



## TURKMENISTAN

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## **PROGRAMME for Adapting Higher Education to the Digital Generation**



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## INTRODUCTION

Under the wise leadership of the Esteemed President of Turkmenistan Gurbanguly Berdimuhamedov, in our country, along with all sectors, the education system is developing both on an innovative and on a technological basis. Currently, with the development of computer technology, data exchange has taken on new forms. In this regard, on September 15, 2017, “The Concept for the Development of the Digital Education System of Turkmenistan” was adopted by the Decree of the President of Turkmenistan. The main goal of the Concept is to provide access to a wide range of learners to electronic, digital data, improve the necessary information and educational environment, and develop digital education system. Also, in our country, “The Concept for the Development of the Digital Economy for 2019-2025” was adopted by the Decree of the President of Turkmenistan. In consideration that in the modern information age Information and Communication Technologies (ICTs) and computer technology is developing rapidly.

In order to create and develop a digital educational system, it is essential to maintain its propitious software and technical. First of all, the network is created and the connection to this network is ensured. Then the server is connected in order to host electronic information resources on the network, i.e. lecture notes, manuals, books, video files, presentations and images. After installing the software and the corresponding server operating system, access to information resources is provided through the educational portal. Thus, network users will be able to use available resources using any browser.

As a result of the wide opportunities provided by Esteemed President, international projects on the introduction and development of a digital educational environment are also being conducted in the higher educational institutions of our country. One of them is the international project “Modernization of Higher Education in Central Asia through New - Technologies - HiEdTec”.

The duration of the program is 3 years, during which it is planned to implement all the tasks assigned. In turn, this is one of the types of activities for the implementation of “The Concept for the Development of the Digital Education System of Turkmenistan” approved by the Decree of the Esteemed President of Turkmenistan Gurbanguly Berdimuhamedov, as well as the study of international experience in this direction.

The modern digital world of the 21<sup>st</sup>- century creates new demands on the education system. Development of diverse Information and ICTs had a significant impact on education and science, expanding access to materials for research, course delivery and providing more opportunities for cooperation in expanding knowledge and skills in new and innovative ways.

Adaptation of Higher Education to the digital generation on the basis of ICTs can play a crucial role in transforming teaching, learning and research practices for educators and students, in a top-quality 21<sup>st</sup>-century education system.



Therefore, it is important to continue to develop skills and knowledge in order to keep pace with the constant innovations and new developments in the digital world. At the same time, the use of ICTs will significantly improve education management culture. The activity of scientific and methodological centers, departments, faculties, educational departments and other structural units in educational institutions requires the introduction of innovative approaches in the area of education.

When elaborately designed and thoughtfully applied, ICTs can accelerate, amplify, and expand the impact of effective teaching practices. Therefore, integrated technologies concern not only learners – but also educators. Being an educator is no longer limited to the traditional role of a teacher, though in education still much depends on them. Learning could be achieved in different ways, while technology can effectively support teaching and learning. In the new context, the educator's role is to guide the learner. Using digital technologies in the educational process allows teachers to involve students in research projects, master new methods of development. Consequently, the potential role of adaptation of the education system to the digital environment helps to transform teaching, learning and assessment practices. Eventually, such a transformation will serve to enhance the student learning environment and educational innovation.

The Programme for adapting Higher Education to the Digital Generation aimed at transformation of the higher education system in digital direction. Adaptation is modeled with a view to gradual improvement of the activity of educational institutions, wide application of digital resources, enrichment of the educational process and ensuring its compliance with world standards.

### **EDUCATORS WILL RETAIN THEIR KEY ROLE IN AN INTERACTIVE TEACHING PROCESS ORIENTED TO LEARNERS' NEEDS.**

The Programme for Adapting Higher Education to the Digital Generation is aimed at transforming the higher education system in the digital direction. Adaptation is modeled in order to gradually improve the activities of educational institutions, the widespread use of digital resources, enrich the educational process and ensure its compliance with international standards.



## PREREQUISITES

1. THE LAW OF TURKMENISTAN ON EDUCATION.
2. THE CONCEPT OF DEVELOPMENT OF DIGITAL EDUCATION SYSTEM IN TURKMENISTAN.
3. THE LAW OF TURKMENISTAN ON ELECTRONIC DOCUMENT.
4. DECREE OF THE PRESIDENT OF TURKMENISTAN NO. 6291 OF MAY 1, 2013 ON FURTHER IMPROVEMENT OF EDUCATION SYSTEM OF TURKMENISTAN.
5. 2015-2020 STATE PROGRAM OF TURKMENISTAN'S YOUTH POLICY.
6. DIGITAL EDUCATION ACTION PLAN 2020 adopted by European commission.
7. The priorities of the Education, Audiovisual and Culture Executive Agency at the European Commission published in 2018, one of which is directed to the “MODERNIZATION OF THE HIGHER EDUCATION THROUGH NEW EDUCATIONAL TECHNOLOGIES”.

The Programme for Adapting Higher Education to the Digital Generation determines the following goals, objectives and key activities.



