UNIVERSITE IBN KHALDOUN
Tiaret

Periodical Report
36 Months of project implementation

New Curricula in Precision Agriculture Using GIS Technologies and Sensing Data

CUPAGIS

Ibn Khaldoun Tiaret University UIK

Reporting time: From 15.11.2020 till 14.11.2021

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

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

1- Curricula

Updated and New Courses

Table 1.1.1. UPDATED COURSES

Course №	Title of the course and in which program it is taught (Bachelor, Master)	Its volume (in ECTS)	Number of students participating in the course	Name new elements in the course and estimate the percentage they represent in relation to the preexisting course	Link to the course on the university page	Accreditation and recognition*: Specify the date when the course was accredited/certified in the curriculum and when the pilot teaching started. Include a scan of the accreditation certificate to the presentation
Course 1	Basics of the Precision Agriculture	05	**28**	50% Basics of the general agriculture 50 % Basics of the Precision Agriculture		The proposed programs have been appraised by experts from European partners: - Czech: University of life Sciences Prague, Faculty of engineering (Prof Frantisek Kumhala dated 07/01/2020). - Agricultural University, Plovdiv, Bulgaria (Assoc.Prof. Dr. Zhulieta Arnaudova dated 08/2020) - Economic faculty, Agricultural University, Plovdiv, Bulgaria (Assoc.Prof. Dr. Krum Hristov dated 08/18/2020),
Course 2	Agricultural statistics and experimentation	04	**28**	20% application of statistics and experimentation in precision agriculture		
Course 3	Plant ecophysiology	04	**28**	No update		
Course 4	General agriculture	03	**28**	80%General agriculture 20% Precision Agriculture		
Course 5	Soil physical properties and its measurement	04	**28**	No update		

1- Curricula

Updated and New Courses

Course 6	Algorithmic and data structure.	05	28	20% for application in PA	Economic faculty, Agricultural University, Plovdiv, Bulgaria (Assoc.Prof. Dr. Krum Hristov dated 08/18/2020) - Economic faculty, Agricultural University, Plovdiv, Bulgaria (Dean. Prof. Dr. Dimo Atanasov dated 08/22/2020 Experts in the field of training Natural and Life Sciences D04 of the Ministry of Higher Education and Scientific Research (Algeria). Date: September 2021. (Ministerial decree)
Course 7	Electrical and electronic measurements	05	28	20% for application in PA No update	
Course 8	signal processing	03	28	60% for application in PA	
Course 9	Artificial Intelligence	03	28	60% for application in PA	
Course 10	Agrometeorology	04	28	80% application of Agrometeorology in PA	
Course 11	Optimizing computer vision algorithms and real-time implementations	04	28	80% application in PA	
Course 12	Geographics informations systems	04	28	60% application in PA	
Course 13	Geographics data bases	04	28	80% application in PA	

∑(Total number of updated courses) = ____13_____

∑(Total number of ECTS) = _____52_____

1- Curricula

Updated and New Courses

Table 1.1.2.NEW COURSES

Course №	Title of the course and in which program it is taught (Bachelor, Master)	Its volume (in ECTS)	Number of students participating in the course	Link to the course on the university page	Accreditation and recognition*: Specify the date when the course was accredited/certified in the curriculum and when the pilot teaching started. Include a scan of the accreditation certificate to the presentation
Course 1	Remote Sensing and Application of Earth and Environment related PA	08	28	**Group systems:** - 15 days online (Zoom and Skype) + Internal Moodle platform (requires a username and password for each student): *https//: moodle.univ-tiaret.dz* - 15 days face-to-face classroom reinforced by paper and pdf support	The proposed programs have been appraised by experts from European partners: - Czech: University of life Sciences Prague, Faculty of engineering (Prof Frantisek Kumhala dated 07/01/2020). - Agricultural University, Plovdiv, Bulgaria (Assoc.Prof. Dr. Zhulieta Arnaudova dated 08/2020) - Economic faculty, Agricultural University, Plovdiv, Bulgaria (Assoc.Prof. Dr. Krum Hristov dated 08/18/2020),
Course 2	Yield sensors for Precision Agriculture	03	28		
Course 3	Intensive course to leverage acceptance of the new technologies	03	28		
Course 4	Global Navigation Satellite System (GNSS)	3.5	28		
Course 5	Start-up initiatives for future farmers	2.5	28		

