

## RQ03043: SPECIALIZED FRUIT TREES

### 1. General information

- Term: 7
- Credits: **Total credits: 2 (Lecture: 1.5 – Practice: 0.5) - Self-study: 6.0**
- Credit hours for teaching and learning activities:
  - Lectures: 1 sections per week. 3 periods (50 minutes per period).
  - Practice in laboratory/greenhouse: 3 practices (250 minutes for each practice)
  - Self-study: 90 periods (50 minutes each period)
- Department conducting the course:
  - Department: Horticulture & Landscape design
  - 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 program learning outcomes

#### \* Course objectives

- Knowledge: Course provides for students with knowledge in the scientific basis of technical applications in the production of tropical, subtropical and temperate fruit trees popularly grown in Vietnam. Application of knowledge in building technical procedure for intensive cultivation of fruit trees those meet safety standards of good agricultural practice (GAP), environmental protection.
- Skills: Course provides students with skills in intensive cultivation of tropical, subtropical and temperate fruit trees.
- Attitude: Course provides students with attitudes in high sense of responsibility in work and environmental protection.

#### \* Expected learning outcomes of the course:

Program learning outcomes After successfully completing this program, students are able to	Program Learning outcome's performance criteria
<b>Professional knowledge</b>	
<b>PLO2.</b> 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.

<b>Professional skills</b>	
<b>PLO8.</b> Transfer technical advances and new technologies to horticultural production and landscape management.	8.1. Transfer technical advances and new technologies into horticultural production.
<b>Attitudes</b>	
<b>PLO9. Maintain professional ethics, carry out</b> environmental protection responsibilities and behave in accordance with ethical standards and respect multiculturalism.	9.2. Take responsibility for environmental protection .

### 3. Course summary (No more than 100 words)

#### RQ03043. Specialization fruit trees (2TC: 1.5-0.5-4.0).

The course introduces the requirements for appropriate climate factors and growing areas; techniques of propagation, planting, care, pest control and harvesting for tropical, subtropical and temperate fruit trees according to the demands of good agricultural practice (GAP).

### 4 . Teaching , learning and assessment methods

CELOs	CELO1	CELO2	CELO3	CELO4
<b>TEACHING METHODS</b>				
Lecture	x	x		
Practice			x	x
Presentation (in group)	x	x		
Discussion	x	x		x
<b>ASSESSMENT</b>				
Rubric 1. Practice (20%)			x	x
Rubric 2. Presentation (10%)	x	x		
Rubric 3. Discussion (20%)	x	x		x
Rubric 4. Final exam (50%)	x	x		

### 5. Student Duties

- Learning attitude: students must attend all lectures in class and practice.
- Preparation for lectures, self-study: students must read or prepare materials related to the lesson in class under the guidance of the teacher.
- Practice and discussion in groups: students complete practical exercises, write individual reports or in groups under the guidance of teachers.
- Final exam: students must complete the essay and final exam in accordance with the regulations of the Academy.

### 6. Text books and references

#### \* Text Books/Lecture Notes:

1. Đoàn Văn Lư và cs. (2021). General fruit tree. Publishing house of VNUA.
2. Vũ Thanh Hải và cs. (2022). Specialization fruit tree. General fruit tree. Publishing house of VNUA

**\* Additional references:**

3. Graham Seymour and Gregory A (2018). The Molecular Biology and Biochemistry of Fruit Ripening. Wiley-Blackwell Publisher.:
4. Vu Thanh Hai, Pham Van Cuong, 2021. Effects of Equal Chemical Fertilizer Substitutions with Organic Fertilizer on the Growth, Yield and Quality of Orange Sanh in Bac Quang - Ha Giang and CS1 in Cao Phong - Hoa Binh. Vietnam Journal of Agricultural Sciences, 19(2), pages 151-160.
5. Vu Viet Hung, Nguyen Thi Tuyet; Vu Thanh Hai; Vuong Sy Bien; Do Thi Hien, 2020. Effects of pruning measures on yield and quality of Khe May orange in Huong Khe - Ha Tinh. Science and Technology Journal of Agriculture and Rural development, Vol. 1+2 (3/2020), pages 62 – 68
6. Dinh Hong Duyen, Nguyen The Binh and Vu Thanh Hai, 2017. Selection of bacterial strains for degrading litchee postharvest wastes. Can Tho University Journal of Science. Vol. 53b: 61-70

