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

ERASMUS +

HIGHER EDUCATION CAPACITY BUILDING

Erasmus+ Project

New curricula in Precision Agriculture using GIS technologies and sensing data

(CUPAGIS)

Invitation to Tender for Equipment Procurement

#CUPAGIS/12.10/2020

Prepared by:

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Dear Sir/Madam,

We kindly invite you to submit your **tender for the supply of Equipment to the project partner universities in Algeria** (see the technical specifications provided in the Part-III of this document) within the framework of the Project "*New curricula in Precision Agriculture using GIS technologies and sensing data*"- (*CUPAGIS)*, co-funded by the **ERASMUS+ Programme of the European Union**.

When preparing your tender, please be guided by this invitation to tender.

Please note that in the tender procedure may also participate commercial offers for some of the items presented in the technical specifications of equipment required provided in the Part-III of this document. Partial delivery of equipment is possible.

The tenderer must complete all annexes and provide all information. Only completed annexes will be accepted for consideration.

Tenders should be submitted in English **by email to** info@ecm-academy.de not later than **Monday, November 9, 2020 at 17:00 (Berlin local time)**.

We kindly ask you to be ensure that the tender is signed, stamped and in the **PDF** format. An acknowledgement of receipt will be sent to you accordingly.

*In all cases, please add the below reference: **#CUPAGIS/12.10/2020 "Invitation to Tender for Equipment Procurement (Algeria)".***

*For any additional information, please, contact us **only** by email.*

Sincerely yours,

EXOLAUNCH GmbH

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Part I - Project Description

1.1. About CUPAGIS

The "New curricula in Precision Agriculture using GIS technologies and sensing data" – CUPAGIS (project reference number 597962-EPP-1-2018-1-EE-EPPKA2-CBHE-JP) is a three-year duration multi-country joint project co-funded by the Erasmus+ Capacity Building in the Field of Higher Education Programme of the European Union (EU) launched in 2018. The aim of the project is to modernize curricula in precision agriculture in physical sciences, such as Geographic Information System/GIS, big data, remote sensing. The project will create the environment for education of high skilled specialists in line with labor market and according to EU best practices and Bologna process.

Anticipated project outputs and results:

- Review of the current curricula in precision agriculture through analysis
- Agreement on instructional strategy and guidelines for BA/MSc curricula design including the use of new Educational Technologies
- A set of new core curricula and transferable modules including innovative teaching facilities
- Updated current two cycle curricula and programs in precision agriculture according to the Bologna requirements and the new developments
- Developed, implemented, and accredited new practice-oriented, student-focused core, and transferable curricula including ECTS
- Bringing the Higher Education Institutions of Algeria (DZ) closer to labor market. Besides that, creation of the innovative teaching facilities: a new equipped laboratory PAGIS, a class VCR, Precision agriculture using sensing data (Service Office PASENSO).

1.2. CUPAGIS Partners – Project Consortium

The following institutions (P) from Partner and European countries are involved in the project consortium:

P1	Tallinn University of Technology (TalTech), Tallinn/Estonia
P2	Technische Universität Berlin (TUB), Berlin/Germany
P3	Agricultural University Plovdiv (AU), Plovdiv/Bulgaria
P4	Czech University of Life Sciences Prague (CULS), Prague/Czech Republic
P5	EXOLAUNCH GmbH (EXO), Berlin/Germany
P6	Djillali Liabes University (UDL), Sidi bel Abbès/Algeria
P7	Université d'Oran Ahmed Ben Bella (UniOran), Oran/Algeria
P8	Ibn-Khaldoun University Tiaret (UIK), Tiaret/Algeria
P9	Université de Mostaganem (UMAB), Mostaganem/Algeria
P10	Ecole Nationale Superieure d'Agronomie (ENSA), Algiers/Algeria
P11	Ministry of Higher Education and Scientific Research (MESRS), Bwn Aknoun/ Algeria

1.3. Disclaimer

"This project has been funded with support from the European Commission. This document reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein".

Part II – Tender Specifications

2.1. Object of the Tender

EXOLAUNCH GmbH (Reuchlin Str. 10, 10553 Berlin, Germany) announces a tender for the procurement of the equipment to the project partners universities in Algeria (DZ) (see 2.8), within the technical specifications provided in the Part-III of this document.

