



TITLE OF THE Curricula/Module

SUSTAINABLE AGRICULTURAL LAND MANAGEMENT

NKSU /Kazakhstan

2021

Extract from work plans

Table 1

Total		Distribution of credits by occupation					Preparation and passing of the exam	Form of conducting, form of control
Credits	Hours	lectures	practical	laboratory / studio	IWST	IWS		
6	165	30	30	-	15	72	18	Exam

1 General

Purpose and expected results of studying the discipline

1.1 Purpose: training specialists with in-depth knowledge of the problems of land management, nature management, protection of the environment and soil from anthropogenic influences.

Expected results

Know: work carried out in production and on the farm;

Be able to: determine the features of land reclamation and protection;

Possess skills: use the acquired knowledge, skills and abilities in the field of agrolandscape farming, while solving problems; research methods, understanding the features and advantages of the agricultural landscape farming system.

Demonstrate the ability: aimed at restoring productivity and national economic value of disturbed lands;

Possess the skills: to carry out engineering, reclamation, agrotechnical and other activities;

1.3 Prerequisites: Agrochemistry, Soil Science.

1.4 Post-requisites: None.

2. Content of the discipline

table 2

Week number	Type of educational activity and type of control	Content of educational activities	Number of hours	Forms and methods of teaching
Module 1: Rational use of land in various natural conditions				
1	Lecture	Topic 1.1 : Fundamentals of rational land use on slopes	2	Informational and illustrative, verbal
	Practical	Topic 1.1 : Typification of slopes and	2	Information-

		determination of slope exposure		<i>receptive, partly search.</i>
2	Lecture	Topic 1.2 : Rational use of erosion-hazardous lands	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 1.2 : Loss of net income due to shortage of products from washed away soils	2	<i>Information-receptive, partly search.</i>
3	lecture	Topic 1.3 : Sustainable Land Use in Deflationary Areas	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 1.3 : Design of forest protection systems	2	<i>Information-receptive, partly search.</i>
4	lecture	Topic 1.4 : Rational use of land in irrigated areas	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic: 1.4 Economic efficiency of the anti-erosion organization of the territory	2	<i>Information-receptive, partly search.</i>
5	lecture	Topic 1.5 : Sustainable land use in saline areas	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 1.5 : Taking into account the influence of individual factors on the efficiency of land management	2	<i>Information-receptive, partly search.</i>
Module 2: Assessment of the quality of agricultural land				
6	lecture	Topic 2.1 : Assessment of the quality of land	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 2.1 : Accounting for the land fund	2	<i>Information-receptive, partly search.</i>
7	lecture	Topic 2.2 : Geobotanical survey of land	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 2.2 : Explication of lands	2	<i>Information-receptive, partly search.</i>
8	Lecture	Topic 2.3 : Soil survey. Complex of reclamation surveys	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 2.3 : Land transformation	2	<i>Information-receptive, partly search.</i>
9	lecture	Topic 2.4 : Tasks of soil appraisal. Criteria for assessing soil quality	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 2.4 : Classification of soils in Kazakhstan.	2	<i>Information-receptive, partly search.</i>
Module 3: Innovative technologies and agricultural land management programs				
10	lecture	Topic 3.1 : GIS technologies in agriculture	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 3.1 : Unmanned aerial vehicles	2	<i>Information-receptive, partly search.</i>
11	lecture	Topic 3.2 : GIS technologies in agriculture	2	<i>Informational and illustrative, verbal</i>
	Practical	Topic 3.2 : Space survey methods	2	<i>Information-receptive, partly search.</i>
12	lecture	Topic 3.3 : AIoT Platforms and Applications	2	<i>Informational and illustrative, verbal</i>
	practical	Topic 3.3 : Automation of agricultural processes	2	<i>Information-receptive, partly</i>