1- Curricula

Table 1.1.2.NEW COURSES

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Course 6	Using of SENTINEL1-2-3 imagery for agricultural field monitoring	04	28	**Group systems:** - 15 days online (Zoom and Skype) + Internal Moodle platform (requires a username and password for each student): *https//: moodle.univ-tiaret.dz* - 15 days face-to-face classroom reinforced by paper and pdf support	Economic faculty, Agricultural University, Plovdiv, Bulgaria (Assoc.Prof. Dr. Krum Hristov dated 08/18/2020) - Economic faculty, Agricultural University, Plovdiv, Bulgaria (Dean. Prof. Dr. Dimo Atanasov dated 08/22/2020 Experts in the field of training Natural and Life Sciences D04 of the Ministry of Higher Education and Scientific Research (Algeria). Date: September 2021. (Ministerial decree)
Course 7	Web technology	03	28		
Course 8	Application of precision agriculture for culture growth	04	28		
Course 9	Agricultural legislation	02	28		
Course 10	Bibliographic research	01	28		
Course 11	Management Marketing and Decision Making in Precision Agriculture	03	28		
Course 12	Information's & communications technologies	01	28		

∑(Total number of new courses) = _____12_____

∑(Total number of ECTS) = _____38_____

1- Curricula

Curricula Description

1. TEACHING MATERIALS 1st semester				
№	Title of the materials	Type (manuals/text books/methodological recommendations)	Short description	Location of the teaching material (place/ link in the internet)
1	Agricultural statistics and experimentation	manuals	This manual presents the basic elements of the application of experimental statistics in the field of agriculture in general. He is 80% ready.	PDF support in finishing phase
2	General agriculture	Course material	course material of the general agriculture module established according to the framework of the precision agriculture master	Html scrom format in the e-learning platforme of the university
3	Intensive course for leverage the acceptance of new technologies	Course materials	course material of the general agriculture module established according to the framework of the precision agriculture master	Html + pdf uploaded in the e-learning platforme of the university
4	Plant ecophysiology	manual	The manual englobes general aspects of plant ecophysiology, treating different tissues, functions and state of development	Document under preparation
5	Remote Sensing and Application of Earth and Environment related PA	manuals	Remote Sensing and Application of Earth and Environment related PA	Document under preparation

1.4 Pilot teaching

Pilot teaching of updated/new curricula/modules/courses:

- Number of the enrolled students. **28**
- Please, report on the gender balance of the enrolled students; **08 M / 20 F**
- Did you involve in the pilot teaching any people with fewer opportunities? *

  a computer technician was integrated from a temporary to a permanent contract.
- Amount of the courses with ECTS, involved in the pilot teaching;…. **Session of master classes Cupagis online for teachers and students: 90h and 03 ETS**

- Number of teachers involved in the pilot teaching.

  06 teachers in the 1st semester / 07 teachers in the 2nd semester

1. Quality assurance

A survey was carried out at the end of November on the visibility, clarity and attractiveness of training (questionnaire attached).

Aaccording to the survey results (doc attached), it appears that the 3 criteria (attractiveness, visibility and clarity) are not 100% satisfied.

So, the following recommendations can be made:

- Put more information on the university website about the specialty of precision agriculture;
- Facilitate access to the university website;
- Provide more information on training prospects;
- Carry out training videos to demonstrate the use of new technologies,
- Organization of an information day on the specialty.

Another survey will be done at the end of the 1st semester of training in order to assess the adequacy of access conditions with the objectives of the training.

The established questionnaires and survey results are published on the drive link.

Laboratories and equipment

- Titles of laboratory works that have been conducted and which equipment is used in these works (specify modules, in which these laboratory works are conducted and at which faculties.

1. Laboratory name and works :

Within the framework of the activities of the Cupagis project, a pedagogical laboratory has been created under the name of ***"Precision Agriculture".*** The laboratory houses the pedagogical and practical activities of the students enrolled in the master.

During the first semester of the pilot phase, the students were able to carry out practical sessions on the use of the ***Green seeker*** for the estimation of biomass production and fertilization management in the module: intensive courses for leverage acceptance of new technologies.

they also had to consult the ***raspberry pijoy kit*** within the framework of the same module to explain the interest of the new technologies in the field of agriculture. however, the use and the realization of practical sessions on the use of the received ***raspberry cards***, ***the diviner2000*** and the installation of the weather station will be done during the second semester in accordance with the planning of the modules, in particular the courses of physics of the ground, electronic measurements and agrometeorology (Appendix 01)