This document represents an invitation to tender for the supply of the equipment as part of CUPAGIS Project co-funded by the ERASMUS+ Programme of the European Union.

The tenderer must complete all annexes and provide all information. Only completed annexes will be accepted for consideration.

Partial delivery of equipment is possible. You can submit commercial offers for selected items from the table with equipment required.

This invitation to tender is in no way binding on the contracting authority. The contracting authority's contractual obligation commences only upon the signature of the contract with the successful tenderer.

2.2. Special Conditions

1. According to the agreements between EU and the mentioned above project partner countries, all equipment purchased and any provision of services within the framework of Erasmus+ projects is exempted from taxes (including Value Added Tax (VAT)), duties and charges. An appropriate Certificate for the VAT exemption will be provided by the project partners universities – recipients of the equipment (see 2.8).

2. VAT is not considered as an eligible project cost, the commercial offer and later an invoice must not include VAT ("Erasmus+ Programme Guide" of Grant Agreement).

3. In order to be eligible for exemption from the abovementioned taxes (including VAT), duties and charges the equipment procured within this tender should be delivered as CIP Incoterms, as well the seller clears the goods for export and is responsible for delivery of these goods at an agreed place of shipment. (e.g. customs warehouse).

4. It is necessary to provide together with commercial offer links to the sites or datasheets of the manufacturers of all items.

2.3. Currency and Language of the Tender

The tenders shall be presented in EURO for both the unit prices and the overall amount of the commitment. The currency of payment will be also in EURO. The tenders shall be presented in English.

2.4. Submission of the Tenders: Means and Deadline

Tenders should be submitted in English by email to info@ecm-academy.de not later than **Monday, November 9, 2020 at 17:00 (Berlin local time)**. No offer may be submitted or modified after this date.

We kindly ask you to be ensure that the tender is signed, stamped and in the PDF format. An acknowledgement of receipt will be sent to you accordingly.

In all cases, please add the below reference:

#CUPAGIS/12.10/2020 "Invitation to Tender for Equipment Procurement (Algeria)".

2.5. Documents to be Submitted by the Tenderer

The tenderer must complete all annexes and provide all information.

Additional documents such as instructions and operating manuals shall be required with the delivery of equipment.

All necessary supporting documents and international certificates required in the country of destination for customs clearance must be provided.

2.6. Deadline for Engagement

Tenderers shall remain bound by their tenders for a period of thirty (30) days from the closing date for submission on **Monday, November 9, 2020 at 17:00 (Berlin local time)**.

2.7. Subcontracting

It is prohibited for the tenderers to subcontract parts of the tender to third parties.

2.8. Terms of delivery

Term of delivery is customs control point airport in Tallinn (EE) (Akadeemia tee 21).

The full addresses and contact details of the responsible persons in partner universities will be provided after the signature of the contract with the selected supplier.

The following 5 (five) universities are involved in this call for tender as the final recipients of goods:

No	Partner	Acronym	Location
P6	Djillali Liabes University	UDL	Abbès/Algeria
P7	Université d'Oran Ahmed Ben Bella	UniOran	Oran/Algeria
P8	Ibn-Khaldoun University Tiaret	UIK	Tiaret/Algeria
P9	Université de Mostaganem	UMAB	Mostaganem/Algeria
P10	Ecole Nationale Superieure d'Agronomie	ENSA	Algiers/Algeria

2.9. Goods Delivery Time

The delivery period may not exceed 60 days from the date of signature of the contract with the selected supplier.

GUARANTY: The suppliers should propose the way to guarantee the overall equipment in Algeria.

2.10. Terms of payment

There is 30% prepayment. 70% payment should be made only after delivery of the equipment and a final inventory of the equipment at the partner university. Payment will be made within two weeks from the submission of a written confirmation from the partner university with the inventory number in the above-mentioned universities (see 2.8).

2.11. Evaluation and Award of the Contract

The key principles that shall govern the process of evaluation of tenders are listed as follows:

- Non-discrimination: Any discrimination with regard to tenderers on the basis of nationality is forbidden.
- Equal treatment: All tenders submitted within the set deadline are to be treated equally. They will be evaluated on the basis of the same terms, conditions and requirements set in the tender documents.
- Transparency: Detailed written records are being kept of all actions of the evaluation panel. All decisions taken will be sufficiently justified and documented. In this way, any discriminatory behaviour can be prevented and if not prevented, then monitored.
- Confidentiality: The process of evaluation of tenders is confidential. Information concerning the process of evaluation of tenders and the award recommendation is not to be disclosed to the tenderers or to any other person who is not officially concerned with the process until information on the award of the contract is communicated to all tenderers.

