

**Periodical Report  
12 Months of project  
implementation**

# **New and Innovative Courses for Precision Agriculture**



**NICOPA**

## **Turkmen agriculture university named after S.A.Niyazov**

**Mr. Durdyev Orazmuhammet**

**Joint Project: Capacity Building in the Field  
of Higher Education ERASMUS+ 2018**

Co-funded by the  
Erasmus+ Programme  
of the European Union



# Work plan

THE MINISTRY OF AGRICULTURE AND ENVIRONMENT PROTECTION OF TURKMENISTAN  
 THE MINISTRY OF EDUCATION OF TURKMENISTAN  
 TURKMEN AGRICULTURAL UNIVERSITY NAMED AFTER S.A.NIYAZOV



« APPROVED »

The chief of a teaching department of  
 Turkmen agricultural university named  
 after S.A.Niyazov

H.Hudayberdiyev

" 01 " 2019 y.

The plan of carrying out of employment on project "New and Innovative Courses for Precision Agriculture (NICOPA)" performance in 2018-2021-s' years

№	Activities	Responsible:	Ref. №	Term of implementation (up to...)	Clarification notes
1	Turkmen agriculture university named after S.A.Niyazov to develop the internal plan of activities of the project.	P1, P8	1.1-2.3; 2.5-4.2; 5.1-5.2.	15.12.2018	To organize the project work group, to assign responsible persons and to approved the project plan
2	To make a list of valid subjects for improvement and introduction in educational process.	P1, P8	1.1	20.12.2018	A list
3	a) Develop questionnaires for analysis of existing curricula (questionnaire for teachers, students, graduates, young professionals, alumni); + a questionnaire for interested in project non-academic partners: potential employers, local associations, representatives of industrial enterprises; b) Develop a schedule to conduct surveys; c) Conduct surveys of various target groups; d) Analyze the answered questionnaires.	P1, P8	1.1	30.12.2018	a) the survey questionnaire should reflect quality level of the analyzed curricula/discipline fully. Possible questions for the questionnaire: the name of discipline, what are the relevant faculties and departments, since which year is discipline taught the number of enrolled students, the balance of practical / theoretical hours and student workload. The existence, year of introduction and "freshness" of technical training tools, computers, software products, educational literature, the use of periodic national, foreign thematic/scientific/technical journals, the availability of trainee position... The practical performance of students in small groups, the number of such works.



# Work plan

					professionals / graduates potential employers to clarify requirements to competences/ skills of graduates at the university; c) Conduct a meeting of teachers, students, alumni and employers to discuss and analyze results of surveys to take into account their views at updating of relevant subjects.
4	- Develop an analytical report on the results of the analysis of existing curricula/disciplines; - To make a list of curricula that you plan to upgrade. - Develop a schedule for updates of the selected curricula.	P1, P8, P16	1.1	30.04.2019	The curricula
6	a) To examines and adopts the received materials of EU Universities and develops on this basis their own courses, curricula, modules; b) should develop manuals/text books/methodological recommendations for students and teachers for each of the curricula/course/module.	P1, P8	2.1	a) 31.03.2020 b) 31.10.2020	c) Prepare draft of curricula descriptions of new core curricula and transferable modules inclusive innovative teaching/ learning facilities; develop syllabi.
7	a) Accreditation of developed subjects/courses/programmes in accordance with valid University rules. b) Accreditation at the national level.	P1, P8, P16	2.1	a) 30.09.2020 b) 31.08.2021	a) Select and appoint specialist for the development of the curricula in the university and teachers responsible for the development and introduction of new disciplines, courses and curricula; b) New disciplines should be in accordance with the Bologna recommendations course description in English and national languages including the ECTS points. It is recommended to introduce at least 20% of lessons /courses in English.
8	a) Prepare a set of documentation for PAL and VCR; b) Purchase the equipment incl. software; install the equipment.	P1, P8	2.2	a) 30.04.2019 b) 30.01.2020	a) To define an educational class; b) P1, P5 and P8 are responsible for the contracting, purchase and delivery of equipment.