## GOAL

The goal of the Programme is to adapt the higher and postgraduate education system to the digital generation by introduction and effective implementation of innovative educational technologies and didactic models in teaching, thus providing the opportunity for EVERYBODY to learn at ANY time and at ANY place with the help of ANY lecturer using ANY end device – computer, laptop, tablet, phablet, smart phone, etc.

The Programme provides aspects of the development of:

- Traditional learning;
- Electronic, mobile and ubiquitous learning;
- Blended learning;
- Implementation of other innovative educational technologies and didactic models.

The goal also includes a comprehensive development of e-learning methods, including digital textbooks, manuals, video and audio materials, interactive and multimedia programs, etc.

## OBJECTIVES

### **1. KEEPING AND GRANTING THE LEADING ROLE OF EDUCATORS THROUGH TAKING TARGETED ACTION TOWARDS:**

1.1. Writing a Guide to Innovative Educational Technologies;

1.2. Publishing the Guide and disseminating it to all educators in:

- paper version;
- interactive multimedia version in internet.

1.3. Creating a publicly accessible virtual library of video lectures on the main topics of the Guide.

1.4. Creating a national network of centers for innovative educational technologies.

1.5. Organizing training courses for educators on the following topics:

- using interactive presentation systems;
- creating internet connected, interactive and multimedia presentations for lectures and seminars;
- implementing distance learning in real time by using:
  - interactive presentation systems;
  - video conferencing systems;
  - virtual classrooms;
- implementing distance learning at any time by using e-learning resources in:
  - text/graphic format;
  - video format;
- using cloud technology;





- using augmented reality;
- using virtual reality.

## **2. DEVELOPING TRADITIONAL EDUCATION**

2.1. Developing network infrastructure of universities to meet the requirements of digital education.

2.2. Equipping all classrooms with interactive presentation systems, including laptops when the need arises.

2.3. Technology integration: hardware, software, storage media, cloud computing, etc.

2.4. Equipping classrooms with digital education technologies and maintaining them regularly.

2.5. Institutional websites should be created to provide access to the digital course content of universities (distance education).

2.6. Connectivity. Wireless networks should be expanded to include entire campuses.

2.7. Developing OERs and a Cloud-based virtual library.

2.8. Equipping common space of universities with interactive information screens (kiosks) that provide up-to-date information, including information about public, cultural, sporting and other events.

2.9. Providing ubiquitous access to technology.

2.10. Training educators to create and use shared cloud resources in the teaching and learning process.

2.11. Equipping all classrooms with easily moveable and flexible furnishing articles that allow for quick transformation of the seating arrangements so that the learning environment becomes better suited to a digitally supported team and project work.

2.12. Using effective digital assessment tools and feedback systems during lectures.

## **3. DEVELOPING ELECTRONIC, MOBILE AND UBIQUITOUS LEARNING**

3.1. Improving the virtual learning environment of the university – the e-learning platform.

3.2. Publishing lectures and seminars of all main courses on the e-learning platform in:

- text/graphic format;
- video format.

3.3. Creating electronic interactive multimedia learning materials.

3.4. Digitalization the library book fund and publishing it in the virtual library.



**4. DEVELOPING BLENDED LEARNING AND ACCEPTANCE OUTCOMES OF INFORMAL TEACHING (traditional + e-learning) as the main mode of preparing specialists who possess the relevant skills required for successful functioning in the digital society.**

#### **5. IMPLEMENTATING OTHER INNOVATIVE EDUCATIONAL TECHNOLOGIES**

5.1. Using smartphones in education and transforming them into virtual personal assistants of the students.

5.2. Using social networks in the teaching and learning process.

5.3. Learning in networks.

5.4. Gamification of the teaching and learning process.

5.5. Using Internet of Things (IoT) in the teaching and learning process.

5.6. Using Internet of Everything (IoE) in the teaching and learning process.

5.7. Using robots in the teaching and learning process:

- as objects of control;
- as teacher's assistants.

5.8. Using Artificial Intelligence in the teaching and learning process.

5.9. On-line control of the physical activity and health of students.

5.10. Creating training companies in universities.

5.11. Creating conditions for giving universities the status of *innovative university*.

5.12. Creating a virtual university - a model of a university in a virtual educational space, i.e. a website that provides not only comprehensive information about the university, but also a full range of administrative and educational services, and most importantly - effective distance learning.

#### **6. IMPLEMENTING INNOVATIVE EDUCATIONAL TECHNOLOGIES IN THE TEACHING OF STUDENTS WITH SPECIAL EDUCATIONAL NEEDS**

6.1. Creating interactive educational tools for students with special educational needs.

6.2. Developing an e-learning platform for students with special educational needs.

6.3. Training educators for integrating specialized methods and tools for students with special educational needs.

#### **7. IMPLEMENTING INNOVATIVE EDUCATIONAL TECHNOLOGIES TO ATTRACT STUDENTS FROM ALL OVER THE WORLD**

7.1. Integration of HEIs into the international educational process.





## **8. IMPLEMENTING INNOVATIVE DIDACTIC MODELS**

8.1. Converting traditional didactic models into innovative models through the use of innovative educational technologies.

