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TECHNISCHE UNIVERSITÄT
ILMENAU

Minutes of the 4th meeting
of the CBHE Erasmus+ Project

*Fostering Internationalisation in AgRicultural
Engineering in Iran and Russia*

FARmER

585596-EPP-1-2017-1-DE-EPPKA2-CBHE-JP

14th-18th October 2019 Novocherkassk, Russia



Participants:

Organisation, city, country	Name
TUIL, Ilmenau, Germany	Dr. Tom Stroehla Dipl-Ing. Anton Kochnev
SUA, Nitra, Slovakia	Dr. Ladislav Toth
ASU, Astrakhan, Russia	Prof. Ravil Arykbaev Dr. Valery Rudenko Dr. Aleksandr Koshkarov
BNUT, Babol, Iran	Dr. Mostafa Rahimnejad Dr. Kamyar Nikzadfar Dr. Mehdi Mirimani
SANRU, Sari, Iran	Dr. Mohsen Masoudian
SRSPU, Novochoerkassk, Russia	Prof. Oleg Kravchenko Prof. Mikhail Shoshiashvili Dr. Victoriia Sumina Mr. Georgii Tokmakov
SSAU, Stavropol, Russia	Dr. Dmitrii Gritcai Dr. Mikhail Danilov Dr. Svyatoslav Serikov
SUSU, Chelyabinsk, Russia	Ms. Tatiana Lisovskaia Mr. Ivan Liubimov
VSTU, Volgograd, Russia	Dr. Grigory Boyko Prof. Vladislav Dygalo Dr. Evgenii Zakharov Mr. Aleksei Ivaniuk Dr. Aleksei Makarov Dr. Mikhail Poluektov Ms. Zhanna Tikhonova Dr. Alexey Fedin

The objectives of the meeting at the Platov SRSPU are:

- discussion of ways and prospects for the development of academic mobility programs between partner universities on the basis of degree comparability of the master's program "Agromechatronics";



- discussion of the strategy of the project implementation: progress of the project, planned and achieved results, problems and risks analysis, setting further tasks.

Monday 14th October 2019

11:00-12:45 Social activities

Guided tour of Novocherkassk;

visit of the Yermak square, Voskresenskiy Cathedral, and monument devoted to conqueror of Siberia Yermak

12:45-14:00 Witness of the Cossack parade

12:45-14:00 Visit of the museum of the history of the Don Cossacks, and the Ataman Palace (parallel activity)

14:00-15:00 Lunch break

15:00-16:00 Opening of the Conference

- Welcome speech of Prof. Oleg Kravchenko, SRSPU
- Welcome speech of Mr. Georgii Tokmakov, SRSPU
- Welcome speech of Dr Tom Stroehla, TUIL
- Organisation questions (Mr Georgii Tokmakov)

16:00-17:00 Monitoring Visit by TUIL

- visit of the Electromechanical Faculty of SRSPU (room 209 of the Robotics Building),
- demonstration of the work of the KUKA by PhD student Alexander Vlasov (responsible professor Prof. Oleg Kravchenko)
- visit of the computer class, where supplementary programs for the KUKA robot had been installed



- presentation of training materials and information about progress in the educational process of the Agromechatronics master programme (Prof. Mikhail Shoshiashvili).

Tuesday 15th October 2019

10:00-13:00 Presentation regarding current state of the FARmER Project (Dipl.-Ing. Anton Kochnev)

Budget Overview:

- The question of what payments are envisaged in the framework of the project, what payments have already been made was considered. At the moment, TU Ilmenau has fulfilled all its financial obligations to partner universities, there is a final payment of 10% of the grant amount, which will be made after the successful submission of the final report.
- Overview of current expenses (as of the time of submission of the Interim Report, that is, on 23.05.2019)
- Comparison of current expenses with the expenses provided by the detailed description of the project. Equipment Costs overruns (ASU 5.55%, SSAU 14.66%, SUSU 11.05%, BNUT 1.41%), VSTU and SANRU underruns (relevant documents were provided after the Interim Report was filed, as noted in the report text); Staff Costs overruns (SANRU 21.11%).
- Presentation of a table that reflects the human resources Fund for Joint Declarations and Timesheets.
- Presentation of a summary table with information on human resource expenditure (based on JD&TS submitted by partner universities). Errors in filling out documents by TUIL, SSAU, SANRU and BNUT were noted. Overspending of human resources by TUIL, SSAU, SANRU, BNUT, ASU and SRSPU was noted.