				<i>search.</i>
13	lecture	Topic 3.4 : Peripheral equipment (sensors, sensors)	2	<i>Informational and illustrative, verbal</i>
	practical	Topic 3.4 : Maps of actual land use (structure of cultivated areas, crop growth rates);	2	<i>Information-receptive, partly search.</i>
14	lecture	Topic 3.5 : Communication channels (satellite communication GPS / GLONASS, LPWAN, LTE, 3G, GPRS, GSM).	2	<i>Informational and illustrative, verbal</i>
	practical	Topic 3.5 : Maps of local conditions of vegetation growth (calculated indicators: topographic moisture index, erosion hazard, chip exposure).	2	<i>Information-receptive, partly search.</i>
15	lecture	Topic 3.6 : AIoT platforms (web platforms for creating industry applications).	2	<i>Informational and illustrative, verbal</i>
	practical	Topic 3.6 : AIoT applications (applications for IT platforms, standalone applications for specific equipment).	2	<i>Information-receptive, partly search.</i>
Total hours by occupation		lectures	30	
		practical	30	
Note: The IWST hours include hours for all consultations and types of controls				

3. Independent work of the student

3.1. Tasks for independent work of the student

Table 3

No. IWS	Name module	SRO task	The form control	Duration of execution in		Deadline
				weeks	hours	
IWS1	Module 1: Rational use of land in various natural conditions	Write a report on the topic: " Technology of soil cultivation in various destroyed areas ."	Oral protection	5	25	5 week
IWS2	Module 2: Assessment of the quality of agricultural land	Prepare a presentation on the topic: " Field soil laboratories "	Presentation protection	4	20	9 week
IWS3	Module 3: Innovative technologies and agricultural land management programs	Prepare a presentation on the test: " Automated Systems crops vegetation and soil conditions ."	Presentation protection	6	27	15 week
TOTAL HOURS					72	

3.2. Independent work of a student under the guidance of a teacher

For independent work of a student under the guidance of a teacher, 15 academic hours are allocated.

Within the hours of IWST are consulted on certain sections of the discipline with the aim of improving the quality of development programs, homework, course p and the boat, and semester tests, reports and other types of IWS tasks, current and midterm controls.

3.2.1 Consultation Schedule

Consultations are held individually in accordance with the schedule of independent work of students under the guidance of a teacher. The graph is on display at the department "Agronomy and forestry"

3.2.2 Rights and obligations of students at the IWST

1. To actively perceive the teacher's information received during the period of the introductory lessons on the academic discipline.

2. Independently, on the basis of the teacher's recommendations, study teaching aids, literary sources, do homework, control and coursework, etc.

3. Analyze and systematize your difficult situations, identify the causes of difficulties in understanding and assimilating educational material, performing other educational activities. To be able to translate unsolvable difficulties into a system of questions for the teacher (to rank them, arrange them, formalize them), build their own versions of answers to these questions.

4. Contact the teacher for advice on the implementation of independent work (SRO), their delivery and protection, as well as for additional information on the material covered and all other questions that arise about the course being read.

5. The student has the right to be present in the classroom according to the schedule. Consult Tatsiy when performing tasks. IWS does not cause him difficulty. Visit IWST is mandatory when conducting current and midterm controls.

4. Evaluation rules. Evaluation tools and evaluation criteria for the types of controls.

4.1. Evaluation rules.

For evaluating educational achievements of students used the score-rating book to convert accounting evaluation system with their transfer to the traditional rating scale.

Point-rating letter system for assessing the accounting of educational achievements students with their transfer to the traditional grading scale and ECTS (ishies)

Letter system score	Digital equivalent	Points (% content)	Assessment according to the traditional system
AND	4	95 - 100	excellent
A -	3,67	90 - 94	
B +	3.33	85-89	well
B	3.0	80-84	
B -	2.67	75-79	
C +	2.33	70-74	satisfactory
C	2.0	65-69	
C -	1.67	60-64	
D +	1.33	55-59	
D	1.0	50-54	
FX	0.5	25-49	Fail
F	0	0-24	

- With current and midterm control of academic performance, educational achievements are assessed on a 100 point scale for each completed task or answer (response in current lessons, at work control, homework, independent work, etc.).