8.2. Applying the “Flipped Classroom” model.

## **9. CROSS-INSTITUTIONAL COLLABORATION**

9.1. “Digital education” for sharing international and national best practices

9.2. Preparing a national catalog of digital courses (MOOCs, free, paid, limited courses). The catalog shows at which university which courses are digitized and accessible anywhere, anytime, any device.

9.3. Integration of HEIs in the international educational process by opening and linking data with other international HEIs. It becomes possible to share in the Semantic Web in the form of Linked Data course catalogs along with information about their availability, cost, rating, lists of multimedia resources with their characteristics, links to information sources, library catalogs, etc. This allows in an automated mode to find, compare and select the most appropriate training and course materials, etc.

9.4. Creation of a national working group for discussing/advising on the implementation of digital education reform. The working group should also be responsible for managing the national portal of digital education.

9.5. Developing a digital education index that provides a reliable and valid measurement of the implementation of digital education changes at higher education. The purpose of the index is to have a numeric measure of digitalization progress and to introduce a healthy competition/comparison between HEIs.

## **10. CURRICULAR CHANGES**

10.1. Situating technology skills in the content-area curriculum in ways that support both the subject-area content and technical skills.

10.2. Introducing “Digital education skills” topics as new courses or as new topics in existing courses of university curricula.

10.3. Digital education skills of students should be adapted according to the chosen fields of study of learners

10.4. Curricula should be adapted according to the specific needs of Industry 4.0

10.5. Creating audio and video recordings of lectures and digitizing other course content.

## **11. INFORMATION TRANSPARENCY OF THE EDUCATION SYSTEM, DEVELOPMENT OF AUTHENTIC FEEDBACK MECHANISMS**

11.1. Creation of a single network of specialized information and communication resources for the involvement in the educational process.



11.2. Creation of a standardized solution for ensuring Internet broadcasts and authorized discussion and assessment of open lessons, research projects, certification activities, conferences, etc.

11.3. Active introduction and application of technologies such as e-diary, online-register, e-student portfolio, and others.

11.4. Promoting excellence in the assessment of the quality of digital education.

11.5. Analyzing results from the implementation of innovative educational technologies and didactic approaches.

11.6. Understanding methodology in technology-based environments for further development of successful educational practices.

## **12. REGULATORY DEVELOPMENT**

12.1. Adapting the regulatory framework (standards) of education to digital generation and placing digital education requirements at the center of the modern education process instead of a mere enhancement of traditional education.

12.2. Adapting regulations so that electronic documentation, teaching, and assessment materials are accepted as legally and ethically valid documents.

12.3. Adapting regulations to ensure privacy, confidentiality, and security of digital education networks.

## **13. PROMOTING AND MULTIPLYING RESULTS AND GOOD PRACTICES through:**

13.1. The media.

13.2. Regional and national workshops.

13.3. National and international conferences.

13.4. Social networks.

13.5. National network of centers for innovative educational technologies.

## **RECOMMENDATIONS FOR THE IMPLEMENTATION OF THE PROGRAMME**

The present program is implemented in accordance with the recommendations of the Ministry of Education of Turkmenistan.

## **FUNDING**

In accordance with the legislation of Turkmenistan.



## KEY ACTIVITIES

The Programme for adapting Higher Education to the Digital Generation requires a cohesive approach, thus making possible technology-enabled everywhere, all-the-time learning with the introduction of innovative digital network infrastructure in HEIs. First and foremost, the administration and support of secure information and telecommunications infrastructure, providing access to information educational resources and services. The principle of providing all educational institutions with high-speed Internet is very important. The development of a wireless connection (WI-FI) will give an opportunity for connecting more computer devices, storage resources (e.g. eCloud). Consequently, affordable access to high-quality resources will make innovative education more successful and intensive.

Enhancing distant learning: ICTs will also allow students to access high-quality learning resources and services, regardless of their institution's geographical location or background (life-long/life-wide). In addition, ICTs will provide opportunities for students to combine online and in-person learning. To use technology to transform learning, to develop collaboration solutions, to develop the role of educators in innovative technology-supported learning environments will allow instructors to be engaged in professional learning experiences that will prepare them to adeptly apply research-based approaches to didactic teaching with technology.

Finally, implementation of the Programme will contribute to the automation of the innovative education activity for all participants: administration, management, educators, students, and their close relatives. Automation of the education system will develop an integration of electronic documents, as well.



## ADDITION:

### **WHAT DIGITAL SKILLS AND COMPETENCES SHOULD BE ADOPTED BY EDUCATORS IN ORDER TO FACILITATE AND MAINSTREAM THE DIGITAL TRANSFORMATION OF EDUCATION?**

#### **1. In the field of traditional learning:**

- using of an interactive board / interactive monitor;
- making of internet connected, interactive and multimedia presentations for lectures.

#### **2. In the field of synchronous distance learning (in real time):**

- using of a videoconferencing;
- using of a virtual classroom.

#### **3. In the field of asynchronous distance learning (at any time):**

- creating and publishing of interactive multimedia study materials in internet;
- recording and publishing of video-lectures in the internet;
- using of a cloud technology.

**4. In the field of blended learning:** combining of a traditional learning and e-learning in the most appropriate way to ensure maximum effect.