Exclusion criteria: Tenderers are excluded from participation in procurement procedures if:

- they have submitted a tender that does not meet all the requirements provided in this document, including the ones in clause 2.5.
- they are bankrupt or being wound up, are having their affairs administered by the courts, have entered into an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matters, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations,
- they have been convicted of an offence concerning their professional conduct by a judgment which has the force of res judicata,
- they have not fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the national legal provisions,
- they have been the subject of a judgment which has the force of res judicata for fraud, corruption, involvement in a criminal organisation or any other illegal activity.

In the selection process only will be considered the suppliers who would provide delivery of the equipment to all of the above-mentioned universities (see 2.8).

Selection criteria: tenderers will be selected based on the following criteria:

1. Having submitted the tender that complies with all of the specifications, requirements and offers the lowest price, as well as all other evaluation criteria indicated, shall be selected;
2. Having the necessary economic, financial, technical and professional capacity to perform the contract.

Award criteria: the awarded tender/tenders will be the one who offered the best quality and price tender out of those submitted by tenderers which are not excluded, and which meet the selection criteria.

The awarded tenderer should:

1. Be in full compliance of tender to the tender specifications, bill of quantities and technical specifications;
2. Provided technical information for all the equipment to be supplied.

The contract will be awarded to the tenderer whose tender has been found to be in conformity with the invitation to tender. The award method will be the "best value for money" meaning that the winning tender is the one offering the best quality/price ratio, taking into account the criteria announced in the specifications.

2.12. Evaluation Committee

Tenders will be evaluated by the CUPAGIS Project Tender Evaluation Committee comprising at least 5 (five) members appointed for the purpose.

2.13. Questions, Notification of Results

Participants' questions should be sent no later than 10 days before the deadline for submitting tender proposals by email to info@ecm-academy.de with the reference #CUPAGIS/12.10/2020 "Invitation to Tender for Equipment Procurement (Algeria)". Clarifications will be sent within 3 days.

Tenderers will be notified of the results within 10 days from the closing date for submission by email. Thus, it is important to provide the email of the main contact person.

Part III – Bill of Quantities and Technical Specifications

The following base set (for 1 University) is planned for procurement within this tender (total 5 sets):

The table of equipment required		
#	**Required Technical Specifications and Standards**	**Quantity**
#PAGIS 1	***PAL 1 A – Wireless solar panel and battery powered data logger***	***1 pc***
1	Durable and flexible data logger for all climatic conditions, powered by rechargeable batteries and a solar panel. The logger is equipped with: - rain gauge - global radiation sensor - combined air temperature and relative humidity sensor wind speed sensor	
2	**Sensors layout:** **5 digital inputs:** automatic sensor recognition, supporting sensor chains (max. 600 sensors)	
3	Extension connector: Radio access point or Sentek Drill & Drop or ultrasonic wind sensor or two extra chain connectors – Pessl Instruments bus cable nodes	
4	**Memory:** 8 MB flash memory	
5	**Internet connectivity:** GPRS, HDSPA, UMTS, WiFi, LTE class 1, LTE class M (Q2/2020)	
6	**Alert:** SMS, user configurable via website	
7	**Dimensions without sensors:** 41 cm L x 13 cm W x 7 cm H	
8	**Weight without sensors:** 2.2 kg	
9	**Measuring interval:** 5 minutes (by default)	
10	**Logging interval:** 10-120 min (user selectable)	
11	**Transmission frequency:** User selectable	
12	**Battery:** 6V, 4.5AH, Operating range: -35 °C to 80 °C	
13	**Solar panel:** Dimensions: 13.5 x 13.5 cm, 2-Watt solar panel	
14	**Rain gauge -** The mechanic consists of a magnet, which moves past a reed switch and opens or closes the circuit. The double spoon tips left or right and does not lose any water due to a very fast switching mechanics. The resolution with a surface of 200 cm^2 is 0.2 mm Sensor Type Double tipping bucket rain gauge Output Switch signal Switch Reed contact, solid state	

