

PNH03070: GENERAL VEGETABLE CROPS

1. General information

- Term: 3
- Credits: **Total credits: 2 (Lecture: 1.5 – Practice: 0.5) - Self-study: 6.0**
- Credit hours for teaching and learning activities:
 - Lectures: 22 teaching hours
 - Practice in laboratory/greenhouse: 8 teaching hours
- Self-study: 60 hours
- Department conducting the course:
 - Department: Horticulture and Landscaping
 - Faculty: Agronomy
- Kind of the course:

General <input type="checkbox"/>		Foundation <input type="checkbox"/>		Specialization 1 <input checked="" type="checkbox"/>		Specialization 2 <input checked="" type="checkbox"/>	
Compulsory <input type="checkbox"/>	Elective <input type="checkbox"/>	Compulsory <input type="checkbox"/>	Elective <input type="checkbox"/>	Compulsory <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	Compulsory <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>

- Parallel course(s): None
- Prerequisite course(s): None
- Course language: English Vietnamese

2. Course objectives and expected learning outcomes

* *Course objectives:*

- The module aims to provide learners with knowledge about: the importance, biological and ecological characteristics of vegetables; basic technical measures used in vegetable cultivation;
- Training course for learners of vegetable breeding skills; growing, tending, harvesting and preserving vegetable products.
- The course forms for learners a working attitude, active learning, always improving knowledge and skills when given the opportunity.

* *Course expected learning outcomes*

Program learning outcomes After successfully completing this program, students are able to	Program Learning outcome's performance criteria
<i>Professional knowledge</i>	
PLO2. Apply scientific knowledge and cultivation techniques to produce horticultural products to meet market demand.	2.1. Apply crop science knowledge to build high-tech demonstration farms/ advanced procedures for producing horticultural products to meet market demand. 2.2. Apply crop farming techniques to build high-tech demonstration farms/ advanced procedures for producing horticultural products to meet market demand.
PLO3. Apply knowledge of landscape design, construction and maintenance to meet specific cultural, social, environmental and economic needs.	3.1 Apply knowledge of landscape and landscape design to find ideas for landscape design that meet specific cultural, social, environmental and economic needs.
<i>Professional skill</i>	
PLO8. Transfer technical advances and new technologies to	8.1. Transfer technical advances and new technologies into horticultural production.

Program learning outcomes After successfully completing this program, students are able to	Program Learning outcome's performance criteria
horticultural production and landscape management.	
<i>Attitudes</i>	
PLO10. Show a willingness to learn for life, an innovative and creative spirit to respond to rapid changes in science and technology.	10.2. Be willing to learn when given the opportunity to learn, and improve knowledge and capacity.

3. Course description

PNH03070. General vegetable crops. Two credits: 1,5-0,5-6.

The module includes the following contents: Importance, development history, characteristics and direction of vegetable production; Biological and ecological characteristics of vegetable crops; Main technical measures in vegetable production; Safe vegetable production; Harvest and post-harvest techniques of vegetable products; Techniques for harvesting and preserving vegetable products.

4. Teaching and learning & assessment methods

CELO	CELO1	CELO2	CELO3	CELO4	CELO5
PLO					
Teaching and learning					
Presentation	x	x		x	
Practice		x	x	x	
Field survey				x	x
Assessment methods					
Rubric 1. Attendance (10%)					x
Rubric 2. Practice (10%)			x	x	x
Rubric 3. Field survey (20%)			x	x	x
Rubric 4. Final exam (60%)	x	x		x	

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5. Student tasks

- Attendance: All students attending this course must attend school fully and on time
- Prepare for the lecture: All students attending this module must read the textbook and lecture before coming to class.
- Practice: All students participating in this module must attend the required number of practice sessions
- Internship, off-campus practice: All students participating in this module have to conduct field investigations on local vegetable production and consumption.
- Final Exam: Students must take the final exam.

6. Text books and references

** Text Books/Lecture Notes:*

Giáo trình Cây rau. Tạ Thu Cúc, NXBNN, 2007.

Bài giảng HP Cây rau đại cương. Vũ Quỳnh Hoa, 2020.

** Additional references:*

- + HC. Wien, H. Stutzel. 2020. The Physiology of Vegetable Crops. CABI Publishing.
- + University of Florida. 2020. Vegetable Production Handbook of Florida.

