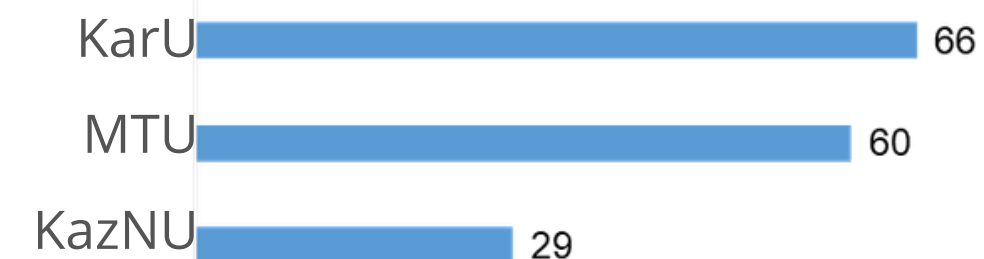
Communication and practical skills for travel and everyday interaction



12 universities are members of the Kazakhstan Association of Silver Universities



Leaders by the Number of Courses Delivered



Leaders by the Number of Course Participants





Implemented in
30
universities



255 EP



4 215 learners

13 universities

have competence centers
responsible for supporting
micro-credential programs

Practice-Oriented Focus Areas:



Programming and IT Skills



Metallurgy



Finances



Marketing and Digital
Communication

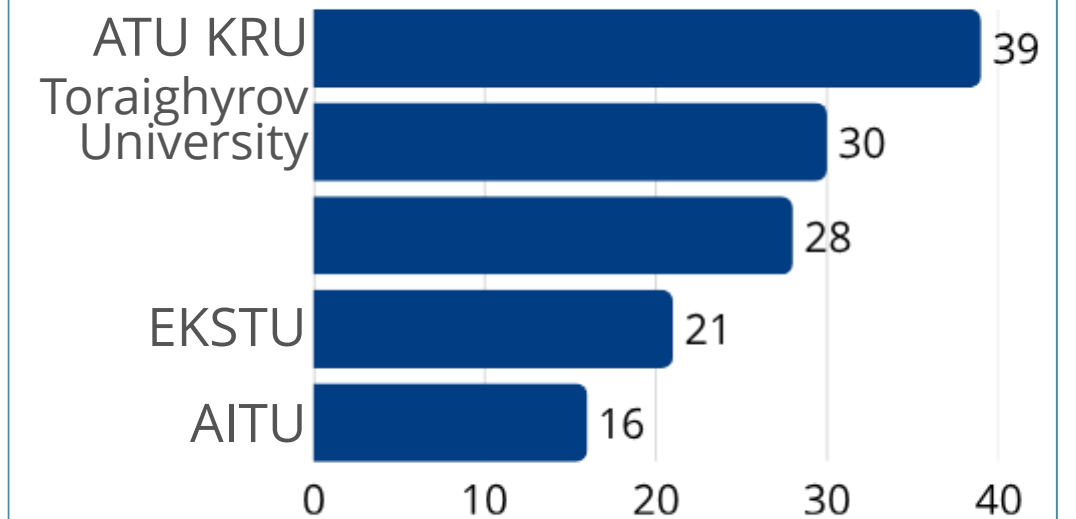


Mechanical Engineering

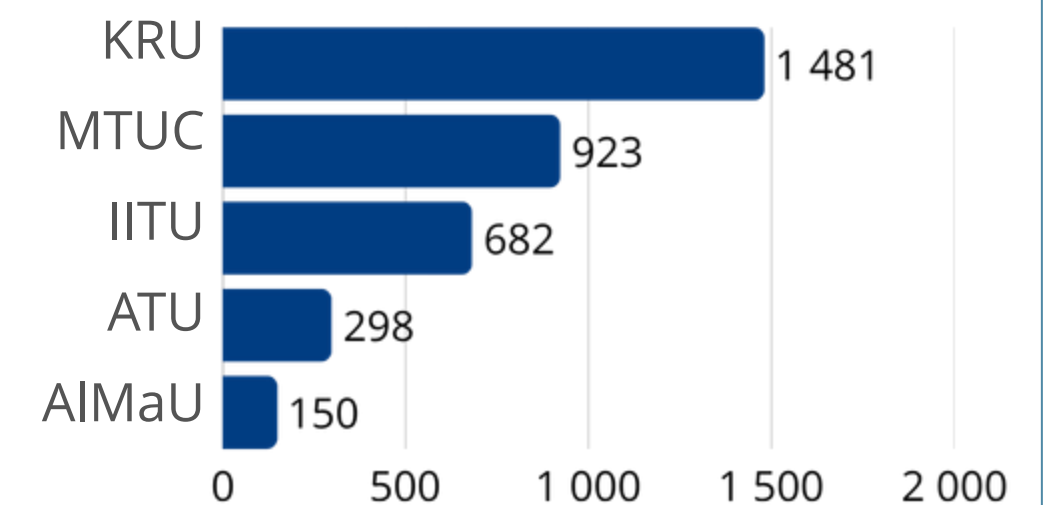


Engineering and Technical
Professions

Most Active HEIs:



Leaders by Learner Coverage:





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AI-SANA