# Work plan

9	<p>a) Develop criteria for the selection of teachers to participate in trainings planned at EU universities;</p> <p>b) To plan and carry out actions to prepare the selected candidates to participate in trainings including language training;</p> <p>c) Retrain academic teachers in new curricula using innovative teaching/ learning facilities and agreed instructional strategies.</p>	<p>a) P1, P8</p> <p>b) P1, P8</p> <p>c) P1, P8</p>	2.3	<p>a) 31.01.2019</p> <p>b) 30.06.2019</p> <p>c) from 01.09.2019 up to 31.08.2020</p>	<p>In EU universities 3 trainings of teachers are planned. 2 to 3 teachers from each target University can participate in the trainings. Duration of trainings: from 10 till 14 days.</p> <p>After the end of training to organize a meeting for sharing of the knowledge gained in the target universities.</p>
10	<p>- Update existing curricula, make a report on updating;</p> <p>- Develop a curricula description of each updated curriculum in English and national languages including the ECTS points in accordance with the Bologna recommendations;</p> <p>- Accredite the updated disciplines in accordance with valid University rules/national law.</p>	P1, P8, P16	2.4	30.09.2020	
11	<p>a) Starting performance of demonstration master classes (MC) for new subjects/modules;</p> <p>b) pilot operation of PAL and VCR.</p>	<p>a) P1, P8</p> <p>b) P1, P8</p>	2.5	<p>a) start: 01.03.2020</p> <p>b) start: 30.04.2020</p>	MCs are carried out in the form of demonstration lessons with students. The MC will be conducted by professors from European universities. Participants of MC should be the teachers who received trainings in European universities. New technical equipment purchased in the frame of the project will be used during the MCs.
12	Pilot teaching/operation of PAL and VCR.	P1, P8	2.6	Start: 01.09.2020	Pilot teaching should be in accordance with program
13	<p>a) Development of a quality assurance plan for the project;</p> <p>b) Development of recommendations for quality indicators for peer review of new curricula/courses</p>	<p>a) P1, P8</p> <p>b) P1, P8</p>	3.1	<p>a) 15.01.2019</p> <p>b) 31.03.2019</p>	<p>a) On the basis of the project's quality assurance plan to develop a quality assurance plan in the university;</p> <p>b) Template/recommendations for a questionnaire will be provided by P5. P1, P8 organize peer review of updated/new courses.</p>



# Work plan

14	<p>a) Develop a plan for dissemination and sustainability of the project in university, including activities on involving new participants in the project;</p> <p>b) Operation starting of the first version of the WEB platform.</p>	<p>a) P1, P8, P16</p> <p>b) P1, P8, P16</p>	<p>4.1</p> <p>4.2</p>	<p>a) 15.01.2019</p> <p>b) 01.12.2018</p>	<p>Recommended components of the dissemination and sustainability plan of the project:</p> <ul style="list-style-type: none"> <li>- In university should assign a "blogger", who will be responsible for the posting information about the project in the Internet;</li> <li>- Plan of publications (e.g. 1 publication every 6 months);</li> <li>- Schedule of local sustainability activities and dissemination of the project results (e.g. one event per quarter).</li> <li>- Plan of local and regional meetings. It is recommended to use scheduled periodic internal and external events;</li> <li>- Post information about participation in the project on the universities' website (with a link to the project page);</li> <li>- Post on social networks.</li> </ul>
15	-Develop an agreement on the continued cooperation of the project participants for the development of its results after the ERASMUS+ financing	P1-P16	4	November 2021	Sign an Agreement in the Final conference
16	Organize dissemination of leaflets about the project amongst students and teachers.	P1, P8	4.1 4.2	Throughout the project until 14.11.2021	Recommendations for the design of information materials about the project are given in Tab. 6
17	<p>a) Develop and approve a package of organizational documents for the creation of PASO in University;</p> <p>b) <u>should</u> purchase and install equipment.</p>	P1, P8	4.3	<p>a) 01.04.2019</p> <p>b) 30.01.2020</p>	a) Regulations of the structural division, job descriptions should be included in the organizational documents for PASO.
18	<p>a) Conduct training for employees of PASO and start of functioning PASO;</p> <p>b) Start pilot operation of PASO.</p>	<p>a) P1, P2, P5, P8</p> <p>b) P1, P8</p>	4.4	<p>a) 30.11.2020</p> <p>b) Start: 01.09.2020</p>	a) <u>responsible</u> for organizing and conducting the training – P2 & P4.
19	Refresh training courses for graduates in PASO.	P1, P8 with support by P2-P5	4.5	Start: 01.10.2020	Select target groups of graduates and develop a program for the training courses, and conduct them.
20	To participate in the organization of International BA/ MSc Summer Schools	P1, P2, P8	4.6	<p>Start: 01.04.2020</p> <p>End: 31.08.2021</p>	



# Work plan

21	Management of the project including project management online, daily project administration and coordination.	P1, P8	5.1	Throughout the project	Preparing documentation of the management events and activities of the project incl. preparation of minutes by the local coordinator.
22	Coordination meetings	P1, P5, P8	5.2	Throughout the project	Development of meeting plan will be created every year (incl. international, regional and local meetings).
23	Monitoring and controlling of project activities: development of questionnaires for partner universities regarding project implementation	P1, P5, P8	5.1	First template will be sent in March 2019 Schedule for the reporting: M6, M12, M18, M30, M36	P5 will develop a questionnaire for each 6-month-period that partner universities should fill in until the given deadlines, reporting on the implementation of the project in the university. The complete reports should be sent back to P5.
24	Ensure using SKYPE to held meetings of the project consortium team.	Participants of a consortium	5.1	Throughout the project	Skype meeting of local coordinators should be conducted every 3 months.