- Recalculation of human resources on the basis of payment provided by Guidelines for use of the Grant is executed. It is noted that on the basis of the documents that have been filed at the moment, SANRU has exceeded its salary Fund, and the balance of BNUT is 326 euros.
- A table with the budget balance for each of the categories (based on documents provided by partner universities) is presented.
- A table with the balance of funds for Travel Costs & Costs of Stay is presented, each University is given recommendations on the size of the delegation during the final conference in Volgograd.
- During the analysis of the project budget in the Travel Costs & Costs of Stay section, an error (typo) made during the application for the project was revealed.
- A proposal has been made to correct this error, which would require a reallocation of funds within the Consortium (UNIVAQ +85 €, SUA -255 €, SRSPU +285 €, ASU +3060 €, VSTU -3345 €, SBNUT +3345 €), as well as the payment of additional funds in the amount of 2605 euros.
- The table obtained as a result of the budget recalculation according to the proposed changes is presented, as well as new tables with balances on Travel Costs & Costs of Stay (since the error affected only these two categories).

Summer School Overview:

- Information on the results of the Summer school is presented: BNUT prepared the Moodle platform, representatives of all universities prepared 10 courses that were uploaded to the platform; TUIL prepared an invitation page and materials for dissemination.
- A short story about the preparation for the Summer school is presented: after the meeting at Sari, where the main stage of the discussion took place, it



became clear that a significant part of the questions remained unanswered. In order to coordinate further actions and take into account the interests of all participants of the Consortium, a survey was prepared and conducted, according to the results of which the rules of the Summer school were approved.

- The Consortium decided that:
 1. Students from other universities **could** participate in the Summer School **(96.8%)**.
 2. All Partner Universities should use **the same design of the certificate (90.3%)**.
 3. Opinions on the procedure for awarding the attendance certificate **were divided: 48.4%** for sending certificates to students **by e-mail, 45.2%** for awarding certificates **independently** at each university.
 4. **Video conference** on the results of the Summer School should be held at the beginning of the new academic year **in September 2019 (61.3%)**. In practice it was decided to replace the video conference with discussion about the Summer School during the Workshop in Novocherkassk in October 2019.
 5. Opinions on the procedure for awarding certificates **were also divided**: «required number of successfully completed courses should be **at least one (29%)**»; 2nd place - «**all 10 courses (25.8%)**», 3rd - «**half of courses, i.e. 5 (19.4%)**». **As a compromise**, it had been decided to provide in a certificate a **list of courses** that the student successfully completed, **and his/her grade** for each of them.
 6. Criteria for assessment of student's results are **tests after each course (45.2%)**. To be more specific, it had been decided to use grades in **international format**: excellent (91-100%), good (81-90%), satisfactory (66- 80%), sufficient (50-65%).



7. Video lectures should not contain subtitles (58.1%).

- The problems encountered in the preparation of the Summer school are named:
 - the need to submit an interim report, as well as the requested after this Table of Achieved and Planned Results, led to a delay in the start of Summer school preparation.
 - due to the above-mentioned reasons, coordination issues between BNUT and UNIVAQ were not resolved in a timely manner, but eventually contact was established.
 - On the basis of the blank provided by SANRU, a unified design of presentations for the Summer school was developed. Due to lack of time, the issues of application of this design were not discussed, and the presentations themselves were not checked in time, which is why some mistakes and shortcomings were made in the design of the slides, however, did not prevent the further use of these presentations.
 - On the basis of the blank provided by SRSPU, a single design of the certificate of the participant of the Summer school was developed, which was used in the future.
 - TUIL (Dr. Tom Stroehla) was responsible for the course "Mechatronics", which was also conducted by Dr. Kamyar Nikzadfar and Prof. Mikhail Shoshiashvili (SRSPU), so the exchange of educational materials was made to coordinate the work.
 - A serious problem was the preparation of the video lectures: we decided to shoot them on camera and spent several weeks searching for the group responsible for the shooting, as well as the organization of the production process itself. However, this problem has also been successfully solved.