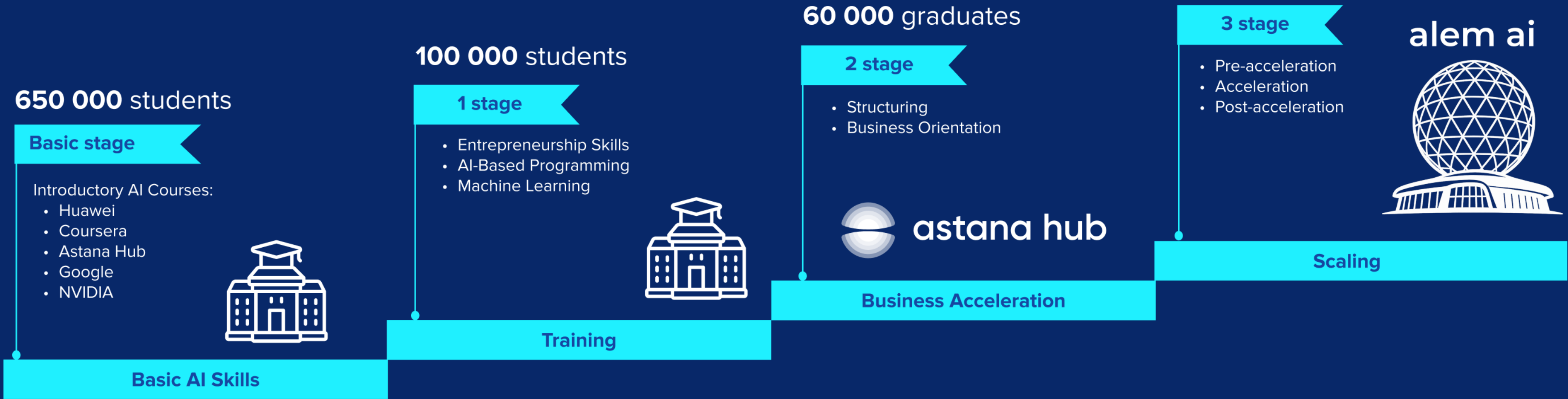
TECHNOLOGY SPRINGBOARD

INNOVATIVE PROGRAM ON AI

AI

ARTIFICIAL
INTELLIGENCE

“AI-SANA” — LAUNCHPAD FOR TECHNOLOGY



MSHE & ASTANA HUB



Certificates

- Astana Hub
- Huawei
- Google
- Coursera
- NVIDIA
- OVPO



Cloud Data and Computing Power

Astana Hub will provide 105 civil universities with computing resources and host AI agents on its servers



Acceleration of University AI Projects

Astana Hub will accelerate 1,500 university AI projects to identify the best solutions in each target audience



Alem.AI

Selected AI agents will be hosted on the Alem.AI platform for subsequent funding and scaling



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AI

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THANK YOU FOR
YOUR ATTENTION!

