

Discipline designation	Technologies and Design for Teaching Biology
Semester(s) in which the discipline is taught	8
Teacher in charge	Almatatova Zebo Khudaiberdiyevna, Doctor of Philosophy (PhD) in Pedagogical Sciences, Senior Teacher Mustafakulova Dildora Ismatullayevna, teacher of the Department of Biology and Methods of Teaching Biology
Teaching language	Uzbek
Connection to the curriculum	Elective
Academic workload (including contact hours, SsIW)	Total workload: 120 hours Contact hours – Lecture: 20 hours practical: 20 hours seminar: 20 h SsIW: 60 hours
ECTS	4
Prerequisites	Methods of teaching biology, Solving problems in biology
Discipline aims	<p><b>The purpose of the discipline</b> is to expand pedagogical thinking, develop methodological competencies necessary for the use of modern innovative technologies in teaching biology.</p> <p><b>Learning outcomes</b></p> <ul style="list-style-type: none"> <li>- to know innovative technologies for teaching biology; content of concepts of innovative teaching technologies;</li> <li>- to apply methods and techniques of innovative technologies for teaching biology;</li> <li>- to distinguish between types of new technologies for teaching biology and their unique features; acquiring knowledge about the characteristic features of modern biology lessons.</li> <li>- to acquire an understanding of the educational process in accordance with the requirements of master's students of the State Educational Standards program, assessing the quality of biological education, achieving competencies in the field of education and upbringing in biology;</li> <li>- to be able to introduce innovative technologies into the educational process (mobile, gaming, visual, projects, extended reality and others);</li> <li>- to develop scenarios for biology lessons that take into account the needs of undergraduates, mastering the skills of developing tasks for learning and understanding using differentiation and individualization</li> <li>- to master practical skills in using information and communication technologies in teaching biology.</li> </ul>
Lesson content	<p>Contents:</p> <ol style="list-style-type: none"> <li>1. Content of technological orientation in the educational process.</li> <li>2. Modern traditional teaching technology.</li> <li>3. Organization and management of students' educational activities in teaching biology.</li> <li>4. The use of group games in extracurricular activities of students at school in the context of modern biology education.</li> <li>5. Technology of using modeling in meta-subject results in teaching biology.</li> <li>6. Use of visualization technology in teaching biology.</li> <li>7. Use of virtual technologies in teaching biology.</li> <li>8. Use of AR cases in the development of natural science competence of students.</li> </ol>

	<p>9. Use of mobile technologies in teaching biology.</p> <p>10. Organization of reflective activities in teaching biology.</p> <p>11. Use of developmental technologies in teaching biology.</p> <p>12. Programmed educational technologies.</p> <p>13. Diagnostics of the competencies of biology teachers.</p> <p>14. Classification of research methods and scientific technologies in teaching biology.</p> <p>15. Features of the use of key stage technologies in teaching biology.</p>
Examination form	<b>In oral form</b>
Teaching and Exam Requirements	<p>Full knowledge of theoretical and methodological concepts related to the subject, the ability to correctly reflect the results of analysis, independent observation of the processes and concepts being studied, completing tasks given in daily, mid-term forms of control and final control. Exam will be passed orally according to the final assessment.</p> <p>Deviations from the content of the discipline program are not allowed in making up final assessment questions. The bank of FA questions for each subject is discussed at the meeting and approved by the head of the department.</p> <p>FA question bank is used in compiling FA tickets; the number (3-5 questions) of questions in the task sheet should be in a 50/50 ratio, depending on the content of classroom and independent learning.</p> <p>No later than 1 week before the start of the final control, task sheets are signed by the head of the department, enclosed in an envelope, sealed by the dean's office and opened 5 minutes before the start of the exam in the presence of students. The student who has chosen the FA ticket is given 5-10 minutes to prepare and 10-15 minutes to answer FA questions orally. On average, 20 minutes are spent per student.</p> <p>When forming the composition of the oral examination commission, a member of the commission is approved for every 15 students. The student's FA grade is posted on the electronic platform on the same day.</p> <p>Student(s) who are dissatisfied with the FA results may submit a written or oral appeal within 24 hours of the publication of the FA results. Complaints submitted after 24 hours from the publication of the FA results will not be accepted.</p> <p>The teacher who taught the students in this subject is not involved in the process of conducting the exam and checking the students' answers.</p>
References	<p>Талипова Ж.О.. Педагогические технологии в преподавание биологии. – Ташкент, 2011 г.</p> <p>А.Т.Гофуров и др. Общая методика преподавание биологии. – Ташкент, 2013 г.</p> <p>Ленгесова Н.А., Кузнецова М.Н. Теория и методика преподавания биологии. – Ульяновск: ФГБОУ ВО «УлГПУ им. И.Н. Ульянова», 2017. – 37 с.</p> <p>Теремов, А. В. Методика обучения биологии. Ч. 2. : Животные : учебнометодическое пособие / А. В. Теремов [ и др.]. - Москва : МПГУ, 2018. - 100 с. - ISBN 978-5 - 4263-0623-3.</p> <p>Павлова Н. В. Методика обучения биологии: учебное пособие— Шадринск: ШГПУ, 2020. — 111 с.</p>