



**THE 2002 CURRICULUM FOR CERTIFICATE
OF VOCATIONAL EDUCATION
(Revision Edition 2003)**

FISHERIES

Vocational Education Standards and Qualifications Bureau

Vocational Education Commission

Ministry of Education

**The 2002 Curriculum for Certificate of Vocational Education
(Revision Edition 2003)**

Aquaculture

Fish Processing

Marine Fisheries

Preface

The 2002 Curriculum for Certificate of Vocational Education (Revision Edition 2003), Agriculture, has been developed to the 1992 National Education Plan, progressive technology in globalization, developed for producing and developing skilled manpower to the labour market and also the situation of the economy and society at all levels: community, local and national. The curriculum provides a chance for students to choose any subjects based on their needs, interests and potential. The students will be able to transfer and assess their knowledge and experience gained from academic resources and workplaces. Government and private sectors can both take part in developing curriculum and managing education.

The curriculum was developed by a committee (refer to appendix) which willingly donated their wisdom, knowledge, experience and time. The Ministry of Education would like to take this opportunity to thank the committee very much indeed for this work.

Ministry of Education
2005

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2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Rational

1. This skilled worker vocational certificate curriculum (after lower secondary level) aims to develop technical skills, work ethics, personality and attitudes relevant to the needs of both local and national labor markets and economic and social conditions.
2. This curriculum provides a range of subjects and ways of learning for students to choose based on their potential and opportunities. Thus, students are able to transfer and accumulate credits and to utilize their prior knowledge and experience gained from the workplace and other relevant sources.
3. This curriculum promotes the co-operation in education management between government and private organizations.
4. This curriculum provides opportunities for colleges and local need communities to participate in its development which is relevant to their local needs and conditions.

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Aims

1. To gain knowledge, skills and experience, and to efficiently make use of them in their careers; to be able to choose their ways of living as well as their careers in order to develop their local communities and country.
2. To obtain wisdom; to gain managing skills; to be creative and to be interested in learning in order to develop their life quality and careers, to be able to create jobs and developed them.
3. To gain a positive attitude towards and to have confidence pride in their careers; to love their jobs and their workplaces; to be able to work in groups with respect to one's and others rights and duties.
4. To create good behavior in working and living with others; to be responsible to families, organizations, local communities and the country, to offer their participation in society, to gain understanding about local arts, culture and local wisdom, and to examine their value; to make use of and conserve natural resources and to create good environment.
5. To promote personality, human relations, morals, ethics, self-discipline, and good health appropriate their careers.
6. To be aware of and to provide co-orperation in solving nation's and world's economic, social problems, to be a patriotic and to realize that they are Thai citizens, to offer themselves to public, to promote the security of nation, monarch, and democratic government with monarch.

Instructions

2002 Curriculum for Certificate of Vocational Education

1. Teaching and Learning

- 1.1 According to the curriculum, the students are able to enroll in any means of learning determined by the college, and the results of all means can be accumulated evaluated and transferred, and their prior knowledge and experience can be recognized.
- 1.2 This curriculum learning by doing and can transferred to study in the factory or workplace at least one semester.

2. Attendance

- 2.1 There are 2 main semesters, each take 20 weeks, in each academic year. The college may also offer summer courses for students. (5 weeks)
- 2.2 In case of classroom study, the attending time is allocated into 5 days a week, 60 minutes a period.

3. Credits

The students are required to gain at not less than 102 credits to complete the courses. The credit criteria are as follow:

- 3.1 One theoretical period per week, not less than 20 periods per semester, accounts for 1 credit.
- 3.2 Two to three practical periods per week, 40-60 periods per semester, accounts for 1 credit.
- 3.3 Vocational training in the factory or workplace takes not less than 40 hours, accounts for 1 credit.
- 3.4 Vocational training under Dual Vocational training system (DVT) takes not less than 40 hours accounts for 1 credit.
- 3.5 Vocational project is based on the curriculum details.

4. Curriculum Structure

Course of this curriculum are divided into 3 subject categories and activities :

- 4.1 General Courses
 - 4.1.1 Basic General Courses : is the basic course for living.
 - 4.1.2 Vocational-based General Courses : is related to general basic subjects.
- 4.2 Vocational Courses
 - 4.2.1 Basic Vocational Courses
 - 4.2.2 Core Vocational Courses
 - 4.2.3 Specialized Vocational Courses
 - 4.2.4 Project
- 4.3 Free Elective Courses
- 4.4 On the job Training
- 4.5 Extra Curricular Activities

Numbers of credits and lists of subjects are based on the curriculum structure of each major and area of study.

5. Project or Vocational Project

- 5.1 All students are required to enroll in the sixth semester, at least 160 hours, account for 4 credits.
- 5.2 The assessment and grading system of these courses will be the same as for other courses.

6. Work Experience

- 6.1 All students are required to enroll vocational subjects in workplaces at least 1 semester.
- 6.2 The assessment and grading system will be the same as for other courses.

7. Acceptance

The students' qualifications are based on the education evaluation regulations of the 2002 Curriculum for certificate of Vocational Education (A.D. 2003) as set by the Ministry of Education.

8. Assessment

The assessment based on the assessment regulations of the 2002 Curriculum for Certificate of Vocational Education (A.D. 2003) as set by the Ministry of Education.

9. Extra Curricular Activities

College have to provide the activities to promote attitude, ethics self-discipline, recreation and promote work habits with group system for usefull in the social, conservative cultural with planning, doing, evaluate, and improve their work.

10. Graduation

To complete the program the students have to :

- 10.1 Passed the course in the three subjects categories as prescribed in the curriculum of each field of study.
- 10.2 Gained the number of credits accumulated as stated in the curriculum structure.
- 10.3 Gained a grade point average (GPA) of not less than 2.00.
- 10.4 Attend activities and pass their evaluation every semester.
- 10.5 Passed standard of vocational subjects.

11. Revision and Conversion of Curriculum

- 11.1 The Secretary General of the Vocational Education Commission is authorized to revise, supplement, convert to abrogate any subjects and their descriptions within 2002 Curriculum for certificate of Vocational Education.
- 11.2 The Director of the college has an authority to revise, supplement, change and abrogate any subjects and their contents of 2002 Curriculum for Certificate of Vocational Education and report to the Secretary General of Vocational Education Commission.

Code of Courses

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

1	2	3	4	-	5	6	7	8	
									Step of Courses 01 - 99
									Group Courses
					PROGRAM/ JOIN COURSES				
2	0	0	0		Join Study (General Courses)				11 Thai Language 12 English and another Language 13 Social Science 14 Science 15 Mathematics 16 Health and Physical Education 01-19 Basic General Courses 20-99 Vocational-based General Courses
2	0	0	1		Join Courses (Basic Vocational Courses)				00 Join Courses (Basic Vocational Courses)
2	0	0	2		Join Courses (Extra Curricular Activities)				00 Join Curriculum Activities
2	6	0	0		Join Courses (type of courses)				10 Basic Vocational Courses (Join Area of Study)
2	6	X	X		PROGRAM				10 Core Vocational Courses
					Area of Study : Agriculture				2X – 3X Specialized Vocational Courses
					01 Program ; Aquaculture				21 Aquaculture
					02 Program ; Fish Processing				22 Fish Processing
					03 Program ; Marine Fisheries				23 Marine Fisheries
									4X Bateralness Courses
									50 Porject
					Area of Study				
					0 Join Courses				4 Home Economics
					1 Industry				5 Agriculture
					2 Business Administration				6 Fishery
					3 Arts and Crafts				7 Tourism Industry
					Curriculum				
					2 Curriculum for Certificate of Vocational Education				

Aquaculture



Program Structure

**2002 Curriculum for Certificate of Vocational Education
(Revised Edition 2003)**

Area of Study: Fisheries

Program ; Aquaculture

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Area of Study : Fisheries

Program ; Aquaculture

Objectives

1. To obtain knowledge and skills of languages, sociology, science, mathematics, health education, and physical education and be able to apply their confidently in to practice in their career.
2. To gain knowledge of principles and processes of basic fishery work.
3. To gain knowledge and skills of the jobs related to fishery job and development to deep pace with social economic and technological advancement.
4. To obtain knowledge and skills of the production and services in aquaculture according to their business cycle based on the principles and processes with regarding to energy and environment conservation.
5. To be able to choose, use and apply technology in aquaculture work.
6. To practice aquaculture work at workplaces and run their own business, applying their basic knowledge and skills for higher education.
7. To have positive attitudes and good habits in agricultural career, creativity, responsibility, honesty, saving, patience, and discipline for self-developing and team working.

