

Nottingham Trent University
Course Specification
GLOBAL SUMMER SCHOOL

Basic Course information		
1	Course Title:	Smart Agriculture and Future Crops Global Summer School
2	Course Code:	
3	Credit Points:	10
4	Duration:	2 weeks (10 days)
5	School:	ARES
6	Campus:	City and Brackenhurst
7	Date this version first approved to run:	July 2023

8 Pre, post and co-requisites:

You should have the required English language skills (an IELTS score of 6+ or equivalent).

9 Courses containing the Course

<u>Level</u>	<u>Core/Option</u>	<u>Mode</u>	<u>Course Title</u>
5	Option	FT	A constituent of NTU Global Summer School

10 Overview and aims

The aim of this course is to introduce international students to precision and vertical agricultural and future crop technologies, as well as UK farming techniques.

Students will study a range of topics such as:

- GIS and drone use,
- LED lighting,
- plant nutrition,
- the application of AI,
- IOT in automated control systems for controlled environment cropping.

The course includes a mix of lectures, practical workshops in our laboratories, as well as 2 field trips to industry relevant sites. Students will have the opportunity to develop their scientific and technical skills and will also give a presentation as part of their course assessment.

11 Course content

To include:

- Vertical farming technologies and crop production techniques
- Plant nutrition and ecological management
- GIS and remote sensing for precision agriculture
- UK farming practices

12 Indicative reading

1. Plant Factory – An Indoor Vertical Farming System for effect Quality Food Production (2016), Toyoki Kozai et al., Elsevier -Academic Press, Book.
2. ZHANG, X., BIAN, Z., YUAN, X., CHEN, X. and LU, C., 2020. A review on the effects of light-emitting diode (LED) light on the nutrients of sprouts and microgreens. Trends in Food Science and Technology, 99, pp. 203-216. <https://doi.org/10.1016/j.tifs.2020.02.03>
3. OH, S. and LU, C., 2022. Vertical farming - smart urban agriculture for enhancing resilience and sustainability in food security. The Journal of Horticultural Science and Biotechnology <https://doi.org/10.1080/14620316.2022.2141666>
4. Super Immunity – Plant nutrition for boosting your body defenses, (2014), Joel Fuhrman, Book

13 Learning outcomes

Knowledge and understanding. After studying this course, you should be able to:

K1 Appraise different techniques used in precision agriculture.

K2 Explain how these technologies are employed in innovation crop production systems.

Skills, qualities and attributes. After studying this course, you should be able to:

S1 Demonstrate effective presentation skills.

14 Teaching and learning

Range of modes of direct contact

Some short lectures to introduce topics with a mix of group activity, tutor-led discussion and practical exercises. It will also include two industry relevant fieldtrips.

Total contact hours: 50

Range of other learning methods

Directed reading and presentation preparation

Total non-contact hours: 10

15 Assessment methods

This indicates the type and weighting of assessment elements in the course

<u>Element number</u>	<u>Weighting</u>	<u>Type</u>	<u>Description</u>
1	100%	Presentation	10-minute individual presentation

Diagnostic/formative assessment

This indicates if there are any assessments that do not contribute directly to the final Course mark

N/A