MINISTRY OF SCIENCE, HIGHER EDUCATION AND INNOVATIONS OF THE KYRGYZ REPUBLIC

OSH STATE UNIVERSITY

INSTITUTE OF MATHEMATICS, PHYSICS, ENGINEERING AND INFORMATION TECHNOLOGIES

DEPARTMENT OF TECHNOLOGY OF TEACHING MATHEMATICS, INFORMATICS AND EDUCATIONAL MANAGEMENT

STUDY PROGRAM (Syllabus)

Specialty (Program/Major)	Mathematics, Informatics	Course Code	
Language of Instruction	English	Course Title	Information and Communication Technologies in Face-to-Face and Distance Learning
Academic Year	2025-2026	Number of Credits	3
Instructor / Lecturer	Isaeva Aida Taalaevna	Semester	1
E-Mail	isaeva.aida.taalaevna@gmail.com	Schedule Link	https://myedu.oshsu.kg/
Consultation Hours (Time / Room)	Tuesday, Room 233, Time: 13:30–16:30	Location (Building / Room)	OshSU Main Building, Room 206 https://classroom.google.com/c/ODEyMjc1NDQ4MzA4?cjc=4q4ft7pt
Mode of Study (Full-Time / Part-Time / Evening / Distance)	Full-Time	Course Type: (Compulsory / Elective)	Compulsory (or required)

Head of the Educational Program: First Department Meeting, August 26, 2025

Ibr - Keldibekova A.O., d-r of ped. se., prof.

(Full Name, Signature, Date)

Osh, 2025

Course Description: The course **"Information and Communication Technologies in Full-Time and Distance Learning"** is dedicated to studying modern digital tools and platforms used in the educational process to enhance teaching effectiveness. The course will help students adapt to new educational technologies and improve their professional competence.

Course Goal: The goals of studying this course derive from the third goal of the Major Educational Program (MEP):

To ensure the readiness of Bachelors for pedagogical activities that facilitate the implementation of a competency-based approach.

✓ To develop the ability of future teachers to effectively use digital educational technologies in their professional activities.

✓ Ensure the development of methods for using ICT to implement a competency-based approach in teaching mathematics and computer science.

Prerequisites:

Co-requisites: project activities in a professional environment

Post-requisites: computer science, computer modeling

Course Learning Outcomes (or Intended Learning Outcomes)

By the end of the course, the student:		
Major Educational Program Learning Outcomes (LO)	Course Learning Outcomes	Competencies
LO-8: is able to use modern information and educational technologies. **LO-13:** is capable of planning and implementing the educational process based on modern, scientifically sound teaching technologies and contemporary approaches to assessing and monitoring learning outcomes.	Is capable of developing interactive teaching materials, presentations, video lessons, tests, and assignments using various software tools (e.g., Google Classroom, Moodle, PowerPoint, video editors) and services (e.g., Kahoot!, Quizizz). Is able to plan and conduct online classes, webinars, and conferences using various video conferencing tools (e.g., Zoom, Microsoft Teams) and Learning Management Systems (LMS).	**IC-1** (Information-Communication): possesses the basic methods, means, and tools for obtaining, storing, and processing information, and computer literacy skills. **PC-12** (Professional Competence): is able to acquire new knowledge using modern information and educational technologies. **DC-2** (Discipline-Specific Competence): possesses the methodology for using digital technologies in teaching Mathematics and Informatics. **GC-2** (General Competence): is capable of planning and implementing the educational process in accordance with students' needs and achievements based on modern, scientifically sound teaching technologies (under supervision). **PC-8** (Professional Competence): is capable of carrying out pedagogical activities using interactive forms and teaching methods. **DC-5** (Discipline-Specific Competence): possesses modern approaches to assessing and monitoring learning outcomes.

Course Credit Distribution

Course (Credits)	room.	Independent Study /Self-Study	Module 1 (25 pts.)				Module 2 (25 pts.)				Exam (50 pts.)
			tcp.		(s) Independent Study / Self-Study	(r) AT	tcp.		(s) Independent Study / Self-Study	(r) AT	(E) W-H
			Lec.	Prac.			Lec.	Prac.			
Inf. Comm. Tech. in Full-Time & Dist. Learning (3 Cr.)	36	54	7	11	4/24		7	11	5/21		
Score Calculation Map				4	8	13		4	8	13	
Module and Exam Grades Results			(M1=tcp.+r+s) до 25				(M2=tcp.+r+s) до 25				50
			Rдоп. = M1 + M2 (30-50)								
Final Grade			I = Rдоп. + E								100