Vocational Education Standards of the Program

1. Communicate in Thai and English in their daily life and careers.
2. Be have according to their religion, culture and citizen rights.
3. Solve vocational problems by using mathematic and scientific principles and processes
4. Develop personalities and hygiene by using the principles and processes of health education and physical education.
5. Practice basic aquaculture work based on the principles and processes.
6. Basic work of fisheries and aquaculture based on the principles and processes.
7. Select, use and maintain aquaculture vehicles, machines and equipment based on the principles and processes with regard to saving and safely.
8. Apply computer technology, business management processed and quality administration principles for developing and promoting aquaculture careers.
9. Plan, prepare, culture, nature and manage maintenance based on the principles and processes covering business cycles.
10. Conserve natural resources, environment and aquaculture **jobs** ecosystems.
11. Choose, use and / or apply technology in **aquaculture jobs** based on the principles and processes.

Structure

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Program ; **Aquaculture**

For the fulfillment of the 2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003), Agriculture program, graduates have to take courses and participate in additional activities with not less than 102 credits based on the following :

1. General Courses (not less than)		26	credits
1.1 Basic General Courses	18	credits	
1.2 Vocational-based General Courses (not less than)	8	credits	
2. Vocational Courses (not less than)		66	credits
2.1 Basic Vocational Courses	16	credits	
2.2 Core Vocational Courses (not less than)	19	credits	
2.3 Specialized Vocational Courses (not less than)	27	credits	
2.4 Project	4	credits	
3. Free Elective Courses (not less than)		10	credits
4. On the job Training (not less than 1 Semester)			
5. Extra Curricular Activities (not less than 200 Hours)			
Total (not less than)		102	credits

1. General Courses (not less than) 26 credits

1.1 Basic General Courses (not less than) 18 credits

1.1.1 Language (Elective) (not less than) 8 credits

(1) Thai Language (Elective) (not less than) 4 credits

Code	Course Title	Cr	(Hr)
2000-1101	Thai for the Workplace 1	2	(2)
2000-11__	Course in Thai Language Group	2	(2)

(2) English and another Language (Elective) (4 credits)

Code	Course Title	Cr	(Hr)
2000-1201	English for Communication 1	2	(2)
2000-1202	English for Communication 2	2	(2)

1.1.2 Social Science (Elective) (not less than) 4 credits

Students must take courses of 2000-1301 for 2 credits and choose another courses not less than 2 credits, total not less than 4 credits.

Code	Course Title	Cr	(Hr)
2000-1301	The Way of Thai Ethics	2	(2)
2000-13__	Course in Social Science group	2	(2)

1.1.3 Science and Mathematics (Elective) (4 credits)

(1) Science (Elective) 2 credits

Code	Course Title	Cr	(Hr)
2000-1401	Basic Sciences	2	(3)

(2) Mathematics (Elective) 2 credits

Code	Course Title	Cr	(Hr)
2000-1501	Applied Mathematics 1	2	(2)

1.1.4 Health and Physical Education (Elective) (not less than) 2 credits

select from courses below :

Code	Course Title	Cr	(Hr)
2000-16__	Course in Physical Education Group	1	(2)
2000-16__	Course in Health Education Group	1	(1)
2000-16__	Course in Health and Physical Education Integration Group	2	(3)

1.2 Vocational-based General Courses (not less than) 8 credits**1.2.1 Language (Elective)** (not less than) 4 credits**(1) English and another Language (Elective)** (not less than) 4 credits

select from courses below :

Code	Course Title	Cr	(Hr)
2000-1220	English for Communication in the Workplace	1	(2)
2000-1221	English Conversation 1	1	(2)
2000-1222	English Conversation 2	1	(2)
2000-1229	English for Fishery	1	(2)
2000-1231	English for Fishery Technology	1	(2)
2000-1232	Supplementary English	1	(2)
2000-1233	Internet English	1	(2)
2000-1234	English Project Work	1	(2)
2000-1235	English for the Workplace	1	(2)
2000-1236	Independent Study in English	1	(2)
2000-1237	English Terminology	1	(2)

1.2.2 Science and Mathematics (Elective) (not less than) 4 credits**(1) Science (Elective)** (not less than) 2 credits select from courses

below :

Code	Course Title	Cr	(Hr)
2000-1422	Agricultural Science	2	(3)
2000-14__	Course in Science Group	2	(3)

(2) **Mathematics (Elective)** (not less than) 2 credits select from courses below :

Code	Course Title	Cr	(Hr)
3000-1524	Applied Mathematics 6	2	(2)
3000-15__	Course in Mathematic (Elective)	2	(2)

2. Vocational Courses (not less than) 66 credits

2.1 Basic Vocational Courses (16 credits)

Code	Course Title	Cr	(Hr)
2001-0001	Computer at Work	2	(3)
2001-0002	Basic Business Management	2	(3)
2001-0003	Quality and Productivity Management	2	(3)
2001-0004	Introduction to Environmental Management	2	(3)
2500-1001	Future Farmer Leadership Development	2	(2)
2600-1001	General Fisheries	2	(2)
2600-1002	Basic equipment in Fishery	2	(4)
2600-1003	Fish Raw Material Management	2	(4)

2.2 Core Vocational Courses (19 credits)

Code	Course Title	Cr	(Hr)
2601-1001	Introduction to Aquaculture	3	(4)
2601-1002	Irrigation System for Aquaculture	2	(3)
2601-1003	Fish Biology	3	(4)
2601-1004	Fishery Practice 1	2	(4)
2601-1005	Fishery Practice 2	2	(4)
2601-1006	Fishery Practice 3	2	(4)
2501-1002	Vehicles Driving	3	(4)
2501-1003	Computer Application for Work	2	(3)

2.3 Specialized Vocational Courses (not less than) 27 credits

Students must take at least 21 credits from specialized vocational courses, and choose another course at least 16 credits in order to complete the credit requirement.

- **Course of production in aquaculture**

Code	Course Title	Cr	(Hr)
2501-2501	Integrated Farming System	3	(6)
2601-2101	Fish Breeding	3	(6)
2601-2102	Fish Culture	3	(6)
2601-2103	Ornamental Fish Culture	3	(6)
2601-2104	Shrimp Breeding	3	(6)
2601-2105	Shrimp Culture	3	(6)
2601-2106	Shellfish Culture	3	(6)
2601-2107	Economical Aquaculture	3	(6)
2601-2108	Coastal Aquaculture	3	(6)
2601-2109	Aquatic Plant Propagation	3	(6)
2601-2110	Fish Feed Production	3	(6)
2601-2111 to 2601-2149	Another Production in Aquaculture based on local need.	3	(6)

- **Course of production project in aquaculture**

Code	Course Title	Cr	(Hr)
2601-2150	Aquaculture Project 1	2	(4)
2601-2151	Aquaculture Project 2	2	(4)
2601-2152	Aquaculture Project 3	2	(4)
2601-2153 to 2601-2199	Another Aquaculture Project based on local need.	2	(4)

- **Introduce course add in aquaculture specialization**

Code	Course Title	Cr	(Hr)
2601-4101	Aquaculture Work 1	*	(*)
2601-4102	Aquaculture Work 2	*	(*)
2601-4103	Aquaculture Work 3	*	(*)
2601-4104	Aquaculture Work 4	*	(*)
2601-4105	Aquaculture Work 5	*	(*)
2601-4106	Aquaculture Work 6	*	(*)
2601-41...	Aquaculture Work ..	*	(*)

For the Dual System (apprenticeships), the college and the employer together analyze the course objectives and course standards, to produce an appropriate work, planning for practice and evaluating not less than 40 hours is equivalent to 1 credit.

2.4 Project (4 credits)

Code	Course Title	Cr	(Hr)
2601-5001	Project	4	(*)

3. Free Elective Courses (not less than) 10 credits

Students can choose courses from any area of study, according to their aptitude and interests, from the list provided in the 2002 Vocational Certificate Curriculum (Revision Edition 2003).

4. On The Job Training (not less than 1 Semester)

For on the job training, the college selects Vocational Courses which are undertaken at the workplace, for at least 1 semester, totaling not less than 40 hours equivalent to 1 credit.

5. Extra Curricular Activities (200 Hours)

The college arranges extra curricular activities every semester, totaling not less than 200 hours for the entire program.