Dissemination and Sustainability

Table 4.1.1 DISSEMINATION		
	Question	**Answer**
1	**How many and which dissemination materials were produced (leaflets, brochures, flyers, publications etc.) in the last 12 months. Please, provide designs (scans) in the presentation.**	Flyers / brochures
2	**Provide a link to the Internet sources where publications about the project/dissemination materials were posted**	*https://www.univ-tiaret.dz/cupagis/*
3	**How many non-consortium organizations (for example, universities/teachers, students, administrative staff of universities) were informed about the project in the last 12 months?**	-Students of the target population (bachelor students). - laboratory staff - faculty and department heads

Dissemination Events

Table 4.1.2. DISSEMINATION EVENTS

No	Date	Title	Target Audience	Number of participants	Is there a press-release of the event (YES/NO). If YES, provide it.
1	**08th February 2021**	**visit of the minister of higher education and scientific research**	Official visiting of the minister to the university of Ibn khaldoun	Open audience (political personality, teachers, students…etc).	yes
2	**21th January 2020**	**radio show with local media**	Public	On air show (undefined)	yes
3	**12th February 2020**	**study and information day**	Presentation of the Cupagis project and the master in precision agriculture at the university	(Students / teachers).	**yes**
4	**14th December 2021**	**Participation of two students and their teacher in a radio show with local media**	Public	Teacher + two students from the target population	**yes**
5	**15th march 2021**	**National study day entitled: women's day**	Students, teachers at national level	A teacher from the Cupagis team gave a presentation about the project	
6	**06th October 2021**	**study and information day**	Students of the target population	Cupagis manager and pasenso with students from target population	**yes**

∑(Total number of dissemination events) = 07

Regional Cooperation

Within the last 12 months of the project, were any employment events/fairs conducted and how many?

• How many CUPAGIS+ agreements with non-academic stakeholders/enterprises/other members of the consortium/ other non-consortium members were signed in the last 12 months or are planned to be signed in the future to maintain and develop the project results?

Sustainability of PASENSO Offices

During the last twelve months, the dissemination activities of the events carried out by PASENSO are :

- organization of a study day with the vice dean in charge of pedagogy on the new master in precision agriculture and the Cupagis project.
- animation of sessions and radio broadcasts in partnership with the students registered in the master.
- update and development of the website dedicated to the CUPAGIS project on the university's website.
- dissemination of information with national newspaper correspondents in press articles. (For further information's see appendix 02).

Plan of present and future activities by PASENSO for 2022 :

For the academic year 2022, PASENSO plans to develop the following activities:

- production of a video of the students' impressions of the new masters and the usefulness of the teaching material received in the course.
- broadcasting of events and presentation of Cupagis project activities on social networks.
- study day with the scientific clubs of the faculty around the master of Precision Agriculture.
- coordination with local, regional and national media representatives around the Cupagis project and the precision agriculture master.
- coordination and dissemination of events for the benefit of the teachers involved in the project.
- coordination and dissemination of events for the benefit of the teachers involved in the project.
- animation and updating of the Cupagis project website.

Spin-off effects

- Specify other additional outcomes of the project which were not mentioned in the project plan

Appendix 01 : Photos of the received materials

Appendix 01 : Students of the master of precision agriculture

ملحق رقم 39 للقرار رقم 992 المؤرخ في 21 سبتمبر 2021

المتضمن تأهيل مؤسسات التعليم العالي لضمان التكوين لنيل شهادات الليسانس و الماستر
بعنوان السنة الجامعية 2021-2022 بجامعة تيارت

Annexe n° 39 de l'arrêté n° 992 du 21 SEP. 2021
portant habilitation les établissements de l'enseignement supérieur à la formation en vue de l'obtention du diplôme de Licence et Master au titre de l'année universitaire 2021-2022 à l'Université de Tiaret

Domaine	Filière	Spécialité	Type (A/P)	Cycle de formation	طور التكوين	طبيعة(أ/م)	التخصص	الشعبة	الميدان
Sciences de la Nature et de la Vie	Sciences agronomiques	Agriculture de précision	P	Mas	م	م	الزراعة الدقيقة	علوم فلاحية	علوم الطبيعة و الحياة

Ministerial Decree: Professional Master in Precision Agriculture

Appendix 01 : Students of the master of precision agriculture

Exam N°01 of semester 01 for my Precision Agriculture Master class (2021/2022). Unity: Intensive course to leverage acceptance of the new technologies

Appendix 02: Dissemination events.

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Thank you for you attention!

By UIK Group
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Co-funded by the
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of the European Union