

International Summer School

**"ICT in PRECISION AGRICULTURE – IPA.UM.SI"**

University of Maribor, Faculty of Agriculture and Life Sciences

**26th August – 6th September 2024**

The **ICT in PRECISION AGRICULTURE (IPA) summer school** will take place at the Faculty of Agriculture and Life Sciences, University of Maribor from the 26th of August to the 6th of September 2024. The duration of the summer school is two weeks, **the first week will be carried out in person** and the **second week in virtual form**.

Precision agriculture is an innovative approach that combines information and communication technology (ICT) with agriculture, to improve its efficiency and reduce waste. ICT in precision agriculture can help farmers monitor crop growth and soil health in real-time, leading to better decision-making and higher yields. Examples of ICT tools used in precision agriculture include drones, sensors, GPS and data analytics software, which can provide farmers with a more comprehensive understanding of their crops and land.

In this respect the IPA summer school ([https://ipa.um.si](https://ipa.um.si/)) will include lectures, practical work, demonstrations, and field trips to enrich the participants’ understanding and knowledge of precision agriculture.

* **During the first week, the participants will attend:**

- lectures on digitalization in agriculture, the basic of computer and robotic systems in agriculture, smart and precise agricultural machinery, sustainable approaches to land management, precision agriculture in viticulture,

- practical work with precision agriculture systems,

- demonstrations and field trips to show examples of implementing of new technologies on farms.

* **The second week of the training will be conducted online** with a series of practical online courses and continue with simple ICT examples and preparation of the students for more advanced steps in precision agriculture.

The training will be conducted by local and international lecturers. By attending and completing the summer school, the participants will be awarded **4 ECTS points**.

 Candidates from the field of agriculture, as well as candidates from other technically oriented programs, will find the summer school useful and are kindly invited to submit their application by the 13th of May 2024, to the following email address: ipa@um.si. The notification of acceptance will follow by 27th of May 2024.

We look forward to welcoming you in Maribor!

On behalf of the organizing committee

Assist. Prof. dr. Jurij Rakun

Further information about the International Summer School

**ICT in PRECISION AGRICULTURE (IPA)**

This summer school is co-founded by the CEEPUS and Erasmus+BIP funding scheme. Which means that **there is no registration fee for students**.

More information's: <https://www.erasmusplus.um.si/summer-schools/.>



**Students coming from Erasmus partner institutions under the BIP** funding agreement are entitled to the mobility funds available at their institution.

**What is covered:**

* Personnel costs: Lectures, workshops, field trips
* Traveling expenses: traveling to and from the dormitories to the faculty and field trips
* Meals: lunch

**What is not covered:**

* Traveling expenses from point of origin to Maribor (covered by BIP funding only)
* Daily allowance (covered by BIP funding only)
* Accommodation (covered by BIP funding only).



The **students coming from CEEPUS partner institutions** are entitled to mobility funding available at their institution.

**What is covered:**

* Personnel costs: Lectures, workshops, field trips
* Traveling expenses: traveling to and from the dormitories to the faculty and field trips
* Meals: lunch
* Accommodation.

**What is not covered:**

* travel costs: contact your local CEEPUS coordinator or a national CEEPUS office.



We also welcome **other students, outside CEEPUS and BIP networks,** to join the IPA summer school. In this case the funding is up to the candidates.

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**Organizer: University of Maribor, Faculty of Agriculture and Life Sciences**