Code	Course Title	Cr	(Hr)
2002-0001	activities ...	-	(2)
2002-0002	activities ...	-	(2)
2002-0003	activities ...	-	(2)
2002-0004	activities ...	-	(2)
2002-0005	activities ...	-	(2)
2002-0006	activities ...	-	(2)
2002-0007 to 2002-0012	another activities ...	-	(2)

Fish Processing



Program Structure

**2002 Curriculum for Certificate of Vocational Education
(Revised Edition 2003)**

Area of Study: Fisheries

Program ; Fish Processing

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Area of Study : Fisheries

Program ; Fish Processing

Objectives

1. To obtain knowledge and skills of languages, sociology, science, mathematics, health education, and physical education and be able to apply their confidently in to practice in their career.
2. To gain knowledge of principles and processes of basic fishery work.
3. To gain knowledge and skills of the jobs related to fishery job and development to deep pace with social economic and technological advancement.
4. To obtain knowledge and skills of the production and services in fish processing according to their business cycle based on the principles and processes with regarding to energy and environment conservation.
5. To be able to choose, use and apply technology in fish processing work.
6. To practice fish processing work at workplaces and run their own business, applying their basic knowledge and skills for higher education.
7. To have positive attitudes and good habits in fish processing career, creativity, responsibility, honesty, saving, patience, and discipline for self-developing and team working.

Vocational Education Standards of the Program

1. Communicate in Thai and English in their daily life and careers.
2. Be have according to their religion, culture and citizen rights.
3. Solve vocational problems by using mathematic and scientific principles and processes
4. Develop personalities and hygiene by using the principles and processes of health education and physical education.
5. Practice basic fishery and fish processing based on the principles and processes.
6. Basic work in fishery and fish processing based on the principles and processes.
7. Select, use and maintain fish processing vehicles, machines and equipment based on the principles and processes with regard to saving and safely.
8. Apply computer technology, business management processed and quality administration principles for developing and promoting fish processing careers.
9. Plan, prepare, manage process and post fish processing based on the principles and processes covering business cycles.
10. Conserve natural resources, environment and fish processing **jobs** ecosystems.
11. Choose, use and / or apply technology in fish processing **jobs** based on the principles and processes.

Structure

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Program ; Fish Processing

For the fulfillment of the 2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003), Agriculture program, graduates have to take courses and participate in additional activities with not less than 102 credits based on the following :

1. General Courses (not less than)		26	credits
1.1 Basic General Courses	18	credits	
1.2 Vocational-based General Courses (not less than)	8	credits	
2. Vocational Courses (not less than)		66	credits
2.1 Basic Vocational Courses	16	credits	
2.2 Core Vocational Courses (not less than)	16	credits	
2.3 Specialized Vocational Courses (not less than)	30	credits	
2.4 Project	4	credits	
3. Free Elective Courses (not less than)		10	credits
4. On the job Training (not less than 1 Semester)			
5. Extra Curricular Activities (not less than 200 Hours)			
Total (not less than)		102	credits

1. General Courses (not less than) 26 credits

1.1 Basic General Courses (not less than) 18 credits

1.1.1 Language (Elective) (not less than) 8 credits

(1) Thai Language (Elective) (not less than) 4 credits

Code	Course Title	Cr	(Hr)
2000-1101	Thai for the Workplace 1	2	(2)
2000-11__	Course in Thai Language Group	2	(2)

(2) English and another Language (Elective) (4 credits)

Code	Course Title	Cr	(Hr)
2000-1201	English for Communication 1	2	(2)
2000-1202	English for Communication 2	2	(2)

1.1.2 Social Science (Elective) (not less than) 4 credits

Students must take courses of 2000-1301 for 2 credits and choose another courses not less than 2 credits, total not less than 4 credits.

Code	Course Title	Cr	(Hr)
2000-1301	The Way of Thai Ethics	2	(2)
2000-13__	Course in Social Science Group	2	(2)

1.1.3 Science and Mathematics (Elective) (4 credits)

(1) Science (Elective) 2 credits

Code	Course Title	Cr	(Hr)
2000-1401	Basic Sciences	2	(3)

(2) Mathematics (Elective) 2 credits

Code	Course Title	Cr	(Hr)
2000-1501	Applied Mathematics 1	2	(2)

1.1.4 Health and Physical Education (Elective) (not less than) 2 credits

select from courses below :

Code	Course Title	Cr	(Hr)
2000-16__	Course in Physical Education Group	1	(2)
2000-16__	Course in Health Education Group	1	(1)
2000-16__	Course in Health and Physical Education Integration Group	2	(3)

1.2 Vocational-based General Courses (not less than) 8 credits**1.2.1 Language (Elective)** (not less than) 4 credits**(2) English and another Language (Elective)** (not less than) 4 credits

select from courses below :

Code	Course Title	Cr	(Hr)
2000-1220	English for Communication in the Workplace	1	(2)
2000-1221	English Conversation 1	1	(2)
2000-1222	English Conversation 2	1	(2)
2000-1229	English for Fishery	1	(2)
2000-1231	English for Fishery Technology	1	(2)
2000-1232	Supplementary English	1	(2)
2000-1233	Internet English	1	(2)
2000-1234	English Project Work	1	(2)
2000-1235	English for the Workplace	1	(2)
2000-1236	Independent Study in English	1	(2)
2000-1237	English Terminology	1	(2)

1.2.2 Science and Mathematics (Elective) (not less than) 4 credits**(1) Science (Elective)** (not less than) 2 credits select from courses

below :

Code	Course Title	Cr	(Hr)
2000-1422	Agricultural Science	2	(3)
2000-14__	Course in Science Group	2	(3)

(2) **Mathematics (Elective)** (not less than) 2 credits select from courses below :

Code	Course Title	Cr	(Hr)
2000-1524	Applied Mathematics 6	2	(2)
2000-15__	Course in Mathematic (Elective)	2	(2)

2. Vocational Courses (not less than) 66 credits

2.1 Basic Vocational Courses (16 credits)

Code	Course Title	Cr	(Hr)
2001-0001	Computer at Work	2	(3)
2001-0002	Basic Business Management	2	(3)
2001-0003	Quality and Productivity Management	2	(3)
2001-0004	Introduction to Environmental Management	2	(3)
2500-1001	Future Farmer Leadership Development	2	(2)
2600-1001	General Fisheries	2	(2)
2600-1002	Basic work of Fishery	2	(4)
2600-1003	Fish Raw Material Management	2	(4)

2.2 Core Vocational Courses (16 credits)

Code	Course Title	Cr	(Hr)
2602-1001	Nutrition	2	(2)
2602-1002	Introduction to Fish Processing	3	(6)
2602-1003	Fundamental of Fish processing Practice 1	2	(4)
2602-1004	Fundamental of Fish processing Practice 2	2	(4)
2501-1002	Vehicles Driving	3	(5)
2501-1003	Computer Application for Work	2	(3)
2501-2309	Food Additives	2	(3)

2.3 Specialized Vocational Courses (not less than) 30 credits

Students must take at least 15 credits from specialized vocational courses, and choose another course in order to complete the credit requirement.

- **Course of production in fish processing**

Code	Course Title	Cr	(Hr)
2602-2101	Fish Processing by Drying	3	(6)
2602-2102	Fish Processing by Fermentation	3	(6)
2602-2103	Fish Processing by Refrigeration	3	(6)
2602-2104	Fish Processing by Heating	3	(6)
2602-2105	By-product utilization	3	(6)
2602-2106 to 2602-2149	Another Production in fish processing based on local need.	3	(6)

- **Course of production project in fish processing**

Code	Course Title	Cr	(Hr)
2602-2150	Dry Aquatic Processing Project	3	(6)
2602-2151	Preserved Aquatic Processing Project	3	(6)
2602-2152	Fish Processing Project by coldness	3	(6)
2602-2153	Fish Processing Project by heat	3	(6)
2602-2154	Utilize Surplus from Production Project	3	(6)
2602-2155 to 2602-2199	Another Fish Processing Project based on local need.	3	(6)

- **Introduce course add in aquaculture specialization**

Code	Course Title	Cr	(Hr)
2602-4101	Fish Processing Work 1	*	(*)
2602-4102	Fish Processing Work 2	*	(*)
2602-4103	Fish Processing Work 3	*	(*)
2602-4104	Fish Processing Work 4	*	(*)
2602-4105	Fish Processing Work 5	*	(*)
2602-4106	Fish Processing Work 6	*	(*)
2602-41...	Fish Processing Work ..	*	(*)

For the Dual System (apprenticeships), the college and the employer together analyze the course objectives and course standards, to produce an appropriate work, planning for practice and evaluating not less than 40 hours is equivalent to 1 credit.