- + Vu Quynh Hoa, Ngo Minh Hai, Nguyen Duc Huy, Tran Van Quang, Ninh Thi Phip, Bui The Khuynh, Bui Ngoc Tan, Vu Thanh Hai, Nguuyen Duc Khanh, Nguyen Anh Duc, Pham Anh Tuan, Nguyen Van Loc, Tran Duc Vien. 2020. The Vegetable and Flower Production in the Central Highlands of Vietnam: Current Status and Perspective Strategies. Vietnam Journal of Agricultural Sciences.
- + Hai Minh Ngo, Hoa Quynh Vu, Ran Liu, Masahiro Moritaka and Susumu Fukuda 2019. Challenges for the development of safe vegetables in Vietnam: An insight into the supply chains in Hanoi City. Journal of the Faculty of Agriculture, Kyushu University
- + Ngô Minh Hải, Vũ Quỳnh Hoa. 2016. Nhận thức của người tiêu dùng Việt Nam về thực phẩm hữu cơ: Trường hợp nghiên cứu tại thành phố Hà Nội. Tạp chí Khoa học Nông nghiệp Việt Nam.
- + Cẩm nang trồng rau (Vegetable production training manual-AVRDC). Trần Văn Lại và Lê Thị Hà dịch.
- + Gopinadhan Paliyath. 2009. Postharvest Biology and technology of fruits, vegetable, and flowers.
- + Hà Văn Tuyết. 2002. Bảo quản rau quả tươi và bán chế phẩm.
- + PTS. Mai Thị Phương Anh. 2000. Kỹ thuật trồng một số loại rau cao cấp
- + TS Phạm Hồng Cúc. 2001. Kỹ thuật trồng rau
- + Trần Khắc Thi. 2002. Kỹ thuật trồng rau sạch (rau an toàn)
- + Trần Khắc Thi. 2009. Rau ăn lá và hoa (trồng rau an toàn - năng suất - chất lượng cao)
- + Tạ Thu Cúc. 2009. Kỹ thuật trồng rau sạch theo mùa vụ đông xuân
- + Trần Khắc Thi. 2009. Kỹ thuật trồng đậu rau an toàn - năng suất - chất lượng cao
- + Tạ Thu Cúc. 2009. Kỹ thuật trồng rau sạch theo mùa vụ xuân – hè
- + Tạ Thu Cúc. 2009. Kỹ thuật trồng rau sạch theo mùa vụ hè – thu
- + Nguyễn Xuân Giao. 2009. Kỹ thuật làm vườn ở hộ gia đình
- + Lê Văn Tấn. 2009. Công nghệ bảo quản và chế biến rau quả

7. Course outline

Week	Content	CELOs
1	Chapter 1: Importance, development history, characteristics and direction of vegetable production	
	A/ Main content in class: (03 hours) Contents of theoretical education: 1.1. The importance of vegetables 1.2. General characteristics of the vegetable production industry 1.3. Direction of vegetable production	K1
	B/ Contents to be self-study at home: (06 hours) 1.1. The importance of vegetables 1.2. General characteristics of the vegetable production industry 1.3. Direction of vegetable production	K1
2	Chapter 2: Biological and ecological characteristics of vegetable crops	
	A/ Summary of the main content in class: (03 hours) Contents of theoretical education: 2.1. Classification of vegetables Content of practical/experimental teaching: (5 hours) - Sorting vegetable seeds	K1, K3

	B/ Contents to be self-study at home: (06 hours) Methods of classifying vegetables	K1
3	Chapter 2: Biological and ecological characteristics of vegetable crops (Continue)	
	A/ Summary of the main content in class: (03 hours) Contents of theoretical education: 2.2. Biological and ecological characteristics of vegetables	K1
	B/ Contents to be self-study at home: (06 hours) External factors affecting vegetables	K1
4	Chapter 3: Main technical measures in vegetable production	
	A/ Summary of the main content in class: (03 hours) Content of theoretical education: (3 hours) 3.1. How to grow vegetables 3.2. Soil for vegetables and tillage techniques 3.3. Vegetable seeds and nursery techniques Practical teaching content: (5 hours) - Incubation technique - Techniques for growing and caring for vegetables	K2, K3, K5
	B/ Contents to be self-study at home: (06 hours) Techniques for growing and caring for vegetable plants in the nursery	K2
5	Chapter 3: Main technical measures in vegetable production (continue)	
	A/ Summarize the main content in class: Content of theoretical education: (3 hours) 3.4. Techniques for growing and caring for vegetables Practical teaching content: (5 hours) - Techniques for growing and caring for vegetables - Investigate local vegetable production and consumption	K2, K3, K4, K5
	B/ Contents to be self-study at home: (06 hours) Techniques for growing and caring for vegetables in production fields	K2
6	Chapter 4: Safe vegetable production	
	A/ Summarize the main content in class Content of theoretical education: (3 periods) 4.1. The importance of safe vegetable production 4.2. The reason why vegetables are not safe 4.3. Standard of safe vegetables, Viet-GAP 4.4. Conditions for safe vegetable production	K2

	<i>B/ Contents to be self-study at home: (06 hours)</i> - The concept of safe vegetables, standards of safe vegetables and principles of safe vegetable production	K2
7	<i>Chapter 5: Harvesting and post-harvest techniques of vegetable products</i>	
	A/ Content of theoretical education: (03 hours) 5.1. Principles of harvesting vegetable products 5.2. Causes of post-harvest losses of vegetable products 5.3. Measures to reduce post-harvest losses	K2
	<i>B/ Contents to be self-study at home: (06 hours)</i> Causes of post-harvest losses of vegetable products and measures to reduce post-harvest losses	K2