

PNH03080: GENERAL FLOWER AND ORNAMENTAL 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: 17 teaching hours (1 sections /week, 3 teaching hours/section, 50 minutes /teaching hour. Total in 6 weeks)
 - Presentation and discussion: 5 teaching hours (2 sessions, 2-3 teaching hours/section, 50 minutes/teaching hour).
 - Practice in laboratory/greenhouse: 8 teaching hours (1 section/week, 5 teaching hours/section, total 3 weeks)
- Self-study: 90 teaching hours (50 minutes each)
- 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 course provides students with knowledge on the production and consumption of flower and ornamental plants in Vietnam; flower and ornamental plant’s classification; environmental factor requirements for growth and development of flower and ornamental plant; nursery and propagation of flower and ornamental plants.
- The course trains students skill in producing commercial flower/ornamental plants in the nursery and self-solving problems.
- The course gives student an attitude of love for the profession, show a willingness to learn for life; have a sense of initiative, creativity and responsibility at work..

*** 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.
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>General skills</i>	

Program learning outcomes After successfully completing this program, students are able to	Program Learning outcome's performance criteria
PLO4. Work effectively in a team where members join together to lead the team, create a collaborative and inclusive environment, set goals, plan tasks, and meet goals.	4.1. Apply proficiently plan and time management skills during teamwork.
<i>Professional skill</i>	
PLO8. Transfer technical advances and new technologies to horticultural production and landscape management.	8.1. Transfer technical advances and new technologies into horticultural production.
<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

PNH03080. General flower and ornamental crops. (2TC: 1.5 - 0.5 - 4): The course includes contents of Roles of flower and ornamental plants in the modern life; Situation of production and consumption of flowers and ornamental plants in Vietnam and all over the world. Characteristics of the main commercial flower production areas in Vietnam. Flower and ornamental plant classification. Environmental factor requirements for growth and development of flower and ornamental plants; Nursery techniques and methods of propagation; Techniques in caring flower and ornamental plant. Cut flower preservation

4. Teaching and learning & assessment methods

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

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5. Student tasks

- Attendance and attitude: students must attend all lectures in class and practice.
- Prepare materials before going class (self-study): students must read or prepare materials related to the lesson in class following guidance of teacher.
- Practice and work in group: students have to attend all practical classes, to write reports (individual or in group) following guidance of teacher

- Discussion: Work effectively in a team.
- Final exam: students must complete the final exam in accordance with the Academy's regulations

6. Text books and references

* *Text Books/Lecture Notes:*

1. John M. Dole and Harold F. Wilkins (2005). Floriculture Principles and Species (second edition). Pearson Prentice Hall, Upper Saddle River, New Jersey 07458. USA
2. Nguyễn Anh Đức (2020). Bài giảng Hoa cây cảnh đại cương. Bộ môn Rau hoa quả và Cảnh quan. Khoa Nông học, Học viện Nông nghiệp Việt Nam
3. Márkilla Zunete Beckmann-Cavalcante. 2020. Floriculture and Covid-19. Ornamental Horticulture (Campinas), 2020, Vol.27 (1), p.6-7
4. Phạm Thị Minh Phương (2021). Bài giảng Hoa cây cảnh đại cương. Bộ môn Rau hoa quả và Cảnh quan. Khoa Nông học, Học viện Nông nghiệp Việt Nam
5. Rees, A. R.. 1992. Ornamental bulbs, corms and tubers. Crop production science in horticulture.. Wallingford, Oxon, UK : C.A.B. International. 220 p
6. Stanghellini, Cecilia; Ooster, Bert van't; Heuvelink, Ep. 2019. Greenhouse horticulture: Technology for optimal crop production. The Netherlands : Wageningen Academic Publishers. 315 pages.

* *Additional references:*

7. Phạm Thị Minh Phương và Trần Thị Minh Hằng. 2014. Nghiên cứu biện pháp nhân giống vô tính cây lan huệ (*Hippeastrum* sp.) bằng phương pháp chẻ củ. Tạp chí Nông nghiệp và Phát triển Nông thôn (Study on the method of chipping hippeastrum (*Hippeastrum* sp.) propagation. Journal of Agriculture and Rural Development).
8. Phạm Thị Minh Phương và Nguyễn Anh Đức. 2017. Nghiên cứu một số biện pháp kỹ thuật nhân giống vô tính cây hoa hiên tại Hà Nội. Tạp chí Nông nghiệp và phát triển nông thôn (Study on the methods of daylily propagation in Hanoi. Journal of Agriculture and Rural Development).
9. Phạm Thị Minh Phương, Bùi Ngọc Tấn, Đặng Thị Hương và Nguyễn Anh Đức. 2021. Ảnh hưởng của lượng bón phân hữu cơ và npk đến sinh trưởng và phát triển của giống hoa Lan huệ Hồng Đào. Khoa học và Công nghệ Nông nghiệp Việt Nam (Effect of organic and npk fertilizer application on the growth and development of Hippeastrum (Hong Dao cv.). Journal of Vietnam Agricultural Science and Technology.