2.4 Project (4 credits)

Code	Course Title	Cr	(Hr)
2602-5001	Project	4	(*)

3. Free Elective Courses (not less than) 10 credits

Students can choose courses from any area of study, according to their aptitude and interests, from the list provided in the 2002 Vocational Certificate Curriculum (Revision Edition 2003).

4. On The Job Training (not less than 1 Semester)

For on the job training, the college selects Vocational Courses which are undertaken at the workplace, for at least 1 semester, totaling not less than 40 hours equivalent to 1 credit.

5. Extra Curricular Activities (200 Hours)

The college arranges extra curricular activities every semester, totaling not less than 200 hours for the entire program.

Code	Course Title	Cr	(Hr)
2002-0001	activities ...	-	(2)
2002-0002	activities ...	-	(2)
2002-0003	activities ...	-	(2)
2002-0004	activities ...	-	(2)
2002-0005	activities ...	-	(2)
2002-0006	activities ...	-	(2)
2002-0007 to 2002-0012	another activities ...	-	(2)

Marine Fisheries



Program Structure

**2002 Curriculum for Certificate of Vocational Education
(Revised Edition 2003)**

Area of Study: Fisheries

Program ; Marine Fisheries

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Area of Study : Fisheries

Program ; Marine Fisheries

Objectives

1. To obtain knowledge and skills of languages, sociology, science, mathematics, health education, and physical education and be able to apply their confidently in to practice in their career.
2. To gain knowledge of principles and processes of basic fishery work.
3. To gain knowledge and skills of the jobs related to fishery job and development to deep pace with social economic and technological advancement.
4. To obtain knowledge and skills of the production and services in marine fisheries according to their business cycle based on the principles and processes with regarding to energy and environment conservation.
5. To be able to choose, use and apply technology in marine fisheries work.
6. To practice marine fisheries work at workplaces and run their own business, applying their basic knowledge and skills for higher education.
7. To have positive attitudes and good habits in **marine fisheries** career, creativity, responsibility, honesty, saving, patience, and discipline for self-developing and team working.

Vocational Education Standards of the Program

1. Communicate in Thai and English in their daily life and careers.
2. Be have according to their religion, culture and citizen rights.
3. Solve vocational problems by using mathematic and scientific principles and processes
4. Develop personalities and hygiene by using the principles and processes of health education and physical education.
5. Practice basic **marine fisheries** based on the principles and processes.
6. Basic work in fishery and **marine fisheries** based on the principles and processes.
7. Select, use and maintain **marine fisheries** vehicles, machines and equipment based on the principles and processes with regard to saving and safely.
8. Apply computer technology, business management processed and quality administration principles for developing and promoting **marine fisheries** careers.
9. Plan, prepare, manage process and post fish processing based on the principles and processes covering business cycles.
10. Conserve natural resources, environment and **marine fisheries jobs** ecosystems.
11. Choose, use and / or apply technology in **marine fisheries jobs** based on the principles and processes.

Structure

2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003)

Program ; Marine Fisheries

For the fulfillment of the 2002 Curriculum for Certificate of Vocational Education (Revised Edition 2003), Agriculture program, graduates have to take courses and participate in additional activities with not less than 102 credits based on the following :

1. General Courses (not less than)		26	credits
1.1 Basic General Courses	18	credits	
1.2 Vocational-based General Courses (not less than)	8	credits	
2. Vocational Courses (not less than)		66	credits
2.1 Basic Vocational Courses	16	credits	
2.2 Core Vocational Courses (not less than)	16	credits	
2.3 Specialized Vocational Courses (not less than)	30	credits	
2.4 Project	4	credits	
3. Free Elective Courses (not less than)		10	credits
4. On the job Training (not less than 1 Semester)			
5. Extra Curricular Activities (not less than 200 Hours)			
Total (not less than)		102	credits

1. General Courses (not less than) 26 credits

1.1 Basic General Courses (not less than) 18 credits

1.1.1 Language (Elective) (not less than) 8 credits

(1) Thai Language (Elective) (not less than) 4 credits

Code	Course Title	Cr	(Hr)
2000-1101	Thai for the Workplace 1	2	(2)
2000-11__	Course in Thai Language Group	2	(2)

(2) English and another Language (Elective) (4 credits)

Code	Course Title	Cr	(Hr)
2000-1201	English for Communication 1	2	(2)
2000-1202	English for Communication 2	2	(2)

1.1.2 Social Science (Elective) (not less than) 4 credits

Students must take courses of 2000-1301 for 2 credits and choose another courses not less than 2 credits, total not less than 4 credits.

Code	Course Title	Cr	(Hr)
2000-1301	The Way of Thai Ethics	2	(2)
2000-13__	Course in Social Science Group	2	(2)

1.1.3 Science and Mathematics (Elective) (4 credits)

(1) Science (Elective) 2 credits

Code	Course Title	Cr	(Hr)
2000-1401	Basic Sciences	2	(3)

(2) Mathematics (Elective) 2 credits

Code	Course Title	Cr	(Hr)
2000-1501	Applied Mathematics 1	2	(2)

1.1.4 Health and Physical Education (Elective) (not less than) 2 credits
select from courses below :

Code	Course Title	Cr	(Hr)
2000-16__	Course in Physical Education Group	1	(2)
2000-16__	Course in Health Education Group	1	(1)
2000-16__	Course in Health and Physical Education Integration Group	2	(3)

1.2 Vocational-based General Courses (not less than) 8 credits

1.2.1 Language (Elective) (not less than) 4 credits

(3) English and another Language (Elective) (not less than) 4 credits
select from courses below :

Code	Course Title	Cr	(Hr)
2000-1220	English for Communication in the Workplace	1	(2)
2000-1221	English Conversation 1	1	(2)
2000-1222	English Conversation 2	1	(2)
2000-1229	English for Fishery	1	(2)
2000-1231	English for Fishery Technology	1	(2)
2000-1232	Supplementary English	1	(2)
2000-1233	Internet English	1	(2)
2000-1234	English Project Work	1	(2)
2000-1235	English for the Workplace	1	(2)
2000-1236	Independent Study in English	1	(2)
2000-1237	English Terminology	1	(2)

1.2.2 Science and Mathematics (Elective) (not less than) 4 credits

(1) Science (Elective) (not less than) 2 credits select from courses
below :

Code	Course Title	Cr	(Hr)
2000-14__	Course in Science Group	2	(3)

(2) **Mathematics (Elective)** (not less than) 2 credits select from courses below :

Code	Course Title	Cr	(Hr)
2000-1524	Applied Mathematics 6	2	(2)
2000-15__	Course in Mathematic (Elective)	2	(2)

2. Vocational Courses (not less than) 66 credits

2.1 Basic Vocational Courses (16 credits)

Code	Course Title	Cr	(Hr)
2001-0001	Computer at Work	2	(3)
2001-0002	Basic Business Management	2	(3)
2001-0003	Quality and Productivity Management	2	(3)
2001-0004	Introduction to Environmental Management	2	(3)
2100-1006	Basic Engines	2	(4)
2100-1007	Basic Machine Tools	2	(4)
2600-1001	General Fisheries	2	(2)
2601-2111	Introduction to Marine Fisheries	2	(2)

2.2 Core Vocational Courses (16 credits)

Code	Course Title	Cr	(Hr)
2600-1003	Fish Raw Material Management	2	(4)
2603-1001	Marine Pollution	2	(2)
2603-1002	Ships Safety	2	(2)
2603-1003	Introduction to Astronomy for Navigation	2	(2)
2603-1004	Introduction to Meteorology	2	(2)
2603-1005	Introduction to Radio and Communication	2	(4)
2603-1006	Laws of Navigation	2	(2)
2603-1007	Navigation	2	(2)

2.3 Specialized Vocational Courses (not less than) 30 credits

Students must take at least 30 credits from specialized vocational courses.

