HORT 2001 GREENHOUSE TECHNOLOGY FOR FOOD SUSTAINABILITY

Credit Points 10

Legacy Code 301097

Coordinator Zhonghua Chen (https://directory.westernsydney.edu.au/search/name/Zhonghua Chen/)

Description Greenhouses are enclosed structures that optimise temperature, light, water and carbon dioxide to maximise plant production. Also called 'greenhouse horticulture', these advanced systems integrate technologies across disciplines (e.g. horticultural, environmental and material sciences; mechanical engineering and design; robotics and computing programming) to create futuristic indoor environments that increase the quantity and quality of plant-derived foods. Controlled environments can significantly reduce reliance on inputs (fertiliser, pesticide, energy and water) and reduce environmental impacts (including 'food miles'). This unit explores a range of greenhouse technologies in Australia and overseas-from simple low-cost options, through to cutting-edge technology in energy and water-efficient production. Students will observe current status and future trends in the industry to examine how advanced technologies can improve sustainability measures along with the reliability of horticultural output. Students will consider how innovative horticultural enterprises can provide consumers with greater capacity to adopt more sustainable diets.

School Science

Discipline Horticulture

Student Contribution Band HECS Band 1 10cp

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

Level Undergraduate Level 2 subject

Assumed Knowledge

Students enrolling in this subject should have knowledge of least one of the following subject areas: horticultural production systems; environmental sustainability analytics; technological design and development; consumer behaviour and/or marketing principles; health promotion and/or human nutrition.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Evaluate and communicate the future of greenhouse horticulture in Australia in comparison to international experience
2. Identify and articulate key challenges and opportunities (environmental, economic and social) faced by greenhouse horticulture
3. Explain principles of crop husbandry in the context of greenhouse horticulture
4. Explain objectives of greenhouse environment management
5. Analyse, integrate and promote the benefits of technologies employed in greenhouse horticulture
6. Interpret and communicate wider environmental, social and business impacts of greenhouse horticulture

Subject Content

1. Current status of greenhouse horticulture in Australia and globally
2. Opportunities and challenges (environmental, economic and social) faced by greenhouse horticulture
3. Crop husbandry for yield, profit and sustainability
4. Management of greenhouse environment (temperature, humidity, light, CO2) for crop growth and yield
5. Technologies for improving input efficiency in greenhouse horticulture
6. Emerging consumer markets, and consumer influences on horticultural supply and demand
7. Postharvest food technologies and promotion of sustainable diets
8. Current and future research opportunities in greenhouse horticulture

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.

Item	Length	Percent	Threshold	Individual/ Group Task
Applied project- Part A: written proposal Part B: presentation	Part A (10%): 500 words, Part B (30%): 20 mins presentation	40	N	Individual
Industry proposal	1-page plan plus 15 mins audio-visual	40	N	Individual
Examination	2 hours	20	N	Individual

Teaching Periods