The local project coordinator of the Turkmen agricultural university named after S.A.Niyazov



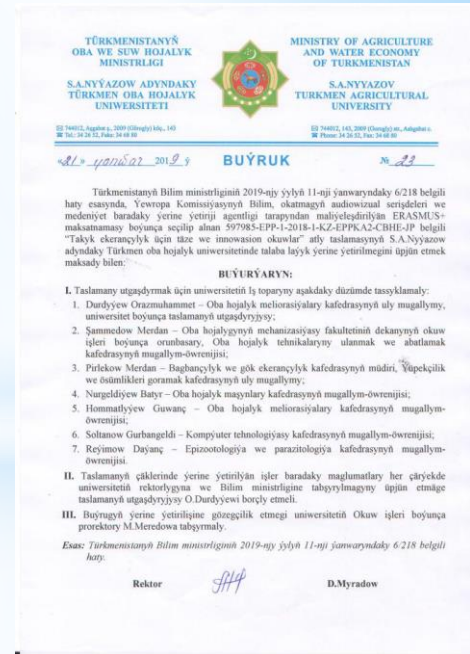
O.Durdyev





# Work group

No	Name, Surname, email	Position in the university	Responsibility (Work Packages tasks according to the Work Plan)
1.	Durdyyev Orazmuhammet odurdyev@gmail.com	Senior Lecturer, Department of Hydromelioration	The local project coordinator from TAU performs for the
2.	Shamedov Merdan sagitarius80@mail.ru	Deputy Dean, Department of Mechanization	analysis, updating and development of training modules / programs in the specialties <b>Mechanisation of agriculture</b>
3.	Nurgeldiyev Batyr nurgeldiyev94@gmail.com	Senior Lecturer, Department of Mechanization	acceptance and commissioning of new equipment, creation of a new classroom / laboratory, internal and external quality assessment
4.	Soltanov Gurbangeldi gurbansoltanov@gmail.com	Senior Lecturer, Department of Economy and Management	equipment selection, scientific support of hardware implementation of precision farming technologies
5.	Shadurdyev Govshut gowshudowgovshut@mail.ru	Senior Lecturer, Department of Hydromelioration	equipment selection, performs for the analysis, updating and development of training modules / programs in the specialties <b>Geodesy and Methods of remote sounding of the Earth</b>
6.	Reyimov Dayanch dayanchreyimov@gmail.com	Senior Lecturer, Department of Veterinary medicine	analysis, updating and development of training modules / programs in the specialties <b>Veterinary and fish culture</b>
7.	Pirlekov Merdan merdanpirlekov@gmail.com	Head of the Department of Horticulture	performs for the analysis, updating and development of training modules / programs in the specialties <b>Agromony and forestry</b>



# \* Coordination meeting, Berlin

From 4 to 5 March 2019, the first meeting of Erasmus + project partners " New and innovative courses for precision agriculture" was held at the Technical University of Berlin (Germany) "(NICoPA).

## Consortium members

S.Seifullin Kazakh Agro Technical University (KZ)

Technische Universität Berlin (DE)

The Agricultural University Plovdiv (BG)

Czech University of Life Sciences (CZ)

ECM space technologies GmbH (DE)

Shokan Ualikhanov Kokshetau State University (KZ)

North Kazakhstan State University Named After Manash Kozymbayev (KZ)

Turkmen Agricultural University Named after S.A. Niyazov (TM)

The Turkmen state architecture and construction Institute (TM)

Turkmen Agricultural Institute (TM)

National University of Uzbekistan (UZ)

Tashkent University of Information Technologies (UZ)

Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (UZ)

Ministry of Education and Science (KZ)

State Inspection for supervision of quality in Education (UZ)

Ministry of Education of Turkmenistan (TM)

Erasmus+ NICOPA



**Kick-off Meeting  
4 – 5 March 2019  
Berlin, Germany**

Venue: Technische Universität Berlin  
Main building, Room H3007  
Straße des 17. Juni 135  
10623 Berlin

NICOPA Kick-Off Meeting  
4-5 March 2019  
Venue: Technische Universität Berlin  
Main building, Room H3007

## Conference Program

04.03.2019

09:00 – 09:30  
09:30 – 9:45

- Registration of the conference participants
- Opening of the conference - Elena Eyngom, TU Berlin
  - Welcome of the conference participants –
  - Prof Dr. Hans-Ulrich Hellö, TU Berlin
  - Keynote Speeches – Embassy Representatives

9:45 – 10:00

Welcome by Head of the International Relation Office – Evelina Skurski

10:00 – 10:30

- Presentation of European partners (Info about the organization, role in the project, academic content/ curricula for the target universities)
- The Agricultural University Plovdiv, Bulgaria
  - Czech University of Life Sciences, Czech Republic
  - ECM space technologies GmbH, Germany

10:30 – 12:00

- Presentation of the scientific experience - GFZ Potsdam
- 10-Minute-Presentations of Partner Universities (report of analysis and review of existing curricula in target area and plan for updating existing and developing the new curricula NICOPA)
- S.Seifullin Kazakh Agro Technical University, Kazakhstan
  - Shokan Ualikhanov Kokshetau State University, Kazakhstan
  - North Kazakhstan State University Named After Manash Kozymbayev, Kazakhstan
  - Turkmen Agricultural University Named after S.A. Niyazov, Turkmenistan
  - The Turkmen state architecture and construction Institute, Turkmenistan
  - Turkmen Agricultural Institute, Turkmenistan
  - National University of Uzbekistan, Uzbekistan
  - Tashkent University of Information Technologies, Uzbekistan
  - Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Uzbekistan