Course Calendar and Thematic Plan for Lectures and Practical Classes

№	Topic Title	Number of Hours		Points	Week	References
		Lec. 14	Prac. 22			
	Module 1					
1.	**№1 Lecture. Introduction to ICT in Education.** Information processes, informatization of society and education. The role of ICT in implementing new educational standards. **№1 Practical Class. Learning Management Systems (LMS).** Overview, working with features, and setting up courses in Google Classroom / Moodle / Microsoft Teams (basics). **№2. Practical Class. Cloud Technologies and Collaboration.** Setting up and using cloud services (Google Drive, One Drive).	2	2	0,5	Week 1 / Week 1, Week 2	ER [1, 2], DT [1, 3] ER [2, 5]
2.	**№2. Lecture. Technological Aspects of Implementing Information Processes.** Computer networks, the Internet, web servers, PC architecture. **№3. Practical Class. Cybersecurity Fundamentals.** Data protection in the educational environment and rules for safe online behavior. **№4. Practical Class. Text Information Processing Technologies.** Collaborative work in text editors (MS Word, Google Docs) and their application in the learning process.	2	2	0,5	Week 3 / Week 3, Weeks 4	DT [1] ER [3], DT [2]
3.	**№3. Lecture. Information Security and Data Protection.** Malware, authentication, encryption, personal data protection, copyright, anti-plagiarism. **№5. Practical Class. Technologies for Processing and Visualizing Tabular**	2	2	1	Week 5 / Weeks 6	ER [3], DT [2]

	Information. Collaborative work with spreadsheets (MS Excel, Google Sheets) for data analysis and problem-solving.					
4.	**№4. Lecture. Electronic Educational Resources (EERs).** Classification, examples. Regulatory requirements for sector-specific resources (Educational Organization websites, teacher's personal website). **№6. Practical Class. Technologies for Information Presentation and Visualization.** Creating presentations (MS PowerPoint, Google Slides), infographics, and communication boards (Padlet, Prezi)	2	4	1	Week 7 / Weeks 8	ER [4, 5], DT [3, 4] ER [5]
	All	**10**	**14**	**-/4**		
2-модуль						
5.	**№5. Lecture. Multimedia and Interactive Technologies.** Video processing technologies, teacher's technical equipment. Mobile learning. **№7. Practical Class. Creation and Implementation of EERs.** Developing interactive resources and assignments in an LMS (e.g., Moodle) and online services (LearningApps).	2	4	1	Week 9 / Weeks 10	ER [4, 6], DT [4]
6.	**№6. Lecture. Gamification in Education.** Principles, methods, and services for implementing game elements. **№8. Practical Class. Organizing Video Conferences and Online Communication.** Using Zoom, Google Meet, Microsoft Teams for in-person and distance interaction	2	4	2	Week 11 / Weeks 12	ER [6, 7], DT [4] ER [1] DT [4]
7.	**№7. Lecture. Artificial Intelligence and ICT Development Prospects.** Adaptive technologies, machine translation, speech analysis and synthesis. Implementing AI for personalized learning. **№9. Practical Clas. Video Processing and Mobile Technologies.** Video filming and editing, using apps for mobile learning. **№10. Practical Class. Application of Interactive Equipment.** Working with interactive whiteboards, simulations, VR, and AR in educational processes. **№11. Practical Class. Development of Educational Games and Interactivities.** Using gamification services: Quizizz, Kahoot, LearningApps, etc.	2	4	2	Week 13 / Weeks 14, 15, 16	ER [8], DT [3] ER [4, 6]
	All	**4**	**8**	**-/4**		

Plan for Organizing Independent Study with Instructor Guidance (9 hours)

№	Topic	Assignment for Independent Study	Hours	Assessment Tools	Points (Lec. / Prac.)	References	Deadline
1	Comparative Analysis of Popular LMS Platforms (Moodle, Google Classroom, Canvas, etc.).	Create a Venn diagram comparing two platforms.	2	Discussion (Q&A format)	1	ER [1, 2], DT [1]	20.10-25.10
2	Creating a personal online course on the chosen platform.	Practical Assignment. (Grouping, classes, courses, assignments).	2	Discussion (Q&A format)	1	ER [3, 5], DT [3]	20.10-25.10
	Final Submission Deadline						**27.10-01.11**
	Module 2: Independent Study1	**Average Accumulated Score**			**-/2**		
3	Creating Interactive Teaching Materials.	Practical Assignment. (Presentations, videos, etc.)	2	Prepare a Presentation	2	ER [4, 5], DT [4]	15.12-20.12
4	Gamification Elements in Education: badges, levels, rewards, etc.	Practical Assignment. (Grouping, classes, courses, assignments).	2	Discussion (Q&A format)	2	ER [6, 7], DT [4]	15.12-20.12
5	Using Cloud Technologies to Create Interactive Teaching Materials.	Practical Assignment. (Grouping, classes, courses, assignments).	1	Discussion (Q&A format)	2	ER [2, 4,5], DT [3, 4]	15.12-20.12
	Final Submission Deadline						**21.12 23.12**
	Module 2: Independent Study2	**Average Accumulated Score**			**-/8**		

Plan for Organizing Student Self-Study (45 hours)