Code	Course Title	Cr	(Hr)
2100-1001	Basic Technical Drawing	2	(4)
2101-2102	Diesel Engine	3	(6)
2101-2103	Small Engine	3	(6)
2101-2301	Ship Engine Installation	3	(6)
2101-2302	Ship Engine Repairs	3	(6)
2101-2304	Ship Electricity	3	(6)
2101-2310	Ship Machine Tools	3	(6)
2603-2101	Encircling gill nets Fishery	3	(6)
2603-2102	Fishery Otter Trawl	3	(6)
2603-2103	Seaman Ship	2	(4)
2603-2104	Sea route Institute - Fishery	2	(2)
2603-2105	Coastal Navigation	2	(4)
2603-2106	Fishery Equipment	2	(4)
2603-2107	Ship and Ship Stability	2	(2)
2603-2108	Navigation for Fishery	2	(4)
2603-2109	Freezers and Cold Storage	2	(2)
2603-2110	Basic Quality Check	2	(4)
2603-2111	Conservation Fishery resource	2	(2)
2603-2112 to 2603-2149	Another Production in Marine Fisheries based on local need.	*	(*)

- **Introduce course add in marine fisheries specialization**

Code	Course Title	Cr	(Hr)
2603-4101	Marine Fisheries Work 1	*	(*)
2603-4102	Marine Fisheries Work 2	*	(*)
2603-4103	Marine Fisheries Work 3	*	(*)
2603-4104	Marine Fisheries Work 4	*	(*)
2603-4105	Marine Fisheries Work 5	*	(*)
2603-4106	Marine Fisheries Work 6	*	(*)
2603-41...	Marine Fisheries Work ..	*	(*)

For the Dual System (apprenticeships), the college and the employer together analyze the course objectives and course standards, to produce an appropriate work, planning for practice and evaluating not less than 40 hours is equivalent to 1 credit.

2.4 Project (4 credits)

Code	Course Title	Cr	(Hr)
2603-5001	Project	4	(*)

3. Free Elective Courses (not less than) 10 credits

Students can choose courses from any area of study, according to their aptitude and interests, from the list provided in the 2002 Vocational Certificate Curriculum (Revision Edition 2003).

4. On The Job Training (not less than 1 Semester)

For on the job training, the college selects Vocational Courses which are undertaken at the workplace, for at least 1 semester, totaling not less than 40 hours equivalent to 1 credit.

5. Extra Curricular Activities (200 Hours)

The college arranges extra curricular activities every semester, totaling not less than 200 hours for the entire program.

Code	Course Title	Cr	(Hr)
2002-0001	activities ...	-	(2)
2002-0002	activities ...	-	(2)
2002-0003	activities ...	-	(2)
2002-0004	activities ...	-	(2)
2002-0005	activities ...	-	(2)
2002-0006	activities ...	-	(2)
2002-0007 to 2002-0012	another activities ...	-	(2)

Course Description

Vocational Courses

**2002 Curriculum for Certificate of Vocational Education
(Revised Edition 2003)**

Area of Study: Fisheries

Course Description

Vocational Courses : Basic Vocational Courses

2001-0001 Computer at Work

2 (3)

Course Objectives

1. To understand the principles of using information technology at work, using office program, using internet and e-mail.
2. To be able to use computer and information at work, install operating software program create document, table making and presentation, search data by internet and send-receive e-mail.
3. To have morality and responsibility to use computer with information system, good habit in systematically to work, patient, neatly, carefulness and safety.

Course Standards

1. Install computer by manual.
2. Create document for career by word processing program.
3. Create table sheets for career by table program.
4. Create presentation slides by presenting program.
5. Search data by internet and send-receive E-mail.

Course Descriptions

Study and operate about computer and basic vocational information system, install computer, equipment and practice system, using word processing program in create vocational documents concentrate in typing fluently and correcting, using table program for career in calculating such as capitals, goods pricing etc. using presenting program concentrate in graph and table, animation, using internet to serch data for career and send-receive e-mail, using computer with information system based on morality and responsibility.

2001-0002 Basic Business Management**2 (3)****Course Objectives**

1. To understand principle of basic business management, processes of procedure, business document, accounting, marketing and market plan, sale and sale plan, small business.
2. To be able to make business document according to type of business, record accounts according to general accounting standards, proceed marketing according to marketing plan, proceed sale according to sale plan and proceed small business by their own job knowledges.
3. To promote a positive attitude toward proceeding small business in their own vocational field.

Course Standards

1. Create business document according to type of work.
2. Record account according to general accounting.
3. Proceed marketing according to marketing plan.
4. Proceed sale according to sale plan.
5. Proceed small business.

Course Descriptions

Study and practice basic business management, type and importance of enterprises, principle of business management, writing business document, account making, marketing and market plan, sale and sale plan, principle of proceeding small business.

2001-0003 Quality and Productivity Management**2 (3)****Course Objectives**

1. To understand principle of quality management, principle of PDCA, solve problem processes and equipment in activity management, ISO 9000 : 2000 rules and document in productivity.
2. To be able to proceed quality groups, activities about ISO 9000 : 2000 and management in productivity.
3. To have working habit in systematic and realize in quality.

Course Standards

1. Proceed quality group activity.
2. Proceed quality management activity in organization.
3. Proceed ISO 9001.
4. Proceed productivity activities in organization.

Course Descriptions

Study and practice in quality management activity, meaning and importance of quality, PDCA methodology, manage quality group by using solve problem processes and equipment in activity, progress report of quality group activity, quality management principle and proceed activities such as : importance to customers, relation with sender, leadership, personal cooperation, procedure administration and system, continuous improvement and decision making ect., quality management system ISO 9000:2000, rules and document, principle of productivity, productivity in organization by constant factors and reduced productivity factors.

2001-0004 Introduction to Environmental Management 2 (3)

Course Objectives

1. To understand the relation of environment and living things, ecology and technology, environment problem, solution technique in environment quality standard, standard system in environment management 14000.
2. To be able to survey ecology information and technology related to environment in community, solution, proceed activities about environment quality in community, proceed activities to manage environment in ISO 14001 organization.
3. To have good work habits with patience and safety, economize and realize to importance of environment.

Course Standards

1. Survey ecology information and technology related to environment in community.
2. Set solution to environment problem solving in community according to environmental quality standard.
3. Proceed activities for quality of environment in community.
4. Proceed activities for standard of environment ISO 14001.

Course Descriptions

Study and practice about basic environment management in organization and community, role and importance of environment, relation with living things, ecology and technology to developing country, environment problem, pollution location, impacts and technique in solving pollution of water, air, sound, shaking, scenery, poisonous and waste, environment conservation, quality standard of environment, standard system of environment management ISO 14000.

2100-1006 Basic Engines**2 (4)****Course Objectives**

1. To understand the principles of engines, use equipment for disassemble and re-assemble and check engine element.
2. To be able to disassemble and re-assemble the engine element.
3. To have good work habits with patience, responsible, neatly, careful, punctually, clean, safety and realize to importance of environment.

Course Standards

1. Understand engines function, check engine element.
2. Disassemble and re-assemble the engine element.

Course Descriptions

Study and practice about engines function, use equipment for disassemble and re-assemble and check the engine element.

2100-1007 Basic Machine Tools**2 (4)****Course Objectives**

1. To understand the principles, calculation for basic machinery tools.
2. To be able to drilling, cut, lathe, nudge by basic machine.
3. To have good work habits with patience, responsible, neatly, careful, punctually, clean, safety and realize to importance of environment.

Course Standards

1. Understand engines function, adjust and to be useable basic machine.
2. Lathe metal work follow order.
3. Nudge improve size metal work follow order.

Course Descriptions

Study and practice about classification , composition, principles, maintenance and safety for basic machine work, calculation speed of cycle, speed of cut, rate of element for sharpen job, lathe job, nudge, drill based on safety.

2500-1001 Future Farmer Leadership Development 2 (2)

Course Objectives

1. To obtain an understanding principle , operation and regulations about activities of Future Farmer of Thailand (FFT).
2. To be able to operation of Future Farmer of Thailand activities on the principles and processes .
3. To promote a positive attitude operation of Future Farmer of Thailand activities .

Course Standards

1. Understand the principles of Future Farmer of Thailand (FFT).
2. Planning the operation of Future Farmer of Thailand activities on the principles and processes.

Course Descriptions

Study and practice about history, importance , principle of Future Farmer of Thailand (FFT) , management and operation of FFT , operate activities of 10 main projects, regulations about activities of FFT.

2600-1001 General Fisheries 2 (2)

Course Objectives

1. To obtain an understanding about the importance of fisheries in Thailand and foreign country.
2. To obtain an understanding about the basic principles of fishery regarding to environmental conservation.
3. To promote a positive attitude toward fishery works and good work habits with moral and ethics.

Course Standards

Understand the principle about fishery with rules and regulations, policy and regarding to environmental conservation.

Course Descriptions

Study about importance of fisheries, fisheries resource, situation of fisheries, fisheries resource conservation, fisheries act., jetty, aquatic animals product and utilize from aquatic animals, fisheries policy of Thailand.