12:00 – 13:00

Lunch

14:30 - 18:45

Presentation of the NICOPA project, Information management package

NICOPA Kick-Off Meeting  
4-5 March 2019  
Venue: Technische Universität Berlin  
Main building, Room H3007

## Conference Program

05.03.2019

09:00 – 12:00

- Continuation of the workshop on information mgmt, package: Discussion of the project plan implementation (Work Packages) incl.
- Master-classes and trainings schedule
  - Purchase and installation of Equipment
  - Milestones of 2019 (assigning responsible persons of each partner to the work plan tasks);
- Moderator: Arnold Sterenharz

Budget & Reporting:

- Regulations for all budget headings expenditures;
  - Reporting on project activities and contract amendments;
  - Financial management of the grant;
  - Mobility report; staff costs (joint declaration, time sheets)
- Moderator: Elena Eyngom

Lunch

12:00 – 13:00

- Continuation of the workshop on budget & reporting. Summary meeting: discussion and adoption of the working protocol to ensure the implementation of the project work plan; formation of the project member board, discussion of the venue and dates of the next project meeting;

15:00 – 15:30

Coffee break

15:30 – 17:30

- Quality assurance system according to the ECTS User Guide 2015, Standards, and Guidelines for Quality Assurance in the European Higher Education Area 2015 (ESG) – Arnold Sterenharz





# \* Coordination meeting, Berlin



Working group of Turkmen agriculture university named after S.A. Niyazov TAU was headed by local project coordinator Durdyev O. In the working group of the TAU named after S.A. Niyazov, deputy dean of Department of Mechanization Shammedov M. and Senior Lecturer, Department of Hydromelioration Durdyev O., the local coordinator of the NICOPA project from TAU named after S.A. Niyazov.



# \* Coordination meeting, Berlin

On behalf of Turkmen agriculture university named after S.A. Niyazov TAU with presentation and brief report on the achievements of University and existing educational programs in agronomy and hydromelioration, the possibility of updating disciplines with directions on precision agriculture at the kick-off meeting was made by Durdyyev O.







# Workshop on precision agriculture at the Technical University of Berlin,



Members of the working group of the University Shadurdyev Govshut, Durdyev Orazmuhammet and Shammedov Merdan took part in a training seminar at the Technical University of Berlin from 19 to 30 August 2019.





# Work after the training in TU Berlin, August 2019

Members of the NiCoPA project working group held a number of events to disseminate information about the project itself and information about the training held at the Technical University (Berlin).





# Work after the training in TU Berlin, August 2019

С.А.Нуратов администратор Туркменского государственного технического университета

10.0.0.2/moodle/

10.0.0.2/moodle/course/view.php?id=47

Calus: (93) 123456789 Email: tktu.edu@mail.ru

Ваше имя в системе (Sina)

FAKULTETLER • KATEDARLAR • KHIZMATLAR • SAPAKLARIY REJELER • NUGA SAPAKLAR • HALKARA HYZMATDASTLARIK • FIZIKALY JELER

Halkara hyzmatdastlar

Имя админа / Язык / Категория / Язык

Формы для новых сообщений

Добавить тему для обсуждения

NICOPA от tktu.dema - опубликовано 4 Апрель 2020 12:51

NICOPA

NICOPA.pdf

Тема: Наука / Ресурсы / Избранное

Общая ссылка (Поиск в Google)

Co-funded by the Erasmus+ Programme of the European Union

NICOPA

проект NICOPA

Регистрационный номер	597985-EPP-1-2018-4-KZ-EPPKA2-SVNE-JP
Название Заявки	<b>НОВАЯ И ИННОВАЦИОННЫЕ КУРСЫ ПО ТОЧНОМУ ВЕЩЕЛЕНИЮ</b>
Краткое название	NICOPA
Код	SVNE-JP
Заказчик	КАЗАХСКИЙ АГРОТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ ИМЕНИ САВЕЛНА СЕЙФУЛЛИНА (KZ)
Дата начала проекта	15 ноября 2018 г.
Дата окончания проекта	14 ноября 2021 г.
Продолжительность (в месяцах)	36
Запрашиваемый грант	999,847.00
Тип проекта	Мультистрановой проект
Специфическая деятельность	Разработка учебной программы
Предмет/ Тематическая область	Сельское хозяйство, лесное хозяйство, рыболовство и ветеринария
Цели ПИВО	Создействие сотрудничества между ЕС и партнерскими странами (и между Странами Партнерства). Поддержка модернизации, доступности и интернационализации сферы высшего образования в Странам Партнерах.
Задачи ПИВО	Повышение уровня компетенций и навыков в вузах путем разработки новых инновационных образовательных программ. Повышение качества высшего образования и его востребованности на рынке труда в партнерских странах.