	Sensitivity 1 tip per 0.2 mm or 1 tip per 0.5 mm Collector Surface 200 cm^2 Evaluation Digital Maximum Rain 12 mm/minute Dimensions 185 mm diameter x 250 mm H Accuracy ±5%	
15	Global radiation sensor - The IM506D Pyranometer is designed for field measurements of global solar radiation in agricultural, meteorological and solar energy studies. In clear, unobstructed daylight, the Pessl Instruments pyranometer has favourable results compared to the first-class thermopile-type pyranometers but is priced at just a fraction of the cost. Sensor - LI-200SZ Calibration - Calibration against Kipp and Zonen CMP3 under daylight. Absolute error max. 5%, typically 3% Stability - 2% drift on 2-year use Time to measure - 10 µs Temperature dependency - 0.15% per °C Cosines correction - Sensor corrects up to 80° degrees Azimuth - 1% error over 360 degree at 45-degree elevation Operating temperature range - -20°C to 65°C Operating relative humidity range - 0 to 100% Sensor - Photodiode Housing - Weatherproof PAS case with acrylic diffuser, stainless steel hardware Size - 35 mm diameter, 45 mm height Weight - 114 g Evaluation - Pulse Wide Modulation 0-80% = 0-2000 W/m^2 Spectral range - 300-1100 nm	
16	Combined air temperature and relative humidity sensor Measures relative humidity and temperature with outstanding accuracy and repeatability. It has an integrated data acquisition and calibration history. Dew point, VPD and delta T calculations available. Temperature sensor - PT1000 1/3 Class B Humidity sensor -ROTRONIC Hygromer® IN-1 Accuracy with standard adjustment profile at 23°C and 10, 35, 80 % rh ± 0.8% rh / ± 0.1 °C Accuracy with high precision adjustment profile at 23 °C and 10, 20, 30, 40, 50, 60, 70, 80, 90 % rh ± 0.5% rh / 0.1 °C Resolution, AirChip3000 Typically 0.02 % rh, 0.01 °C Long-term stability < 1 % rh, 0.1°C / year Humidity response time t 63 - 3 seconds Measurement range - 0…100 % rh, -100…200 °C	

	Electronics operating range -50-100 °C and 0-100 % rh Output signals Serial port RS485 Audit trail & electronic records FDA 21CFR Part 11 and GAMP compliant Power supply & consumption 3.2 V / 4 mA Housing/probe material Polycarbonate Filter Polyethylene insert, polycarbonate cage Standards CE-compliant 2007/108/EG	
17	**Wind speed sensor** - IM512CD is a cup type anemometer for low cost and long term, accurate wind measurements for all kinds of use. It calculates average wind speed in the specific time period. Range - 0 to 50 m/s, gust survival 60m/s Sensor - 12 cm diameter cup wheel assembly, 40 mm diameter hemispherical cups Turning Factor - 75 cm Distance Constant (63% recovery) - 2.3 m Threshold - 1.1 m/s Transducer - Stationary Coil Transducer Output - AC sine wave signal induced by rotating magnet on cup wheel shaft. 100 mVpp at 60 rpm. 6 Vpp at 3600 rpm Output Frequency - 1 cycle per cup wheel revolution. 0.75 m/s per Hz	
18	**The software license should be unlimited (!)**	
#PAGIS 2	***PAL 4 B – Soil Temperature Sensor***	***1 pc***
1	**Temperature sensor** The Soil Temperature Sensor is a PT1000 in a waterproof stainless-steel housing. The sensor output is a duty-cycle signal.	
2	**Operating temperature range:** -30°C to +75°C	
3	**Supply DC Voltage (range):** 4,57 – 7 V	
4	Accuracy: ±0.1 °C (-30 °C to +75 °C)	
5	Supply current max. 200 µA	
6	Calibration error max. 0.25 °C (23 °C)	
7	Long term drift max. 0.1 °C	
8	**Data transmission:** Rs 485 Digital signal (temperature data sent on demand of iMETOS main board)	
#PAGIS 3	***PAL 7 C – Soil Moisture Sensor***	***1 pc***
1	**PI54-D**	