**7. Course outline**

Week	Content	CELOs
1	<b>Chapter 1: Ecological regions and distribution of fruit tree groups</b> <b>A/ The main content in class : (2 periods)</b> <b>The theoretical contents: (2 periods)</b> 1.1. Classification of fruit trees by ecological regions in Vietnam 1.2. General characteristics of ecological regions and distribution of fruit tree groups 1.3. Annual and multi-year growth (life cycle) of temperate, subtropical and tropical fruit trees	CELO1
	<b>B/ The self-study contents: (4 hours)</b> - Update statistics on area, productivity, output, import and export value of tropical, subtropical and temperate fruit trees in the world and in Vietnam . - Finding out the differences of climate regions of tropical, subtropical and temperate fruit in Vietnam and the treatments applied to each group.	
2.3 _	<b>Chapter 2: Techniques for planting and caring tropical fruit trees</b> <b>A/ The main content in class : (9 periods)</b> <b>Content of theoretical lesson: (5 periods)</b> 2.1. Tropical fruit growing regions in the world and Vietnam 2.2. Agro-biological characteristics of tropical fruit trees 2.3. Techniques for growing some tropical fruit trees 2.4. Techniques for planting and caring banana / mango / pineapple / dragon fruit trees 1- Introduction 2- Requirements of climate 3- Cultivars and propagation 4- Planting and caring techniques - Density and distance	CELO2, CELO3, CELO4

	<ul style="list-style-type: none"> <li>- Planting in appropriate season and techniques</li> <li>- Techniques of training and pruning</li> <li>- Fertilization</li> <li>- Irrigation and moisture maintainance</li> <li>- Flowering control</li> <li>- Other cares</li> </ul> <p>5- Some major pest and disease management 6- Harvest and preservation</p> <p><b>Presentation/discussion content :</b> (1 hour ) Typical technical treatments applied to tropical fruit trees <b>Content of practical/experimental teaching:</b> ( 3 periods) Lesson 1: Observe and collect criteria of morphological and dissection of fruit trees</p>	
	<p><b>B/ The self-study contents :</b> (18 hours) Refer to documents and research on the growth and development of tropical fruit trees such as mango, pineapple, dragon fruit.</p>	
4	<p><b>Chapter 3: Techniques for planting and caring subtropical fruit trees</b></p> <p><b>A/ The main contents:</b> (9 periods) <b>The theoretical contents:</b> (5 periods)</p> <ul style="list-style-type: none"> <li>3.1. Subtropical fruit growing regions in the world and Vietnam</li> <li>3.2. Agro-biological characteristics of subtropical fruit trees</li> <li>3.3. Techniques for growing some subtropical fruit trees</li> <li>3.4. Techniques for planting and caring citrus trees / litchi / longan <ul style="list-style-type: none"> <li>1. Introduction</li> <li>2. Requirements of climate</li> <li>3. Cultivars and propagation</li> <li>4. Planting and caring techniques</li> <li>5. Some major pest and disease management</li> <li>6. Harvest and preservation</li> </ul> </li> </ul> <p><b>Presentation/ discussion content:</b> (1 hour) Typical technical treatments applied to subtropical fruit trees <b>Practical/experimental teaching content:</b> (3 periods) Lesson 2: Field survey on propagation techniques or care of tropical/subtropical/temperate orchards</p>	CELO2, CELO3, CELO4
	<p><b>B/ The self-study contents:</b> (18 hours) Refer to documents and research on the growth and development of tropical fruit trees such as citrus, litchi, longan.</p>	
5	<p><b>Chapter 4: Techniques for planting and caring temperate fruit trees</b></p> <p><b>A/ The main contents:</b> (8 periods) <b>The theoretical contents:</b> (5 periods)</p> <ul style="list-style-type: none"> <li>4.1. Temperate fruit growing regions in the world and Vietnam</li> <li>4.2. Agro-biological characteristics of temperate fruit trees</li> <li>4.3. Techniques for growing some temperate fruit trees</li> <li>4.4. Techniques for planting and caring for plum/pear/persimmon trees <ul style="list-style-type: none"> <li>1. Introduction</li> <li>2. Requirements of climate</li> </ul> </li> </ul>	CELO2, CELO3, CELO4

	<p>3. Cultivars and propagation  4. Planting and caring techniques  5. Some major pest and disease management  6. Harvest and preservation</p> <p><b>Presentation /discussion content:</b> (1 hour )  Typical technical measures applied to temperate fruit trees</p> <p><b>Content of practical/experimental teaching:</b> (2 periods )  Lesson 3. Evaluation of some quality indicators of fruit at harvest</p>	
	<p><b>B/ The self-study contents</b> (16 hours)  Refer to documents and research on the growth and development of tropical fruit trees such as plum, pear, persimmon.</p>	
6	<p><b>Chapter 5: Product standards and market demands</b></p> <p><b>A/ Summarize the main content in class:</b> (2 periods)  <b>The theoretical contents:</b> (2 periods)  5.1 5.1. Good Agricultural Practices (GAP) in fruit tree production  5.2. Product standard systems  5.3. Market for fruit products  5.3.1. Internal Market  5.3.2. Overseas market</p>	CELO1, CELO2
	<p><b>B/ The self-study contents:</b> (4 hours)  Refer to documents on fruit production to meet demands of VietGAP and GlobalGAP.</p>	