Participants of the training Shadurdyev Govshut, Durdyev Orazmuhammet and Shammedov Merdan posted information about the training on the University's portal.





## \* Work after the training in TU Berlin, August 2019

A meeting was held with the participation of the leadership and teaching staff of 5 faculties of the university.





# Local press publications

**Дневник Туркменистан**

Новочетная кооперация, или По масовою волонтерского посажа Ана баба

Оксис удажительных приверженцев



**Нейтральный Туркменистан**

Урчаклыга, Кабинет Министров Туркменистана

**СЕРДЕЧНЫЕ ПОЗДРАВЛЕНИЯ ПРЕЗИДЕНТУ ТУРКМЕНИСТАНА ГУРЪАНГУЛИ БЕРДЫМУХАМЕДОВУ**

**ШКОЛА ПАТРИОТИЗМА, МУДРЕТВА И ВЫСОКОГО ДУХА**



**В Геостепинском этрапе работает «зелёный» агрополигон**



**ГОСУДАРСТВО - ДЛЯ ЧЕЛОВЕКА**

**МАЛЫЙ БИЗНЕС - БОЛЬШИЕ ЗАДАЧИ**

**ТРАНСПОРТНАЯ СБЕГА ТУРКМЕНИСТАНА**

**Калифорнийский опыт на любительской земле**



**МТР ЧЕРЕЗ РАЗВИТИЕ**

**В Геостепинском этрапе работает «зелёный» агрополигон**

**НАША ГОРОДСЬ - ПЕНТРАЛИНИ ТУРКМЕНИСТАНА**

**Студенты отметили десертствие Командыи дельцового обучения**



# International exhibition



International exhibition in the exhibition complex. With the participation of representatives from the Technical University of Berlin and members of the NICOPA project.



# Agreement on cooperation in the field of agriculture with non-academic partners

## Соглашение

О сотрудничестве между Туркменским сельскохозяйственным университетом имени С.А. Ниязова и учебно-опытным хозяйством.

г. Ашгабат <<08> 11 2019 г.

В лице координатора проекта ERASMUS+ по университету О.Дурдыева с одной стороны, действующего из основании Устава, и в лице директора учебно-опытного хозяйства Оразова Г. с другой стороны, действующего из основании Устава в дальнейшем именуемые <<Стороны>>, принимая во внимание, что Стороны заинтересованы в повышении уровня подготовки специалистов сельского хозяйства с применением инновационных технологий подписали настоящее соглашение о сотрудничестве.

1. Содействие эффективному ведению сельскохозяйственной деятельности, повышению квалификации сельскохозяйственных специалистов.

2. Содействие совершенствованию аграрной политики в Туркменистане.

3. Содействие внедрению интенсивных инновационных технологий в сфере сельскохозяйственного производства возделывания и средств защиты растений.

4. Содействие в повышении информационного уровня и профессиональных навыков студентов и специалистов сельского хозяйства.

5. Создание благоприятных условий для укрепления и дальнейшего развития деловых отношений Сторон.

6. Настоящее соглашение вступает в силу с даты его подписания.

7. Настоящее соглашение заключено на неопределенный срок и может быть расторгнут по инициативе любой из Сторон, при условии уведомления другой стороны в срок не менее 15 дней до предлагаемой даты расторжения.

8. Осуществить обмен инновационными технологиями и новейшей информацией.

9. Организовать совместно семинары для повышения квалификации работников сельского хозяйства.

10. Подготовка, переподготовка и повышение квалификации специалистов и работников АПК путем распространения знаний с привлечением высококвалифицированных специалистов и ученых из Германии для чтения лекций и проведения семинаров.

Координатор проекта  
ERASMUS+ Туркменского  
сельскохозяйственного  
университета О. Дурдыев