- The assessment of the admission rating is determined by the arithmetic mean of the marks for the current and midterm controls received during the academic period.

- The final grade for the discipline includes assessments of the admission rating and final control. The assessment of the admission rating is 60% of the final assessment of knowledge in the discipline, and the mark to replacement is 40% of the final assessment of knowledge in the discipline.

4.2. Evaluation tools and evaluation criteria by type of control

Control type, duration	Estimated means	Evaluation criteria	Max score
Current control 1, 4 week	Workbook	Knowledge of basic terms, concepts and definitions	25
		Knowledge of the basic elements of agricultural land management	25
	Creative bottom and of (IWS1)	Completeness of the volume of the report	25
		Methodical presentation of the report	25
	Total		100
Midterm control 1, 8 week	Test (50 tz)	Correctness of answers according to the "key"	100
Current control 2,	Workbook	Know the types of assessment of agricultural land	25

9 week		Knowledge of the criteria for assessing soil quality	25
	Creative bottom and of (IWS2)	Completeness of the presentation	25
		Methodical presentation design	25
	Total		
Current control 3, 15 week	Workbook	Knowledge of software and hardware management of agricultural lands	25
		Knowledge of the main types of A IoT platforms and applications	25
	Creative bottom and of (IWS3)	Completeness of the presentation	25
		Methodical presentation	25
	Total		
Midterm control 2 , 15 weeks	Test (50 tz)	Correctness of answers according to the "key"	100
Final control , session	Exam, Multilevel tasks	Knowledge of factual material (basic concepts)	25
		Ability to correctly use special terms and concepts	25
		Ability to analyze data	25
		Ability to integrate knowledge of theory and practice	25
	Total		

5. Requirements of the teacher

To attendance of classes: Students are required to attend all types of academic classes of the discipline according to the schedule. If the student or the head of the group does not appear for classes due to illness or other reasons, the student or the head of the group must notify the teacher on the same day.

Behavior in class: Do not be late for class. Timely occupy your workplace and prepare everything you need for the lesson. The group leader and attendants should prepare the audience for the training sessions. The student must turn off the mobile phone, listen carefully to the teacher's explanations and students' answers, not talk or do other things, follow all the teacher's instructions. Each student of the group is responsible for the cleanliness and order of his workplace in the classroom or office. You can leave the classroom during classes only with the permission of the teacher. At the end of the class , students leave the classroom only after the teacher announces that the class is over.

6. Map of educational and methodological provision of the discipline

6.1. List of references

Table 5

No.	Title, year and place of publication
one.	Main literature
1. 1	<u>Abdrakhimov, R.G.</u> The doctrine of soil moisture: textbook - Almaty :, Kazakh university, 2007. - 58 p.
1.2	Valkov V.F., Kazeev K.Sh., Soil Science: Publishing Center "Mart", - Mos to va-Rostov-on-Don, 2006, -496 p.
1.3	Kolesnikov S.I., Soil science with the basics of geology: RIOR, - Moscow, 2005, -17s
1.4	<u>Khabarov, A.V.</u> Soil science : textbook for universities - M .: KOLOS, 2007, -311 p.
2	additional literature
2.1	<u>Belobrov VP</u> Soil geography with the fundamentals of soil science : textbook - Moscow. : Academy, 2004 .-- 352 p.
2.2	<u>Orlov D.S.</u> Chemistry of soils: textbook - Moscow. : Higher school, 2005 .-- 558 p.
2.3	<u>Shop V.A.</u> Soils of the world. Atlas: study guide - Moscow. : Academy, 2007.

6.2 . Methodological support of the discipline

Table 6

No.	Name	Location (department, library, electronic library)
1	CMD discipline	Department of AL, electronic library

6.3 . List of specialized tools

Table 7

No.	View	Location
1	aud. (study room)	No. 421, 427 / AB 2
2	multimedia complex	aud. 415, 313 / AB 2
3	devices and equipment	aud. 421 / AB 2