- The specific problem of TUIL is considered - rather low interest of own students in Summer school (that, probably, is connected with a profile of higher education institution - technical, instead of agricultural) that did not allow it to be compared on number of the invited participants with other universities of Russia and Iran. Those participants who did get involved and registered on the platform often did not actively participate in its work afterwards.
- In order to solve this problem, it was decided to conduct active dissemination outside the Consortium, namely among agricultural universities in Russia.
- A database was prepared, which included virtually all agricultural universities in Russia (about 50); after that, a personalized e-mail was sent to these addresses with pre-prepared promotional materials (text in two versions and a picture).
- Following the results of mailing on 16 sites the invitation of students on Summer school was placed (14 official sites of higher education, as well as project agrovuz.ru sites - a single portal of agricultural universities of Russia, and the project ERASMUS+ SA&RUD).
- Thus, within the Consortium, invitations to the Summer school were sent through several channels: through publications on the official websites of universities, in social networks-on the pages of universities (Facebook, vk.com), on users ' personal pages and in a specialized news aggregator group ("Eduaid-Grants, Internships, Competitions, Summer schools 2019», vk.com), in Telegram, through posters, sending invitations by e-mail directly to students and heads of international departments of agricultural universities of Russia, as well as in personal invitations of students.
- It is noted that the unexpectedly effective was published on the official websites of the universities.



- Active presentation of the project allowed to expand the geography of participants of the Summer school: in total it amounted to 85 cities in Europe, Asia and Africa.
- The total number of "unique students" was approximately 360 people and exceeded the previously approved plan (140 people) almost three times.
- The question of the effectiveness of such attraction was considered: the percentage of students who successfully completed their studies at the Summer school and received a certificate is higher in universities where teachers invited students personally. On the other hand, quite a large number of participants from small groups (when only one person participated from one University), invited as a result of the described wide dissemination, also successfully completed the school and received certificates. Finally, the best student of the Summer school with an absolute result (who completed all courses and scored the highest possible number of points) represented the Buryat agricultural Academy (Ulan-Ude), which is not part of the Consortium and attracted as a result of widespread dissemination. These examples allow us to speak about the high efficiency of such a broad dissemination.
- In order to receive feedback from students, they were surveyed. It should be noted a fairly low percentage of respondents (about 30% among excellent students and 5% among participants who did not receive certificates).
- A possible reason is the wrong time of the survey (after the students received certificates on hand). During the second Summer school, the survey will be conducted before the certificates are awarded (at the end of the Summer school).
- After the survey of students the following results were obtained:



- For most participants, this Summer school was the first experience of participating in online schools (76.7%)
- Participants learned about the Summer school through news on University websites (34.9%), from their teachers (20.9%) and University staff not involved in the preparation of the Summer school (18.6%).
- Students chose courses to participate because they had already heard something about the problem (39.5%), had previous experience in this area (37.2%), knew nothing about such a course before (30.2%) and assumed that a certificate for this course could improve their portfolio (30.2%).
- The vast majority of students watched video lectures at home on a computer or tablet (81.4%).
- Just over half of students prefer short tests after each topic (58.1%) rather than one big test at the end of the course.
- From the point of view of students, the following changes should be made to the next Summer school (several possible answers): improve the work of the Moodle platform (37.2%), change the set of courses (30.2%), improve the quality of teaching (25.6%). 23.3% of the participants are completely satisfied with the Summer school and would not like to change anything.
- The most suitable video format for a new Summer school would be a set of short videos (5-10 minutes, one question - one video) - 60.5%.
- In this case, the course should include overview lectures on the topic (60.5%), video recordings of the production process or stories of specialists working in this field (39.5%), video instructions on working with programs (37.2%) and video recordings of the process (37.2%).
- The vast majority of respondents would like to participate in the next online school (74.4%), would like to continue to cooperate with the participants of the FARmER project (53.5%), as well as receive news about conferences



and magazines in which you can participate or prepare an article for publication (51.2%).

- Students were asked which way to get a master's thesis topic is most preferable for them. 37.2% would like to decide on a topic on their own, 23.3% would like to receive a topic from a representative of a company working in agriculture, 20.9% prefer to entrust the choice of a topic to their teacher, 18.6% are already involved in scientific work and have already decided on the theme of the final work.
- During conversations with representatives of universities constantly there was a question of inconvenient time of carrying out Summer school as in July students take examinations and practice, and it is rather difficult to find interested participants. This fact should be taken into account when conducting the next school: the date of its holding should be moved to March-April 2020.

13:00-14:00 Lunch Break

14:00-17:30 Meeting with master students of Agromechatronics,

- Student's presentations:
 - «Mechatronic module of technical vision for plant growth control» by Ivan Shmelev,
 - «Mechatronic system of positioning a solar battery on a mobile platform» by German Pukhomelin
- According to the results of the meeting with the students, 5 most prepared and motivated participants were selected in order to continue cooperation.