Директор учебно-  
опытного хозяйства  
К. Оразов

Подпись Дурдыева О. заверяю  
Начальник отдела кадров университета А. Маммедов





# Teaching materials. The curricula update

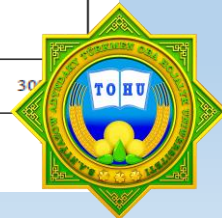
Report 12M

NICOPA

Appendix

Table 1. Teaching materials and existing courses to update

Title of the existing course to update	Name of the person(s) responsible for update + email	ECTS and hours for lecture/practical work	Teaching materials that will be used	How will the teaching materials improve the existing course? What will be new in the course due to the teaching materials?	% of readiness of the course
Hydrology	Hommatlyev Guvanch hommatlyyevgb@mail.ru Durdyyev Orazmuhammet odurdyyev@gmail.com	Lectures 32 hours Practical 16 hours Laboratory 16 hours  of which 6 h lecture on precision agriculture	<b>Dr. Abror Gafurov</b> MODSNOW-Tool-a remote sensing based instrument to monitor water resources Time series analysis of satellite snow cover data Statistical modeling of water availability using the satellite data	Accurate assessment of the quantity and quality of water resources and river regimes. Satellite systems.	30%
Geodesy	Yusupov Shurmyrat	Lectures 64 hours Practical 64 hours Laboratory 80 hours of which 6 h lecture on PA	<b>Pof. Dr. Dr. h.c. Harald Schuh</b> Space Geodetic Techniques; Space geodesy (VLBI, GNSS, etc.)	Calculation of coordinates using satellite systems.	30%
Klimatologiya	Durdyyev Orazmuhammet odurdyyev@gmail.com	Lectures 32 hours Laboratory 32 hours  of which 6 h lecture on PA	<b>Dr. Abror Gafurov</b> Quality assessment of MODSNOW-processing and modeled results	Climate risk assessment methods for agriculture	30%
Ecology and environment protection	Misekova Ajapsoltan ajapsoltan1992@gmail.com	Lectures 32 hours Practical 16 hours  of which 6 h lecture on PA	1) Якушев В.В. Точное земледелие. – СПб: ФГБНУ АФИ, 2016. – 364 с. 2) Кирюшин В.И. Экологические основы земледелия. – М.: Колос, 1996. 366 с. 3) Каштанов А.Н. М.: Колос и др. Основы ландшафтно-экологического земледелия – 1994. 126с.	The concept of precision agriculture from an environmental point of view.	30%
Pastures of Turkmenistan	Reyimov Dayanch dayanchreyimov@gmail.com	Lectures 32 hours Laboratory 16 hours	<b>Reilly, M. &amp; Willenbockel, D.</b> 2010. Managing uncertainty: a review of food system scenario analysis and modeling. Philosophical	Food system scenario analysis and modeling.	30%



# Teaching materials. The curricula update

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		of which 6 h lecture on PA	Transactions of the Royal Society, B Biological Sciences		
Soil science	Esenov Nurguly	Lectures 80 hours Practical 32 hours Laboratory 128 hours of which 6 h lecture on PA	Семенов В.А. Качественная оценка сельскохозяйственных земель. 1970 Карвякова А.В. Использование дистанционных съёмок для изучения и оценки свойств почв // Аграрная наука. 2006. №6. С.15-17. Кирюшин В.П., Иванюв А.Л. и др. Агроэкологическая оценка земель, проектирование адаптивно-ландшафтных систем земледелия и агроэкологий. Методическое руководство. М.: ФГНУ «Росинформагро-тех», 2005. 784с	The concept of precision agriculture from an environmental point of view.	30%
Agronomy	Hallyyev Rozgeldi	Lectures 48 hours Practical 32 hours Laboratory 96 hours of which 6 h lecture on PA	Каштанов А.Н. и др. Основы ландшафтно-экологического земледелия. М.: Колос, 1994. 126с. Буянкин П.П., Малышев М.И. Система севооборотов в адаптивно-ландшафтных земледелии Калининградской области и её особенности. Калининград, 2003 Кирюшин В.П. Теория адаптивно-ландшафтного земледелия и проектирования агроландшафтов. М.: Колос, 2011. 443с	Improving soil fertility and crop yields	30%
Agrochemist ry	Seyitkulyyev Yazdurdy	Lectures 96 hours Practical 16 hours Laboratory 160 hours of which 6 h lecture on PA	Якушев В.П., Иванюв А.П., Якушев В.В., Коношенков А.А. Реализация системы удобрений в точном земледелии. 2008. № 5. С. 18-20. Якушев В.В. Дифференцированное внесение минеральных удобрений в системе точного земледелия // Международная школа ученых и специалистов «Перспективы технологии для современного сельскохозяйственного производства» (23-28 сентября 2007 г.). СПб.: АФИ, 2007. С. 101-118. Якушев В.П., Якушева Л.Н., Суханов П.А., Петрушин А.Ф., Сличук С.Г., Якушев В.В. О методах агрохимического обследования сельскохозяйственных угодий в точном земледелии // Вестник РАСХН. 2004. № 3. С. 32-	Accurate determination of agrochemical properties using satellites	30%