2600-1002 Basic Fishery Workshop**2 (4)****Course Objectives**

1. To obtain an understanding basic principles of fishery to support fishery product.
2. To be able to work in construction, solder, pipe, electricity, painting, use and maintainance small engine, gasoline engine and diesel engine based on the principles and processes.
3. To promote a good work habits with cleanly, economy, responsibilities, safety and responsibility to environment.

Course Standards

1. Understand the principles of basic fishery mechanic practice.
2. Maintain small gasoline engine and diesel engine based on the principles and processes.
3. Construction and painting of fishery based on the principles and processes.
4. Piping work of fishery based on the principles and processes.
5. Solder basic work of fishery based on the principles and processes by safety.
6. Install basic electricity based on the principles and processes by safety.

Course Descriptions

Study and practice about material equipment and cement work, concrete, pipe in fishery, solder electricity, circuit, light, join and install electricity motor, repair, maintain small engine, gasoline and diesel engine, pain equipment, choose color for job and safety at work.

2600-1003 Fish Raw Material Management**2 (4)****Course Objectives**

1. To obtain an understanding basic principles of fish raw material management.
2. To be able to work about fish raw material management based on the principles and processes.
3. To promote a good work habits with cleanly, finely, be careful, economize, safety and responsibility to environment.

Course Standards

1. Understanding about principle and process of basic fish raw material management.
2. Handling different fresh fish species according to the principles and process.
3. Evaluation of different fresh fish species quality according to the principles.
4. Preparation prior to raw material management according to market demand.
5. Management of different fish raw material for production.
6. Transportation of fresh fish for sale.
7. Make cost and income account of fish raw material.

Course Descriptions

Study and practice about valuable fish species, chemical compositions effecting on fresh fish quality changes, handling of fresh fish, fresh fish quality evaluation, fish preparation for production and fresh fish transportation.

2601-2111 Introduction to Marine Fisheries

2 (2)

Course Objectives

1. To understanding the basic principles of marine fisheries.
2. To be able to resolve to choose marine fisheries process, fishery equipment, keep process and manate fishery business concern of environmental conservation and continue fishery.
3. To promote a positive attitude toward fishery works and good work habits with moral and ethics.

Course Standards

1. Understand the basic principle of marine fisheries.
2. Resolve to choose marine fisheries process, fishery equipment, keep process and manate fishery business concern of environmental conservation and continue fishery.

Course Descriptions

Study about nature, geography and event of the sea, ecology, fishery area, character and life cycle of sea animal, sea environmental conservation, type of fishery (classify by type of equipment, fishery area) character of fishery equipment, fishery equipment maintain, degenerate and keep process of aquatic animal, fishery business and the law about fishery and navigation.

Course Description

Vocational Courses : Core Vocational Courses

Program ; Aquaculture

2601-1001 Introduction to Aquaculture 3 (4)

Course Objectives

1. To understanding the basic principles and history of aquaculture.
2. To be able to work basic aquaculture based on the principles and processes.
3. To promote a positive attitude toward aquaculture career and have good habits concerning carefulness, safety, diligence, patience and responsibility to environment.

Course Standards

1. Understand the principles of basic aquaculture.
2. Preparation before conducting aquaculture machth to the resource.
3. Fish breeding by type based on the principles and processes.
4. Fish culture based on the principles and processes concern of energy and environmental conservation.
5. Operate and manage after fish breeding based on the principles and processes.

Course Descriptions

Study and operate about importance and history of aquaculture, aquaculture at all country, type of fish, fish breeding and fish culture.

2601-1002 Irrigation System for Aquaculture 3 (4)

Course Objectives

1. To understand the principles of irrigation system for aquaculture.
2. To be able operate irrigation system plan, water drain system, strain and wastewater treatment system to develop aquaculture job.
3. To promote a good habits to vehicles driving with carefulness, safety economy, and responsibility to environment.

Course Standards

1. Understand the principles and processes of irrigation system for aquaculture
2. Operate irrigation system for aquaculture plan based on the principles.
3. Manage irrigation system and wastewater treatment for basic aquaculture based on the principles and processes.

Course Descriptions

Study about meaning and importance of irrigation system for aquaculture, operate irrigation system plan for all aquaculture, level observe of water drain system, turn on the water system, piping, water gate construc, strain, wastewater treatment system for aquaculture.

2601-1003 Fish Biology

3 (4)

Course Objectives

1. To understand the biography, fish body system and relationship between fish and environment.
2. To be able analyze and classify of fish type based on biology for basic of fish raising.
3. To promote a positive attitude toward fish raising career and have good habits concerning responsibility and carefulness.

Course Standards

1. Understand the fish classify system based on the biology.
2. Classify type of fish based on the biology.

Course Descriptions

Study and practice about fish classify system, fish body, external organs, internal organs system, respond and relationship between fish and environment, and the importance of economic fish biography.

2601-1004 Fishery Practice 1**2 (4)****Course Objectives**

1. To understand the principles of basic farm practice, choose, use and repair equipments in farm.
2. To be able to basic farm practice, choose, use and repair equipments in jobs based on the principles and processes.
3. To promote a positive attitude toward fishery career and have good habits concerning responsibility, safety, diligence and patience.

Course Standards

1. Understand the principles and processes of basic fishery practice.
2. Choose / use equipment on fishery practice by job characteristic.
3. Practice fishery job based on the principles and processes concern of safety.
4. Maintain equipment in job based on the principles.

Course Descriptions

Practice about basic job in farm and college work, choose, use, and repair equipment and general farm equipment at least 30 skill, student can practice in general farm.

2601-1005 Fishery Practice 2**2 (4)**

Pre requisite: 2601-1004 Fishery Practice 1

Course Objectives

1. To understand the principles of basic fishery practice, choose, use and repair equipment in fishery job.
2. To be able to basic fishery practice, choose, use and repair equipment in job based on the principles and processes.
3. To promote a positive attitude toward fishery career and have good habits concerning responsibility, safety, diligence and patience.

Course Standards

1. Understand the principles and processes of basic fishery practice.
2. Choose / use equipment on fishery practice by type of job.
3. Practice fishery job based on the principles and processes concern of safety.
4. Maintain equipment in job based on the principles.

2601-2101 Fish Breeding **3 (6)**
 Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To understanding about fish and the principles of fish breeding.
2. To be able to plan and manage fish breeding according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward fish breeding and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles, processes, planning and fish breeding.
2. Preparation before conducting fish breeding followed by situation and environmental.
3. Fish breeding by principles and processes.
4. Operate and manage fish breeding by principles and processes concern of social and environmental conservation.
5. Operate and manage after fish breeding by principles and processes.
6. Records credit and debit fish breeding and selling.

Course Descriptions

Study and practice about market analyzation, type and species of fish, fish breeding by fish roe type, equipment of fish breeding, fish breeding plan, package and transport, calculate cost of product and set up selling price, records farm work and account.

2601-2102 Fish Culture **3 (6)**
 Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To understanding the principles of fish culture.
2. To be able to plan and manage fish culture according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward fish culture and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles, processes, planning and fish culture.
2. Prepare place, equipment, water, feed and species of fishery before conducting fish culture followed by situation and environmental.
3. Fish culture by principles and processes regarding impacts on society and environment.
4. Operate and manage fish by principles and processes.
5. Manage products based on the principles and processes.
6. Records credit and debit fishery and selling.

Course Descriptions

Study and practice about fish culture, area selection, pond and pond preparation, water quality and management, fingering delivery techniques, feed and feeding, parasites, predator of aquatic animals, problem and financing, data recording and estimate product, catch and transport, calculate cost of product and account.

2601-2103 Ornamental Fish Culture 3 (6)

Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To understanding the principles of ornamental fish culture.
2. To be able to plan and manage ornamental fish culture according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward fish culture and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles, processes, planning and ornamental fish culture.
2. Prepare place, equipment, water, feed and species of ornamental fish before conducting culture followed by situation and environmental.
3. Ornamental fish culture by principles and processes regarding impacts on society and environment.
4. Operate and manage ornamental fish by principles and processes.
5. Manage products based on the principles and processes.
6. Records credit and debit ornamental fish and selling.

Course Descriptions

Study and practice about species of ornamental fish order, ornamental fish culture, feed and feeding, parasites, predator of aquatic animals, attention, catch for sale, ornamental fish aquarium, data recording and evaluate, calculate cost of product and account.