Wednesday 16th October 2019

10:00-10:30 Presentation of the new curriculum, developed in BNUT (Dr Kamyar Nikzadfar)

- Dr Nikzadfar noted that courses suitable for academic exchange of students within the Consortium could be Advanced engineering, mathematics, agrotronic (application of mechatronics in agriculture) and advanced robotics.
- The Robotics in Agriculture course can be taught at different universities in different ways, so it makes sense for students to study this course at different universities to cover more options.
- Dr Nikzadfar noted that because BNUT is a category 1 Iranian University, they are free to re-pass exams that students have taken at other universities, which facilitates academic exchange.

10:30-11:00 Presentation of the new curriculum, developed in SANRU (Dr Mohsen Masoudian)

- Dr Masoudian said SANRU was also willing and interested in academic exchanges within the FARmER project.
- To make the exchange more attractive to international students, some of the SANRU courses (in addition to those developed in the project) can be read in English. This requires that the student group consists of at least 10 English-speaking students.
- Since it is not possible to transfer money directly to Iran, SANRU is ready to provide financial support to foreign exchange students, but expects the same from partner universities.

11:00-11:30 Presentation of the new curriculum, developed in SSAU (Dr Svyatoslav Serikov)



- Stavropol is also ready to exchange students, the emphasis can be placed on the developed English-language courses.
- In addition, courses on robotics and drones, including joint research, may be of interest to colleagues and students from partner universities.
- At the moment, SSAU does not have funds for student travel, but SSAU is interested in applying for Erasmus+ KA1.
- Another funding option is the direct exchange of student groups consisting of the same number of students (with students paying for flights and the host University providing them with liquid at their own expense).
- The possible duration of such an exchange is 1-3 months (up to a semester).

11:30-11:50 Presentation of curricula, developed in SRSPU (Prof. Mikhail Shoshiashvili)

- The work of SRSPU is organized in such a way that the masters study for 3 semesters, and the 4th semester is devoted to practice and research.
- SRSPU has prepared a list of courses that could potentially be shared by partner universities. At the same time, Russian universities can agree on an exchange, for elective courses it can be organized quite simply.
- SRSPU can conduct any course in English, but there must be at least 10 English-speaking students in the student group.
- Since the 4th semester is devoted to research work, it is possible that students will spend it at a partner University (for 1-1.5 months).

11:50 Organizational issues regarding the trip to the plant Rostselmash (Ms Larisa Borovaya)

11:50-12:00 Presentation of curricula, developed in VSTU (Dr Alexey Fedin)

- Potentially suitable for exchange courses Operation and maintenance in agroindustrial complex, Diagnostics, Power Plants, hydraulic and pneumatic systems (read in the second semester of the master's degree).



- In order to encourage academic exchange, VSTU could organize preparatory courses in English so that students can prepare for a year's visit abroad. At the same time, Dr. Fedin notes that it is desirable to find a Professor at a partner University, who could be the second supervisor of the student during the preparation of the master's thesis.
- It was decided that it is necessary to make a consolidated list of students (with their contact information) who speak English well enough and are trained in "Agromechatronics". It is necessary to agree on such certification of language skills of students which would be recognized by all participants of Consortium. At the same time, TOEFL or IELTS certificates currently look excessive for these purposes.

12:05-12:25 Presentation of curricula, developed in ASU (Dr Alexandr Koshkarov)

- Dr. Koshkarov draws attention to the fact that General courses could be Mechatronic in technical complexes (1 semester), Operation in system, Designing of Robotic Systems.
- From an ASU perspective, a possible collaboration option would be a joint program, in which students at different universities work in parallel on the same research project (for example, on the use of computer vision in digital agriculture).
- The most desirable collaboration option for ASU would be a dual degree program with one or more Consortium universities.
- At the same time, it is noted that teaching students in English is not a problem for Astrakhan, since ASU operates the Caspian school of foreign languages.



- Cooperation is also possible when a student writes a master's thesis, and it is necessary to have an industrial partner in the Astrakhan region, which the University is looking for for each graduate.

12:25-12:40 Presentation of curricula, developed in SUSU (Mr Lubimov)

- Mr Lubimov draws the Consortium's attention to SUSU's active participation in the international market and its attractiveness for international students (currently there are more than 2,000 international students, including from Iran and China).
- In SUSU for 5 years there is a program of preparation for the exam in a foreign language Lingva, through which passed about a hundred teachers, so teaching in English is not a problem for Chelyabinsk.
- The most attractive for SUSU is the exchange of students during their work on master's theses, as well as the preparation of joint publications (both teachers and students of partner universities).
- In order to intensify work in this direction, it is necessary to compile a list of journals suitable for such publications, as well as to prepare and compare lists of topics on which research is being conducted in partner universities at the moment.

