



University of Maribor

Faculty of Agriculture
and Life Sciences

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>) 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.

International Summer school: "ICT in Precision Agriculture – IPA.UM.SI"

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

		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	FALS	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 LEPEJ UM 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	
1.9.2024 Sunday	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	8:00 – 9:00	ONLINE	Lecture	New ideas in agriculture	UM FALS / Chair of Biosystems Engineering

Thursday	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

Program committee:

Assist. prof. dr. Jurij Rakun
 Assoc. prof. dr. Miran Lakota
 Full prof. dr. Denis Stajnko
 Assist. Prof. dr. Peter Vindiš
 Assist. Prof. dr. Peter Berk
 Dr. Peter Lepej
 Dr. Damijan Kelc
 Erik Rihter, MSc
 Katja Težak, lector
 Tjaša Vukmanič, MSc
 Urška Lisec, MSc
 Peter 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)