2601-2104 Shrimp Breeding 3 (6)

Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To understanding about shrimp breeding.
2. To be able to plan and manage shrimp breeding according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward fish breeding and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of planning and shrimp breeding.
2. Preparation before conducting shrimp breeding followed by situation and environmental.
3. Shrimp breeding by principles and processes regarding impacts on society and environment.
4. Operate and manage shrimp breeding by principles and processes.
5. Manage product by principles and processes.
6. Records credit and debit shrimp breeding and selling.

Course Descriptions

Study and practice about species of economical shrimp, shrimp breeding, shrimp breeding management plan, feed and feeding, parasites and prevention, take care, package and transport for sale, data recording and evaluate, calculate cost of product and account.

2601-2105 Shrimp Culture **3 (6)**
 Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To understanding the principles of shrimp culture.
2. To be able to plan and manage shrimp culture according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward shrimp culture career and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of planning and shrimp culture.
2. Prepare place, equipment, water, feed and species of shrimp before conducting culture followed by situation and environmental.
3. Shrimp culture by principles and processes regarding impacts on society and environment.
4. Operate take care shrimp by principles and processes.
5. Manage products based on the principles and processes.
6. Records credit and debit shrimp and selling.

Course Descriptions

Study and practice about type of shrimp, area selection, pond preparation, water quality and management, fingering delivery techniques, feed and feeding, parasites, and prevention, problem and solve, data recording and estimate product, catch and transport, calculate cost of product and account.

2601-2106 Shellfish Culture **3 (6)**
 Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To understanding the principles of shellfish culture.
2. To be able to plan and manage shellfish culture according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward shellfish culture career and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Descriptions

Study and practice about market analyze and type of economical aquatic animal, area selection, aquaculture preparation, species selection, water quality management, feed and feeding, parasites and prevention, problem and solve, data recording and estimate product, catch and transport, calculate cost of product, set up selling price and accounting.

2601-2108 Coastal Aquaculture 3 (6)
 Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To understanding the principles of coastal aquaculture.
2. To be able to plan and manage coastal aquaculture according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward economical aquaculture career and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of planning and coastal aquaculture.
2. Prepare place, equipment, water, feed and species of coastal aquatic animal before conducting culture followed by situation and environmental.
3. Coastal aquaculture by principles and processes regarding impacts on society and environment.
4. Operate conduct coastal aquatic animal by principles and processes.
5. Manage products based on the principles and processes.
6. Records credit and debit coastal aquatic animal and selling.

Course Descriptions

Study and practice about economical coastal aquaculture, area selection, aquaculture preparation, species selection, water quality management, feed and feeding, parasites and prevention, problem and solve, data recording and estimate product, catch and transport, calculate cost of product, set up selling price and accounting.

2601-2109 Aquatic Plant Propagation**3 (6)****Course Objectives**

1. To understanding the principles of aquatic plant propagation.
2. To be able to plan and manage aquatic plant propagation according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward aquatic plant propagation career and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of aquatic plant propagation.
2. Prepare place, equipment, and species of aquatic plant before conducting culture followed by situation and environmental.
3. Aquatic plant propagation based on the principles and processes regarding impacts on society and environment.
4. Operate take care aquatic plant based on the principles and processes.
5. Manage aquatic plant products post propagation based on the principles and processes.
6. Records credit and debit propagation and selling aquatic plant.

Course Descriptions

Study and practice about type, aquatic plant market, aquatic plant propagation based on glassblock, planting and conducting, problem and solve, data recording and estimate product, pack and transport, calculate cost of product, set up selling price and accounting.

2601-2110 Fish Feed Production**3 (6)****Course Objectives**

1. To understanding the principles of fish feed production.
2. To be able to systematically plan and manage fish feed production according to the principles and processes with awareness of natural resource utilization efficiently and environment impact.
3. To promote a positive attitude toward fish feed production career and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of planning and basic fish feed produce.
2. Prepare equipment, tools, area and material of fish feed based on type of aquatic animal and age.
3. Calculate fish feed formulation based on the principles.
4. Produce fish feed based on the principles and processes regarding to energy and environment conservation.
5. Preserve fish feed based on the principles and processes.
6. Records credit and debit fish feed production for set up price and selling.

Course Descriptions

Study and practice about type and worth of fish feed, raw materials usage for feed, feed formula and production, raising plankton and living feed, problems and how to solve, data and evaluate, packaging and transport, debit-credit calculation, set up price for sell and record.

2501-2150-99 Aquaculture Project

2 (4)

Pre requisite: 2601-1001 Introduction to Aquaculture

Course Objectives

1. To be able to systematically practice aquaculture production, planning, doing, problem solving, product management for maintenance and selling.
2. To promote a positive attitude toward to have good habits in aquaculture production occupation development, creativity, responsibilities, diligence and patience.

Course Standards

1. Plan the aquaculture project according to the principles and the processes.
2. Prepare to produce based on the project and planning.
3. Practice production and raising based on production planning and project.
4. Manage and selling products based on the project production.
5. Conclude the result and make credit-debit accounts of the project.

Course Descriptions

Practice about analysis of marketing situation and other involved data; planning and produce/service project; and production solving problem; management and selling products; recording, reporting and accounting.

2601-41... Aquaculture Work ..

* (*)

Pre requisite: 2601-1001 to 2601-1003

Course Objectives

1. To understand the principles and service of aquaculture work.
2. To be able to practice production and giving service related to aquaculture work based on the principles and processes by planning, working evaluating, selecting and using appropriate technology.
3. To promote a positive attitude toward and to have good work habits, concerning creativities, responsibilities, carefulness, safety, diligence and patience.

Course Standards

1. Understand the principles and service on aquaculture work.
2. Plan to produce give service about aquaculture work based on the principle.
3. Produce service on aquaculture work based on the principles and processes.
4. Improve, solve problems and service on aquaculture work.
5. Manage products based on the principles and processes.

Course Descriptions

Producing and service on animal science work in the workplace/ farm/ resource; planning; producing and service on animal science work, improving and marketing solution to the problems/ service on ; product management and selling; data recording, reporting the result and accounting.

Course Description

Vocational Courses : Core Vocational Courses

Program ; Fish Processing

2501-2309 Food Additives 2 (3)

Course Objectives

1. To gain knowledge and understanding about food additives.
2. To be able to select and use appropriate additives for food according to the principles, process and food safety.
3. To promote a positive attitude toward food additives application and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principles and process of food additives application.
2. Select and use food additives according to the principles and processes.
3. Inspection of the properties and effects of food additives according to food standards.

Course Descriptions

Importance, advantages, types and properties of food additives; properties of additives effecting on food; examination of properties and effect of additives on food.

2602-1001 Nutrition 2 (2)

Course Objectives

1. To gain knowledge and understanding about the importance of nutrition, nutritive value of food and changing process of food in human body.
2. To be able to apply this knowledge in selecting food for consumption and processing according to principle of nutrition.
3. To be aware of nutritive value of food and to promote a good behavior of food consumption and processing.

2602-1003 Fundamental of Fish Processing Practice 1 2 (4)**Course Objectives**

1. To gain knowledge and understanding about the principle of fish processing.
2. To be able to provide basic skills of fish processing and use appropriate equipments, tools and maintenance.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle and basic process of fish processing.
2. Select and use the appropriate equipments and tools for fish processing.
3. Preparation prior to fish processing process.
4. Process fish according to principle, method and food safety.
5. Maintenance of equipments and tools for fish processing according to safety standard.
6. Post harvest management of fish processing by evaluation of quality and packaging according to the principle and process.

Course Descriptions

Basic process of fish processing; selecting, using and maintenance of equipments and tools with safety for fish processing practice.

2602-1004 Fundamental of Fish Processing Practice 2 2 (4)**Course Objectives**

1. To gain knowledge and understanding about the principle of fish processing.
2. To be able to provide basic skills of fish processing and use appropriate equipments, tools and maintenance
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle and basic process of fish processing.
2. Select and use the appropriate equipments and tools for fish processing.
3. Preparation prior to fish processing process.
4. Process fish according to principle, method and food safety.
5. Maintenance of equipments and tools for fish processing according to safety standard.
6. Post harvest management of fish processing by evaluation of quality and packaging according to the principle and process.

Course Descriptions

Basic process of fish processing for a skillful level; selecting, using and maintenance of equipments and tools with safety for fish processing practice.