12:40-13:00 Summary of the discussion

- All of the universities are interested in further cooperation , but we still have questions to be solve to initiate this process.
- Each University should prepare a list of issues that (from its point of view) should be solved by partners to start further cooperation
- After TUIL receives this information, the coordinator will combine it into one final document (questionnaire). These questions must then be answered by each University.



- It is necessary to prepare a list of courses that can be shared by all universities, and to determine who should be the coordinator of international cooperation in partner universities.
- The coordinator draws the attention of the participants to open questions on the educational process (a document comparing the educational process in different countries was not prepared in a timely manner).
- It is necessary to prepare documentation on the process of study and admission to each of the partner universities and to consolidate it into one document.
- The coordinator noted that representatives of European universities should prepare feedback on the curriculum and Summer school courses developed by the partners. The suggestion is to make them in the form of checkboxes (what was done, what is not). On the basis of these checkboxes, universities will have to correct the curriculum they have prepared.
- The coordinator draws the attention of the participants to the fact that all relevant information is available on the FARmER project website and encourages them to use this platform more actively.
- Within the framework of Internal Quality Control, the coordinator will give specific recommendations for each University on the documents to be prepared.
- Consortium University staff will be required to provide their contracts with universities as this information is required for the final report.
- Within the framework of the dissemination of the FARmER project, if colleagues have any relevant information on conferences and publications, the coordinator asks them to share it via e-mail.
- Coordinator recalls External quality control in Novocherkassk,



- as well as the importance of internal quality control procedures at Consortium universities.
- At the same time, it is important to pay attention to whether the University documents prescribe the composition of the Project Management Board (first of all, whether a responsible person is appointed) and the organization of the internal quality control process.
- The coordinator asks the Consortium's University staff to pay attention to the completeness of the documents related to the project and to ensure that they are translated into English in a timely manner.
- The coordinator notes that drafts of the Memorandum of Understanding are already available and asks University staff to review them in advance.

13:00-14:00 Lunch Break

14:00-15:00 Presentation «Unmanned technologies and automation of technological processes in agricultural machines» by Prof. Pavel Sirotin, head of the chair «Automotive and Transport technological complexes», SRSPU

15:00-17:00 Familiarity with SRSPU

- meeting with representatives of SRSPU: the Dean of the mechanics faculty Vitaliy Berdnik, Head of the "Machine building technology, technological machines and equipment" department Vyacheslav Tamadaev and Professor of the "Chemical technologies" department Alexander Savostianov, oral agreement on the establishment of cooperation and academic exchange process between these departments and partner universities.
- Guided tour around SRSPU (Prof Mikhail Shoshiashvili)
- Visit of the mechanical faculty (visiting laboratories, acquaintance with traditional and modern equipment, discussion of the teaching of specialized engineering disciplines at the faculty).



Thursday 17th October 2019

8:00 Departure to Rostov-on-Don

9:00-12:30 Guided tour in the harvester plant ROSTSELMASH. Observation of grain harvesters, forage harvesters, tractors, sprayers and their component parts. Visiting the workshops of metal-rolling, harvester assembling and tractor assembling.

11:30-12:30 Presentation of the ROSTSELMASH group by sales manager Mr Anton Malykhin

12:30-15:30 Social event: guided tour In Rostov-on-Don.

16:30 Return to Novocherkassk

Friday 18th October 2019

10:00-12:00 Analysis and discussion of the samples of the Memorandum of Understanding and the Cooperation Agreement on Student Exchange

- As a result of the discussion the following amendments were made in the Memorandum of Understanding:

§1 MoU can result in a separate cooperation contract between the universities ***based on regular laws and legislation of each university.***

§2

1. the organisation of double degree program in ***relevant engineering.***

3. the exchange of students for courses ***or*** double degree programs

5. joint supervision of master theses

6. using lab facilities for research

- The following issues should still be clarified between the universities before signing the above-mentioned documents:

- legislation of getting a double degree in Russia, Iran, Slovakia and Germany;



- the contents of courses taught in the English language at a receiving university;
- conditions of accommodation and training at a receiving university.
- It is also recommended to inform the universities about the date of starting the next spring (summer) school two months beforehand.

12:00-13:00 Lunch Break

13:00-14:00 Closing ceremony of the workshop on degree comparability (Prof Mikhail Shoshiashvili)