HORT 7002 GREENHOUSE CONTROL SYSTEMS

Credit Points 10

Legacy Code 301359

Coordinator Jing He (https://directory.westernsydney.edu.au/search/name/Jing He/)

Description This subject develops an understanding of the leading controlling systems for protected cropping in low, medium and high-tech greenhouses. The main topics are: the integration of hardware and software in a range of different protected cropping systems, management of the aerial environment (e.g. manageable parameters and greenhouse climate engineering, radiation management, energy sources and distribution systems, ventilation, air conditioning and cooling systems, screens, carbon dioxide-sources and distribution), and management of the hydroponic environment (factors, tools, control of water and nutrient balance, water quality, salinity effects). The subject emphasises computing skills, calculation, and analysis that are applicable to a range of different greenhouse control systems.

School Science

Discipline Horticulture

Student Contribution Band HECS Band 1 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Postgraduate Coursework Level 7 subject

Restrictions

Must be enrolled in postgraduate course

Assumed Knowledge

Students entering this subject should have knowledge of one of the following subject areas: horticultural production systems; environmental sustainability analytics; computing and technological applications; marketing principles and business management.

Learning Outcomes

After successful completion of this Subject, students will be able to:

1. Explain the objectives of greenhouse control systems and their effective application and management in Australian and overseas protected cropping.
2. Articulate key challenges and opportunities facing the future development of hardware and software suitable for protected cropping.
3. Appraise principles in analysing and integrating the greenhouse control systems in protected cropping industry.
4. Apply computing skills, calculation, and analysis for a range of different greenhouse control systems.
5. Evaluate the greenhouse control systems in Australia in comparison to advances in international greenhouse control systems.
6. Communicate the role of greenhouse control systems in contributing to the wider environmental protection, social benefits and business prosperity.

Subject Content

1. Hardware systems in low, medium and high-tech greenhouses
2. Software systems in low, medium and high-tech greenhouses
3. Management of the aerial environment such as manageable parameters and greenhouse climate engineering, radiation management, energy sources and distribution systems, ventilation, air conditioning and cooling systems, screens, CO2-sources and distribution
4. Management of the hydroponic environment (e.g. factors, tools, control of water, and nutrient balance, water quality, salinity effects)
5. The integration of hardware and software in different protected cropping systems
6. Future global innovations of greenhouse control systems and their use for Australian protected cropping

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Quiz	Three online quizzes of 60 minutes each including multiple choice and short answer questions	30	N	Individual	N
Report	One practical report (1,000 words)	15	N	Group	N
Presentation	15 minutes	15	N	Group	N
Essay	2,000 words	40	N	Individual	N

Teaching Periods

Autumn (2025)

Hawkesbury

On-site

Subject Contact Jing He (https://directory.westernsydney.edu.au/search/name/Jing He/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=HORT7002_25-AUT_HW_1#subjects)