2	**Size:** 2.2 cm diameter x 5 cm length	
3	**Measuring Principle:** Soil water tension correlated with electrical resistance in granular matrix	
4	**Working range:** 0−0.57 m3/m3 (0%−57% VWC)	
5	**Resolution**: 0.0008 m^3/m^3 (0.08% VWC) in mineral soils from 0−0.50 m^3/m^3 (0%−50% VWC)	
6	**Accuracy:** With standard calibration equation, 0.03 m^3/m^3 (3% VWC) typical in mineral soils that have solution electrical conductivity <10 dS/m	
7	**Operating temperature range:** -40 to 50 °C	
8	**Supply voltage (VIN to GND):** - Minimum: 3.6 VDC at 12 mA - Maximum: 15 VDC at 20 mA	
9	**Measurement duration:** Maximum 10 ms	
10	**Output:** Analog and digital	
#PAGIS 4	***Greenseeker – Handheld Crop Sensor***	***1 pc***
1	**Key Benefits:** - Addresses field variability - Determines fertilizer rates by using the current crop condition - Adjusts application rates automatically based on readings taken by the sensors as applicator travels through the field - Can often be used with existing rate control systems - Works in any weather condition—day or night Easy to install, easy to calibrate, easy to use	
2	**Trimble Display Compatibility:** - TMX-2050™ display FmX® integrated display	
3	**The sensor emits brief bursts of red and infrared light and then measures the amount of each type of light that is reflected back from the plant**	
4	**The sensor continues to sample the scanned area as long as the trigger remains engaged**	

5	**The sensor displays the measured value in terms of an NDVI reading (ranging from 0.00 to 0.99) on its LCD display screen**	
6	**High-quality optical sensor to instantly measure plant vigor**	
7	**Easy-to-read display, even in sunlight**	
8	**Simple pull-type trigger and comfortable hand grip**	
9	**Micro USB charging port**	
#PAGIS 5	***Diviner 2000***	***1 pc***
1	**Diviner 2000 is a portable and robust device measuring soil water over multiple depths (at 10 cm intervals) in the profile**	
#PAGIS 6	***Arduino Kit***	***6 pcs***
1	**RPI SET JOYPI Raspberry Pi - Joy-Pi Experimental / Education Case**	
2	**The built-in sensors include:** • a light sensor for measuring brightness • a sound sensor to detect noises • a motion sensor • an ultrasonic sensor for measuring distances • one inclination sensor • a touch sensor • a temperature and humidity sensor an infrared sensor with which, for example, you can also receive commands from an infrared remote control (included in the scope of delivery)	
3	**The modules include:** • a GPIO LED display • one 16x2 LCD module • an 8x8 LED matrix • a 7-segment LED display • a buzzer • one relay • a key matrix	

	• independent buttons • an RFID module • a 5 V stepper motor • one servo motor • a 7-inch touch screen display a camera mounted above the display in the lid	
4	**Compatible with the models:** • Raspberry 2 B • Raspberry 3 B • Raspberry 3 B+ • Raspberry Pi 4 B Raspberry Zero	
5	**Must incl. Raspberry Pi (!)**	

#PAGIS 7	***Guidance system***	***1 pc***
1	**SunNav guidance system AG100**	
2	**Professional GNSS smart antenna, large display and LS guidance software**	
3	**Intuitive interface**	
4	**GNSS receiver supports GPS/GLONASS or GPS/BeiDou**	
5	**System** - CPU:4 cores ,1.5GHz - Storage:2GB RAM+16GB ROM,(64GB ROM optional) - Microphone: built-in - Speaker:4ohm, 2W speaker - Operation system: Android 6.0.1	
6	**Display** - 7-inch LCD screen, resolution: 1024*600 - Capacitive touch screen, support 5 finger touch - 750nits high brightness display	
7	**I/O** - RS232 serial port*2	

	- RS485*1 - CAN*2 (supports J1939, CANOpen, ISO15765 protocol) - USB 2.0*1 (supports host and debug mode) - DC in*1 - 12V DC external power supply*2 - Analog camera input*2	
8	**Environment** - Dustproof waterproof grade: IP65 - Vibration standard (working): MIL-STD-810 - Impact standard (working): MIL-STD-810 - Road vehicle standard: ISO16750 - Working temperature: -20 ° C ~ +70 ° C, humidity: 0% ~ 90% RH - Storage temperature: -40 ° C ~ +85 ° C, humidity: 30% ~ 95% RH	
9	**Power** - 9-36V DC input - Support power failure detection - Built-in battery option - Dimensions (W*H*D): 194*127*29 mm - Weight: 0.7 kg	