# Teaching materials. The curricula update

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			34.		
			<p><b>Kurbanov K., Durdyyev D.</b>                      Takyk ekesançybygyň tehnologiýalary. – Aşgabat: ž. "Taze oba", 2019, № 10, 6-8 sah.</p> <p>Miller P.S.H. and Stafford J.V. Herbicide Application to Targeted Patches. Proc. British Crop Protection Conf. – Weeds, 1991, p. 1249-1256.</p> <p>Научные основы оптимизации питания и фитосанитарного состояния посевов в ландшафтном земледелии/ Под ред. член-корр. РАСХН В.Г. Сычева. М.: РАСХН, 2005. 94с. Фитосанитарное оздоровление экосистем / Мат. II Всероссийского съезда по защите растений. СПб. ВИЗР.2005 В двух томах (т. 1 – 586с.; т. 2-596 с.)</p>		
Protection of plants	Pirlekov Merdan merdanpirlekov@gmail.com	Lectures 32 hours Practical 16 hours Laboratory 48 hours of which 6 h lecture on PA	<p>Рубнов С.А., Голованов И.Н., Каштанов А.Н., Аэрокосмические средства и технология для точного земледелия / Под ред. акад. РАСХН А.Н. Каштанова. М., 2008. 330 с.</p> <p>Краткая история изучения памятников природы Туркменистана. Ашхабад 2007</p> <p>Türkmenistanyň Milli tokaý maksatnamasy. Aşgabat 2012</p> <p>Виноградов Б.В. Агро космический мониторинг экосистем. М. Наука</p>	The introduction of herbicides according to the results of agromonitoring. Improving productivity, profitability and product quality.	30%
Forestry	Atamyradov Akmyrat	Lectures 32 hours Practical 64 hours of which 6 h lecture on PA	<p>The Red Data Book of Turkmenistan (1999). Nurberdiyeva A. Modern state of semi-arboreal plants of central Kopetdag. Ecological culture and environment protection 4(16) 2016</p>	The selection of areas, the control of sanitary and fire conditions, remote methods for determining areas, inventory of forests.	30%
Dendrology	Atamyradov Akmyrat	Lectures 32 hours Practical 48 hours of which 6 h lecture on PA		Instructions for creating a database of genetic resources. Mapping with application, using the GPS system of Red Book and rare plants, centennial trees, especially valuable forests, as well as monitoring their condition.	30%
Computer graphics	Hojamyradov Wepamyrat Mr.wepamyrat@mail.ru	Lectures 32 hours Laboratory 32 hours of which 6 h lecture on PA	<p><b>Боядаренко Н.Ф. и др.</b>                      Моделирование продуктивности агроэкосистем.</p>	Modeling agroecosystems.	30%
GIS	Sahetmyradov Sahetmyrat Sahetmyrat@mail.ru	Lectures 32 hours Laboratory 32 hours of which 6 h lecture on PA	<p><b>Prof. Kada</b>                      GIS Geovisualization                      GIS Internet, Mobile, and Distributed GIS                      GIS Advanced Methods for Geospatial Analysis</p>	GIS Internet, GIS Software	30%





# Teaching materials. The curricula update

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			GIS. Data processing and adjustment GIS Geographical Information Systems		
Operation of machine tractor park	Shammedov Merdan sagitarius80@mail.ru	Lectures 32 hours Practical 32 hours Laboratory 32 hours of which 4 h lecture on PA	Prof. Kumhala Frantisek Yield sensors for Precision Agriculture Якушев В.В. Точное земледелие. – СПб: ФГБНУ АФИ, 2016. – 364 с.	Yield mapping systems; Combine harvesters	30%
Agricultural machinery	Nurgeldyyev Batyr nurgeldiyev94@gmail.com	Lectures 32 hours Laboratory 32 hours of which 4 h lecture on PA	Prof. Kumhala Frantisek Yield sensors for Precision Agriculture Якушев В.В. Точное земледелие. – СПб: ФГБНУ АФИ, 2016. – 364 с.	Yield mapping systems; Combine harvesters; Grain flow sensor calibration	30%



# New curricula

Table 2 shows the new disciplines that will be included in the educational program. It indicates which training materials will be used to create new disciplines, and the responsible teachers

Table 2. Teaching materials and new curricula.

Title of the possible new course	Name of the person(s) responsible for developing + email	ECTS and hours for lecture/practical work	Teaching materials that will be used
Photogrammetry and remote sensing	Shadurdyev Govshut gowshudowgowshut@mail.ru	Lectures 32 hours Laboratory classes 64 hours	Prof. DR. – Eng. Klaus Briess Remote Sensing and Space Sensors Systems Prof. Julieta Arnaudova Using GIS and SENTINEL 1-2-3 imagery for agricultural field monitoring Рубцов С.А., Голованов И.Н., Каштанов А.Н. Аэрокосмические средства и технологии для точного земледелия. 2008 Книжков Ю.Ф., Кравцова В.И., Тутубалина О.В. Аэрокосмические методы географических исследований. 2011
Precision agriculture	Shadurdyev Govshut gowshudowgowshut@mail.ru	Lectures 32 hours Laboratory classes 32 hours Practical lessons 16 hours	Dr. Jitka Kumhalova Soil physical properties and its measurement Dr. Jan Chyba Application of Precision Agriculture for crops growing Prof. Krum Hristov Global Navigation Satellite Systems (NAVSTAR, GLONASS, GALILEO) Якушев В.В. Точное земледелие: теория и практика. 2016



# Accreditation

- New topics (4-8 hours) are introduced into the existing working curricula of the university based on materials received at the training in the Technical University of Berlin, within the hours of the 2020-2021 academic year.
- Updated and new working training programs are considered at the department, faculty, educational-methodical commission and approved by the rector of the university.
- Updated and new disciplines are considered at the department, faculty, educational-methodical commission, educational department, are included in the curriculum and certified by the rector of the university. After that, they are submitted for consideration and approval to the Ministry of Education, the Ministry of Agriculture and the Environment and are certified by the Deputy Chairmen of the Cabinet of Ministers for Education and Agriculture and the Environment. The deadline for accreditation at the institutional level (June, 2020).