№	Topic	Assignment for Self-Study	Hours	Assessment Tools	Points (Lec. / Prac.)	References	Deadline
1	History of ICT Development in Education: from chalk and board to modern technologies.	Presentation, writing a summary (or abstract).	6	Differentiated Assessment Test	1	ER [1], DT[1, 3]	20.10-25.10
2	Advantages and Challenges of Using ICT in Education: analysis of pros and cons.	Presentation, writing a summary (or abstract).	6	Differentiated Assessment Test	1	ER[1, 8], DT[1, 3]	20.10-25.10
3	Mobile Applications for Learning: opportunities and limitations.	Presentation, writing a summary (or abstract).	6	Mobile Applications for Learning: opportunities and	1	ER[2, 5], DT[4]	20.10-25.10

				limitations.			
4	Cloud Storage in Education: security, accessibility, advantages.	Presentation, writing a summary (or abstract).	6	Differentiated Assessment Test	1	ER[2, 5], DT[2]	20.10-25.10
	Final Submission Deadline						**18.10-20.10**
	Module 1: Student Self-Study1	**Average Accumulated Score**			**-/4**		
5.	Classification of Electronic Educational Resources (EER) by Types and Formats: systematization and analysis.	Presentation, writing a summary (or abstract).	7	Differentiated Assessment Test	2	ER[4, 5], DT[3, 4]	15.12-20.12
6.	The Impact of Gamification on Student Motivation and Performance. Research Study.	Presentation, writing a summary (or abstract).	7	Differentiated Assessment Test	1	ER[6, 7], DT[4]	15.12-20.12
7.	The Future of Education in the Age of Artificial Intelligence: Trends and Forecasts.	Presentation, writing a summary (or abstract).	7	Differentiated Assessment Test	1	ER[8], DT[3]	15.12-20.12
	Final Submission Deadline						**21.12-23.12**
	Module 2: Student Self-Study2	**Average Accumulated Score**			**-/4**		

Course Policy

●Core Requirements for Successful Completion of the Course:

●Attendance and Participation: Students must attend classes and actively participate in group work during both Independent Study with Instructor Guidance (СРСП) and Student Self-Study (СРС), as well as during practical classes.

●Lectures: Students are required to take notes on the lecture content, listen attentively, and maintain classroom discipline.

●Practical Classes: It is important not only to present one's own work but also to listen carefully to classmates, evaluate their responses, and record new information.

●Punctuality: Do not be late; enter the classroom before the bell (or scheduled start time).

●Technology Use: Mobile phones must be switched off (or silenced).

●Respectful Communication: Do not interrupt the instructor or classmates during discussions or lectures.

●Deadlines: Adhere strictly to all submission deadlines.

●AI Usage: If Artificial Intelligence tools are used, proper citations and analysis of the material must be provided.

●Academic Integrity: All submitted assignments must be original and completed independently.

Educational Resources	
Electronic Resources	1. https://infourok.ru/sovremennye-obrazovatelnye-tehnologii-distancionnoe-obuchenie-5021975.html Modern educational technologies: distance learning 2. https://www.yaklass.ru/help/obshchaya-informatsiya/o-nas : Digital educational environment 3. https://infourok.ru/kiberbezopasnost-urok-dlya-shkolnikov-5084481.html Cybersecurity: A Lesson for Schoolchildren 4. https://infourok.ru/master-klass-sozdanie-interaktivnyh-testov-v-learningapps-5019587.html : Creating interactive tests in LearningApps 5. https://www.yaklass.ru/help/redaktor-predmetov Item Editor: Create your own tasks 6. https://infourok.ru/gejmifikaciya-na-urokah-informatiki-s-pomoschyu-kahoot-5020365.html Gamifying Computer Science Classes with Kahoot *7.* https://www.yaklass.ru/help/obshchaya-informatsiya/game-mechanics : Game mechanics in Yaklass *8.* https://infourok.ru/iskusstvennyj-intellekt-v-obrazovanii-perspektivy-i-riski-5078946.html Artificial intelligence in education
Digital Textbooks	*1.* https://lib.opens.kg/index.php/knigi-na-russkom-yazyke/item/4299-informatika-10-11-alymkulova-zh-k-sadykova-s-s-2020-g Information and communication technologies in education *2.* https://career.kloop.kg/wp-content/uploads/2022/08/Posobie-po-kiberbezopasnosti.pdf Teaching Aid: Cybersecurity for Educators *3.* https://cyberleninka.ru/article/n/tsifrovye-obrazovatelnye-resursy-novyy-vyzov-dlya-pedagoga Research article: Digital educational resources: a new challenge for teachershttp://www.edu.kg/images/Presentation/Metodichki/Interactive_exercises_ru.pdf Development of interactive exercises for schoolchildren
Resources Used	Laptop, Interactive Whiteboard, Presentations, Digital Textbooks (or E-books)