COURSE SYLLABUS

1. INFORMATION OF COURSE AND LECTURER

1.1. Course name and code: Tropical mariculture (AQ…)

1.2. Course specification: 2 Cred. (Theory: 2; Assigment: 0; Practice: 0), 30 hours (T: 30; A: 0; P: 0)

1.3. Prerequistes courses: no

1.4. Responsible Department: CTU, NTU

1.5. Information of lecturer:

Name: Tran Ngoc Hai

Email: tnhai@ctu.edu.vn

Co-teaching lecturer:

Name : Le Anh Tuan

Email:

Co-teaching lecturer:

Name : Ngo Thi Thu Thao

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2. COURSE DESCRIPTION

This course is an elective course. The course focus mainly marine aquaculture. The course include theory lectures on innovation in tropical mariculture; and advanced seed production technology and farming systems of the tropical marine species. This course appoach different methods to enhance learning capability of students.

3. COURSE EXPECTED LEARNING OUTCOMES

Theoretically:

By the end of this course, students will be able to

- Understand the innovation, challenges, potential and strategies for sustainable development triopical mariculture in the world and in Vietnam

- Understand modern technologies for seed production and hatchery management of important marine aquaculture species

- Understand modern technologies for farming systems and management of important marine aquaculture species

- Know how to apply to technologies to practical conditions of Vietnam

Practically:

- Know how to make the plan for site selection, designs and operation and management of modern hatcheries and farms for tropical marine aquaculture species

- Know how to prepare a research project proposal for advanced seed production and farming of tropical marine aquaculture species
- Individual working, group working, report writing and presentation of different assigments

4. COURSE CONTENTS

Chapters	Hours (T/A/P)
Chapter 1: Innovation, challenges and pontentials for tropical marine aquaculture *This chapter will provide general knowledge on development, status and trends of tropical marine aquaculture* 1.1. Major tropical marine aquaculture species 1.2. Development of marine aquaculture in the world and Vietnam 1.3. Challenges and Potential for marine aquaculture in the world and Vietnam 1.4. Sustainable integrated mariculture *In order to understand well this chapter, students should read references of [3], [9], [11]*	2/0/0
Chapter 2: Seed production and farming of crustacean *This chapter will provide knowledge on advanced technologies for seed production and farming of mojor crustacean species* 2.1 Seed production and farming of lobster 2.2 Seed production and farming of crabs 2.2 Seed production and farming of other species *In order to understand well this chapter, students should read references of [6], [8 [10]*	5/0/0
Chapter 3: Seed production and farming of marine fish *This chapter will provide knowledge on advanced technologies for seed production and farming of mojor marine species* 3.1. Seed production and farming of cobia fish 3.2. Seed production and farming of grouper 3.3 Seed production and farming of seabass 3.4 Seed production and farming of other marine fish *In order to understand well this chapter, students should read references of [2], [4], [13]*	10/0/0
Chapter 4: Mollucs culture *This chapter will provide knowledge on advanced technologies for seed production and farming systems of tropical mollusc species* 4.1 Seed production and farming of white clam 4.3 Seed production and farming of oyster 4.4 Seed production and farming of abalone	10/0/0

4.5 Seed production and farming of other mollusc *In order to understand well this chapter, students should read references of [7], [12]*	

Chapter 5: Seaweed culture
 	
This chapter will provide knowledge on advanced technologies for farming of tropical seaweed species
 	
    - Farming of green seaweed
 	
    - Farming of red seaweed
 	
    - Farming of brown seaweed
 	
In order to understand well this chapter, students should read references of [1], [15].
	3/0/0

5. TEACHING METHODS AND ASSESSMENT

5.1. Teaching methods:

Teaching methods include lectures and assigments
- Lectures will be given with powerpoint slideshow, video, lecture notes with reference
- Student-centralized teaching methods will be applied.
- Assigments:
  o Individual assignments and group assignments
  o Topics: problem-based topics

5.2. Assessment methods:

Assigments: 20%
Mid-term exam: 30%
Final exam: 50%

6. READING REFERENCES

1. Dennis J. McHugh, 2003. A guide to the seaweed industry. FAO FISHERIES TECHNICAL PAPER 441

2. Dr Kevin Williams, Dr N.A. Giri, Usman, Dr Richard Knuckey, Adam Reynolds, Dr Claire Marte, 2011. Improved hatchery and grow-out technology for marine finfish aquaculture in the Asia–Pacific region. ACIAR. 102pp.

3. FAO (2014) The State of World Fisheries and Aquaculture 2014. E-ISBN 978-92-5-108276-8 (PDF), 243 pages

4. Halwart, M.; Soto, D.; Arthur, J.R. (eds.), 2007. Cage aquaculture – Regional reviews and global overview. *FAO Fisheries Technical Paper*. No. 498. Rome, FAO. 2007. 241pp.

5. Hasan, M.R.; Chakrabarti, R., 2009. Use of algae and aquatic macrophytes as feed in small-scale aquaculture: a review. *FAO Fisheries and Aquaculture Technical Paper.* No. 531. Rome, FAO. 2009. 123p.
6. Kevin C W., 2009. Spiny lobster aquaculture in the Asia-Pacific region. ACIAR.
7. Michael M. Helm, Neil Bourne and Alessandro Lovatelli, 2004. Hatchery culture of bivalves - A practical manual. FAO Fisheries Technical paper 471.
8. Phillips B. F. And Kittatka, 2000. Spiny lobster: Fisheries and culture. Fishing News Books. 679pp.
9. Sena S. D S. 1998. Tropical mariculture. Academic Press. 478pp.
10. Shelley, C.; Lovatelli, A., (2011) Mud crab aquaculture. No. 567. Rome, FAO. 2011. 78p. (http://www.fao.org/docrep/015/ba0110e/ba0110e00.htm)
11. Soto, D. (ed.). 2009. Integrated mariculture: a global review. *FAO Fisheries and Aquaculture Technical Paper.* No. 529. Rome, FAO. 2009. 183p.
12. Spencer B.E. (2002) Molluscan Shellfish Farming. Blackwell Publishing, ISBN 0 85238 291-X: 274 pages.
13. Timmons M.B and Ebeling, 2007. Recirculating Aquaculture. NRAC Publication, No 01-007. 975 pp.

Date:
Lecturer