* *Internet link*

- <http://www.mard.gov.vn>
- <http://www.aiph.org>
- <http://www.fao.org>
- <http://favri.org.vn/index.php/vi/gia-i-thia-u/ca-c-tt-tra-c-thua-c/88-trung-tam-nghien-c-u-va-phat-tri-n-hoa-cay-c-nh>

7. Course outline

Week	Content	CELOs
1	Chapter 1: Introduction to floriculture	
	A/ Summary of content in class (4 teaching hours) Theoretical teaching content: 1.1. What is floriculture? The role of flower and ornamental plants in the life 1.2.1. Situation of ornamental flower production in the world 1.2.2. The situation of ornamental flower production in Vietnam	CELO1 CELO2
	B/ Student self – study (8 teaching hours)	CELO1

	- Read the material and prepare for the next lesson (flower plant classification)	
2,3	Chapter 2: Flower and ornamental plant's classification	
	A/ Summary of content in class: (2 teaching hours) Theoretical teaching content: 2.1. Purpose of flowers and ornamental plants classification 2.2. Method of flower and ornamental plant classification Content of the seminar/discussion: (0.5 teaching hours) - List the names (and basic characteristics) of ornamental flowers according to each classified group, explanation for the results	CELO1, CELO2
	B/ Student self – study: (teaching hours) - Review the content learned in class - Read the materials and prepare home work for the next lesson.	CELO1, CELO2
4	Chapter 3: Ecological requirements of fruit trees	
	A/ Summary of content in class: (4 teaching hours hours) Theoretical teaching content (4 teaching hours) 3.1. Temperature requirements 3.2. Water requirements 3.3. Light requirement 3.4. Land characteristics 3.5. Nutritional requirements Content of the seminar/discussion (0.5 teaching hours) - Analysis of the influence of external factors on the grow and development of flower and ornamental plant.	CELO1
	B/ Student self – study: (6 teaching hours) - Review the contents learned in class - Read the material and prepare for the next lesson (nursery garden and propagation methods)	CELO1
5	Chapter 4: Nursery techniques and propagation method of flower and ornamental plants	
	A/ Summary of content in class: (6 teaching hours) Theoretical teaching content : (6 teaching hours) 4.1. The role of nursery garden for floricultural production. 4.2. Organization and function of a nursery 4.3. Propagation method of flower and ornamental plants 4.3.1. Sowing 4.3.2. Cutting 4.3.3. Grafting 4.3.4. Layering 4.3.5. Division (buds/tubes) 4.3.6. Tissue culture Content of practical/experimental teaching: (8 teaching hours) Depending on the weather conditions, choose 3 out of 4 lessons, corresponding to 3 weeks of study (starting from week 5) Lesson 1: Technique of sexual propagation of flowering plants (sowing) Lesson 2: Technique of asexual propagation of ornamental plants and flowers (grafting/layering) Lesson 3: Take care for the seedling in the nursery stage Lesson 4: Prepare the soil and translating Content of the seminar/discussion: (3 teaching hours)	CELO1, CELO3, CELO4, CELO5

	<p>- Present the investigation result on propagation techniques on flower/ornamental plant production in Tay Tuu, Me Linh - Hanoi (persimmons, chrysanthemums, lilies), Van Giang, Lien Nghia - Hung Yen (potted roses, carpet flowers), Nhat Tan, Nghi Tam - Hanoi (peach, kumquat) or other flower growing areas.</p> <p>- Choose and update new techniques using in floriculture production in Vietnam.</p>	
	<p>B/ Student self – study (12 teaching hours)</p> <p>- Review the content learned in class</p> <p>- Work on team to organize an interview, interview farmers, write a report and prepare for the presentation in class.</p> <p>- Read the material and prepare for the next lesson</p>	CELO1
6	<p>Chapter 5: Applied new techniques on flower and ornamental plant production</p> <p>A/ Summary of content in class: (3 teaching hours) Theoretical teaching content: (3 teaching hours)</p> <p>5.1. Medium and the role of medium in the growing and development of plants.</p> <p>5.2. New techniques in planting and caring for the growing and development of flowers and ornamental plants</p>	CELO1, CELO3
	<p>. B/ The contents to be self-study at home: (6 teaching hours)</p> <p>- Review the content learned in class</p> <p>- Read the material and prepare for the next lesson..</p>	
7,8	<p>Chapter 6: Cut flowers preservation</p> <p>A/ Summary of content in class: (3 teaching hours) Theoretical teaching content: (3 teaching hours)</p> <p>6.1. Purpose of flower preservation</p> <p>6.2. Physiological characteristics of cut flowers</p> <p>6.3. Principles of cut preservation</p> <p>6.4. Methods of cut preservation</p>	CELO1, CELO3,
	<p>B/ Student self – study: (6 teaching hours)</p> <p>Review the content learned in class</p> <p>- Do home work</p>	CELO1