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|  |  | Location | Activity  | Topic | Institution/ Person |
| 25. 8. 2024 Sunday | Students Arrival |
| 26. 8. 2024**Monday** | 8:30 – 9:00 | FALS  | Participants´ registration |  | UM FALS / Tutor for international students, IRO  |
| 9:00 – 9:30 | Opening ceremony |  | UM FALS / Dean, Full prof. dr. Aleš GREGORC, moderating Katja TEŽAK, lector  |
| 9:30 – 10:15  | Motivation lectures | Introduction to precision agriculture | UM FALS / Assist. prof. dr. Jurij RAKUN |
| 10:15 – 12:00 | Lectures | Precision Viticulture | MATE (Hungary) / Assist. Prof. Péter Bodor |
| 12:00 – 13:00 | Break and Lunch |  |  |
| 13:00-13:30 | Presentation of the faculty |  | UM FALS / Urška LISEC, MSc |
| 13:30-14:00 | Guided tour of the Hompoš castle |  | UM FALS / Urška LISEC, MSc |
| 14:00 -  | Maribor | Botanical Garden / Maribor city tour |  | UM FALS IRO + City tour guide (organised by IRO UM) |
| 27. 8. 2024**Tuesday**  | 8:15 – 10:30  | FALS | Workshop introduction + Lectures | Basics of computer and robotic systems (in agriculture) | UM FALS / Assist. prof. dr. Jurij RAKUN  |
| 10:30 – 10:35 | Break |  |  |
| 10:35 – 12:05 | Lecture | Digitalization in agriculture  | UM FALS / Assoc. prof. dr. Miran LAKOTA |
| 12:05 – 12:50 | Lunch |  |  |
| 12:50 – 14:20 | Lectures | Digitalization of livestock farming - DigiPig | NMBU (Norway) / Assoc. prof. dr. Marko OCEPEK |
| 14:20 – 14:25 | Break  |  |  |
| 14:25 – 15:55 | Language workshop  | Communication skills in precision agriculture: At least 100 words in English | UM FALS / Katja TEŽAK, lector  |
| 28. 8. 2024**Wednesday**  | 8:15 – 10:30 | FALS | Lecture | Smart and precise agriculture machinery  | UM FALS / Assist. prof. dr. Peter VINDIŠ |
| 10:30 – 10:35 | Break |  |  |
| 10:35 – 12:05 | Lecture | Smart and precise agriculture machinery  | UM FALS / Assist. prof. dr. Peter VINDIŠ  |
| 12:05 – 12:50 | Lunch |  |  |
| 12:50 – 14:20  | Lecture  | Practical use of technologies in precision agriculture | UM FALS / dr. Damijan KELC and Erik RIHTER, MSc |
| 14:20 – 14:25 | Break |  |  |
| 14:25 –  | Lectures / Field trip | Examples of good practices in the implementation of new technologies on farms | UM FALS / Assist. prof. dr. Peter VINDIŠ, dr. Damijan KELC and Erik RIHTER, MSc  |
| 29. 8. 2024 **Thursday**  | 8:15 – 10:30 |  | Lecture  | Different sustainable approaches to land management | UM FALS / Full prof. dr. Denis STAJNKO  |
| 10:30 – 10:35  | Break  |  |  |
| 10:35 – 12:05 | Lecture  | Precision agriculture in viticulture | UM FALS / Assist. prof. dr. Peter BERK |
| 12:05 – 12:50 | Lunch |  |  |
| 13:00 – 14.30 | Lectures | Precision agriculture in viticulture  | UM FALS / Assist. prof. dr. Peter BERK |
| 14.30 -  | Lectures / Field trip | Meranovo estate | UM FALS / Urška LISEC, MSc |
| 30. 8. 2024 **Friday**  | 8:15 – 10:30 | FALS | Lecture  | Practical work with systems in precision agriculture | UM FALS / dr. Peter LEPEJUM FALS / assist. prof. dr. Jurij RAKUN |
| 10:30 – 10:35 | Break  |  |  |
| 10:35 – 12:05 | Lecture | Practical work with systems in precision agriculture | UM FALS / dr. Peter LEPEJ |
| 12:05 – 13:00  | Lunch  |  |  |
| 13:00 – 14.30 | Lectures | Practical work with systems in precision agriculture | UM FALS / dr. Peter LEPEJ |
| 31. 8. 2024 **Saturday**  | 8:15 – 15:00  |  | Field trip | Field trip on farms  |  |
| 1.9.2024Sunday | Students Departure |
| 2. 9. 2024 | 8:00 – 9:30 | ONLINE | Lectures | Smart trends in Czech agricultural practice | CZU (Czech Republic) / Assist. Prof. Petr Šarec |
| 9:30 – 10:00 | Break |  |  |
| 11:30 – 16:00 | Assignments | Individual student work | Individual work in groups |
| 3. 9. 2024 Tuesday  | 8:00 – 9:00 | ONLINE | Lecture | Challenges of navigation and spraying | UM FALS / Chair of Biosystems Engineering |
| 9:00 – 10:00 | Break |  |  |
| 10:00 – 12:00 | Field trials | Navigation of robots in agriculture – FRE | UM FALS / Chair of Biosystems Engineering |
| 12:00 – 13:00 | Break |  |  |
| 14:00 – 16:15  | Field trials | Precise spraying with robots – FRE | UM FALS / Chair of Biosystems Engineering |
| 4. 9. 2024 Wednesday  | 8:00 – 9:00 | ONLINE | Lecture | Challenges of object detection and avoidance | UM FALS / Chair of Biosystems Engineering |
| 9:00 – 10:00 | Break |  |  |
| 10:00 – 12:00 | Field trials | Object detection in Agriculture – FRE | UM FALS / Chair of Biosystems Engineering |
| 12:00 – 13:00 | Break |  |  |
| 14:00 – 16:15  | Field trials | Avoidance of obstacles in Agriculture – FRE | UM FALS / Chair of Biosystems Engineering |
| 5. 9. 2024 Thursday  | 8:00 – 9:00 | ONLINE | Lecture | New ideas in agriculture | UM FALS / Chair of Biosystems Engineering |
| 9:00 – 10:00 | Break |  |  |
| 10:00 – 12:00 | Field trials | Freestyle – FRE  | UM FALS / Chair of Biosystems Engineering |
| 12:00 – 13:00 | Break |  |  |
| 6. 9. 2024 Friday | 9:00 – 11:00 | ONLINE | Lecture | Presentation of the results | UM FALS / Chair of Biosystems Engineering |
| 11:00 - | Farewell | Closing thoughts and farewell  | UM FALS / Chair of Biosystems Engineering |

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| **Program committee:** Assist. prof. dr. Jurij Rakun Assoc. prof. dr. Miran Lakota Full prof. dr. Denis StajnkoAssist. Prof. dr. Peter VindišAssist. Prof. dr. Peter BerkDr. Peter LepejDr. Damijan KelcErik Rihter, MScKatja Težak, lector Tjaša Vukmanič, MScUrška Lisec, MScPeter Bernad, Msc | **Invited (international) lecturers:**Assist. Prof. Péter Bodor, Hungarian University of Life Sciences (MATE)Assist. Prof. Marko Ocepek, Norwegian University of Life Sciences (NMBU)Assist. Prof. Petr Šarec, Czech University of Life Sciences Prague (CULS) |