# Quality assurance

The quality of educational programs of universities NICOPA at Turkmen Agricultural University named after S.A. Niyazov will be:

1. The objectives of the educational program.
2. The content of the program.
3. The professional level of the teaching staff.
4. The level of knowledge of students.
5. Organization of the educational process.
6. Material and technical base of the university.
7. Information support.
8. Serving students and providing educational conditions.
9. Future employment opportunities.
10. Elements of feedback, as part of the educational process (assignments, essays, seminars, etc.).
11. The final results, assessments of achievements and shortcomings in the training of programs of disciplines (course projects, oral and written exams, tests).
12. Surveys of opinions of external specialists, robot developers, experts in the field of scientific research.

## Review List

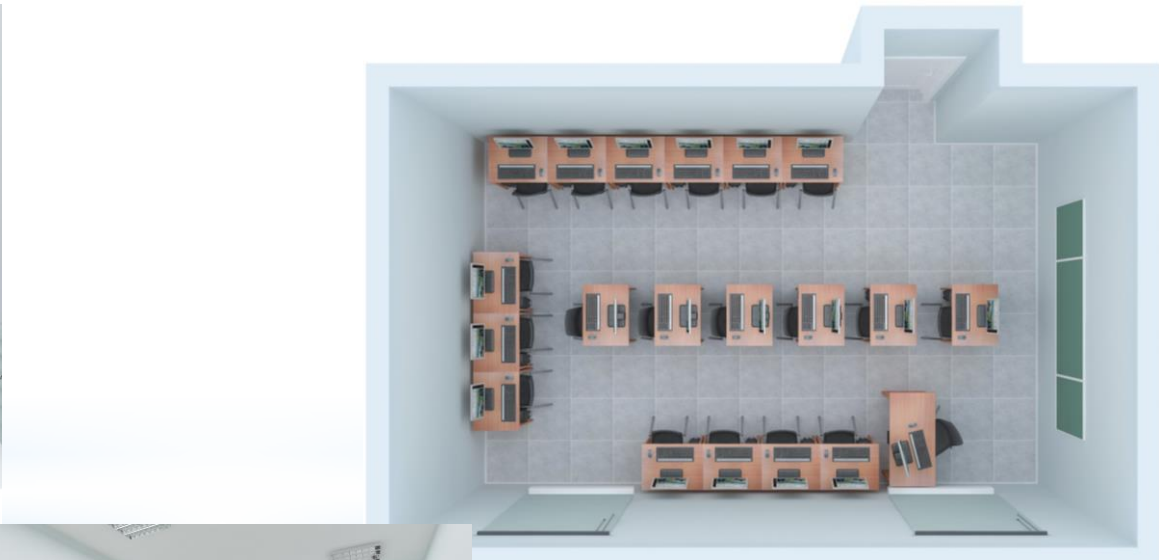
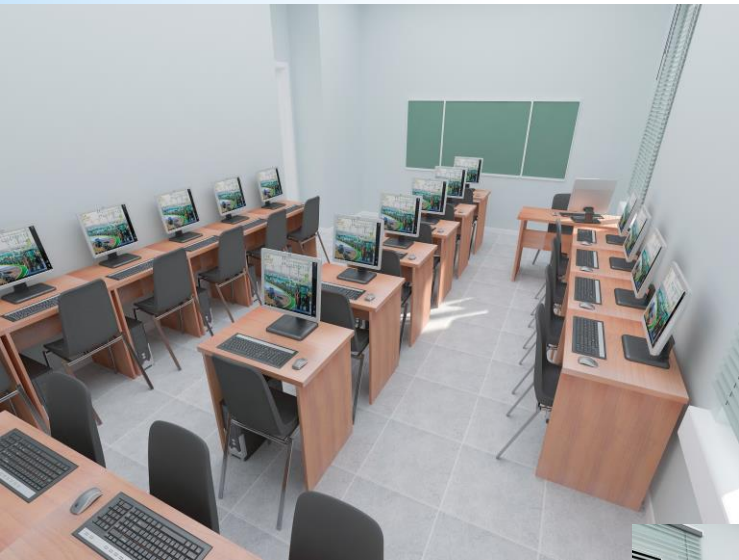
1. Members of the university's teaching commission
2. Employees of research institutes
3. Specialists of relevant ministries

## Quality Group Plan

1. Familiarize and adjust new / modernized curricula (May, 2020).
2. Familiarize and adjust new / modernized disciplines (June, 2020)



# \* Rooms for equipment





NICOPA

Thank you for your  
attention!

**Senior teacher Durdyev Orazmuhammet  
odurdyev@gmail.ru**



Co-funded by the  
Erasmus+ Programme  
of the European Union

INSERT PRESENTER'S  
TITLE/NAME/SURNAME