Course Description

Vocational Courses : Specialized Vocational Courses

Program ; Fish Processing

2602-2101 Fish Processing by Drying

3 (6)

Course Objectives

1. To gain knowledge and understanding about the principle of fish processing by drying.
2. To be able to provide basic skills of fish processing by using appropriate technology.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle process and planning of fish processing by drying.
2. Select and use the appropriate equipments and tools for fish processing.
3. Processing of fish by drying and use appropriate technology for energy and environment conservation.
4. Post harvest management of fish processing by evaluation of quality and packaging according to the principle and process.
5. To make cost and income accounts of processing and selling of the fishery products.

Course Descriptions

Importance and marketing of fish processing by drying; principle of drying, raw material preparation, equipments and tools; quality control and quality evaluation of drying products; packaging and selling; calculation of production cost as well as production account.

2602-2102 Fish Processing by Fermentation**3 (6)****Course Objectives**

1. To gain knowledge and understanding about the principle of fish processing by fermentation.
2. To be able to provide basic skills of fish processing by using appropriate technology.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle process and planning of fish processing by fermentation.
2. Select and use the appropriate equipments and tools for fish processing.
3. Processing of fish by fermentation and use appropriate technology for energy and environment conservation.
4. Post harvest management of fish processing by evaluation of quality and packaging according to the principle and process.
5. Record cost and income accounts of processing and selling of the fishery products.

Course Descriptions

Importance and marketing of fish processing by fermentation; principle of fermentation, raw material preparation, equipments and tools; quality control and quality evaluation of fermentation products; packaging and selling; calculation of production cost as well as production account.

2602-2103 Fish Processing by Refrigeration**3 (6)****Course Objectives**

1. To gain knowledge and understanding about the principle of fish processing by refrigeration.
2. To be able to provide basic skills of fish processing by using appropriate technology.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle process and planning of fish processing by refrigeration.
2. Select and use the appropriate equipments and tools for fish processing.
3. Processing of fish by refrigeration and use appropriate technology for energy and environment conservation.
4. Post harvest management of fish processing by evaluation of quality and packaging according to the principle and process.
5. Record cost and income accounts of processing and selling of the fishery products.

Course Descriptions

Importance and marketing of fish processing by refrigeration; principle of refrigeration, raw material preparation, equipments and tools; quality control and quality evaluation of refrigerated products; packaging and selling, calculation of production cost as well as production account.

2602-2104 Fish Processing by Heating

3 (6)

Course Objectives

1. To gain knowledge and understanding about the principle of fish processing by heating.
2. To be able to provide basic skills of fish processing by using appropriate technology.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle process and planning of fish processing by heating.
2. Select and use the appropriate equipments and tools for fish processing.
3. Process of fish by heating and use appropriate technology for energy and environment conservation.
4. Post harvest management of fish processing by evaluation of quality and packaging according to the principle and process.
5. Record cost and income accounts of processing and selling of the fishery products.

Course Descriptions

Importance and marketing of fish processing by heating; principle of heating, raw material preparation, equipments and tools, quality control and quality evaluation of heating products, packaging and selling, calculation of production cost as well as production account.

2602-2105 By-Product Utilization

3 (6)

Course Objectives

1. To gain knowledge and understanding about the by-product utilization.
2. To be able to utilize by-product from fish processing for consumption and decoration by using appropriate technology.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle planning and utilization of by-product.
2. Preparing equipments and tools for by-product utilization.
3. Production of fish processing by-product by using appropriate technology.
4. Record cost and income accounts of processing and selling of the by-products.

Course Descriptions

By-product from fish processing; by-product utilization; quality control; recording data of expense and conduction.

2602-2150-99 Fish Processing Project

3 (6)

Course Objectives

1. To gain knowledge and understanding about the project writing.
2. To be able to work in fish processing by planning, conduction, problem solving and post harvest management for selling and earning the income.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Planning and making the fish processing project.
2. Preparation of fish processing according to project and plan.
3. Practice the fish processing according to project and plan.
4. Post harvest management after fish processing and selling according to the project and plan.
5. Summarizing project including cost and income accounts.

Course Descriptions

Marketing analysis and other concerning data, planning and making the project; conduction and problem solving and improvement of the conduction; product management and selling, recording, periodical work report and accounting.

2602-41.... Fish Processing Work.....

* (*)

Prerequisite: 2600-1003 and 2602-1002

Course Objectives

1. To gain knowledge and understanding about the principle of fish processing.
2. To be able to work in fish processing by planning, conducting, evaluating, selecting and using appropriate technology.
3. To promote a positive attitude toward fish processing work and to promote the value of personal responsibilities in the workplace.

Course Standards

1. Understanding about the principle and process of fish processing.
2. Planning of fish processing according to principles.
3. Process fish according to fish processing principles.
4. Solving the problem and improve the process of fish processing.
5. Post harvest management of fishery products according to the principles and process.

Course Descriptions

Various activities promoting knowledge and skill about fish processing work in companies, plants and other relative fishery agencies; planning, conducting, problem solving and improvement of the conduction; product management and selling, recording, periodical work report and accounting.

Course Description

Vocational Courses : Core Vocational Courses

Program ; Marine Fisheries

2600-1003 Fish Raw Material Management 2 (4)

Course Objectives

1. To obtain an understanding basic principles of fish raw material management.
2. To be able to work about fish raw material management based on the principles and processes.
3. To promote a good work habits with cleanly, finely, be careful, economize, safety and responsibility to environment.

Course Standards

1. Understanding about principle and process of basic fish raw material management.
2. Handling different fresh fish species according to the principles and process.
3. Evaluation of different fresh fish species quality according to the principles.
4. Preparation prior to raw material management according to market demand.
5. Management of different fish raw material for production.
6. Transportation of fresh fish for sale.
7. Record cost and income account of fish raw material.

Course descriptions

Study and practice about valuable fish species, chemical compositions effecting on fresh fish quality changes, handling of fresh fish, fresh fish quality evaluation, fish preparation for production and fresh fish transportation.

2603-1001 Marine Pollution**2 (2)****Course Objectives**

1. To understand about the importance of marine pollution management based on the principles and processes.
2. To be able to analyze, prevention plan about the basic marine pollution based on the principles.
3. To promote a positive attitude and good habits toward marine pollution prevention with responsibility and carefulness.

Course Standards

1. Understand the principles and processes of marine pollution management.
2. Analyze, prevention planning and basic eliminate marine pollution based on the principles.

Course Descriptions

Study about type of general pollution, type and determinant of pollution happen on the sea, protect method and eliminate, regulation and law about marine pollution, internal and external institute in both the government and private sector responsibility about marine pollution.

2603-1002 Ship Safety**2 (2)****Course Objectives**

1. To understand the importance and the principles of ship safety.
2. To be able to work on ship safety theoretically.
3. To promote a positive attitude and good habits in work with carefulness, safety and responsibility.

Course Standards

1. Understand the principles and processes of basic ship safety.
2. Planning, protection and solve accident on ship based on the principles and processes.

Course Descriptions

Study about living on ship, accident on ship, determinant and protection, sink help, leave ship and after living.

2603-1003 Introduction to Astronomy for Navigation 2 (2)**Course Objectives**

1. To understand about the importance and the principles of astronomy for navigation.
2. To be able to choose, use method and astronomy for navigation equipment based on the principles.
3. To promote a positive attitude and good habits in work with carefulness, safety and responsibility.

Course Standards

1. Understand the principles of introduction to astronomy for navigation.
2. Specify of navigation with star based on the principle.
3. Use astronomy for navigation equipment based on the principles.

Course Descriptions

Study about importance star for navigation, star map usability, all astronomy equipment for navigation and navigation with star.

2603-1004 Introduction to Meteorology 2 (2)**Course Objectives**

1. To understand about the importance and the principles of meteorology.
2. To be able to analyze basic data of meteorology based on the principles.
3. To promote a positive attitude and good habits in work with carefulness, safety and responsibility.

Course Standards

1. Understand the principles of introduction to meteorology.
2. Analyze basic data of meteorology based on the principles.

Course Descriptions

Study about meaning and scope of meteorology study, importance of meteorology for marine fisheries, fall state, sky, climate, about cloud, rain, fall and fall way, data and data source of meteorology.

2603-1005 Introduction to Radio and Communication 2 (4)

Course Objectives

1. To understand about the importance, the principles and basic processes of radio and communication.
2. To be able to use radio communication receiver-transmit based on the principles and processes.
3. To promote a positive attitude and good habits in work with carefulness, safety and responsibility.

Course Standards

1. Understand the principles and basic processes of radio and communication
2. Use radio communication receiver-transmit based on the principles and processes.

Course Descriptions

Study and practice about receiver-transmit system and communication connect by sea, regulation about radio communication in both country and foreign, equipment for communication and automatic alert system (SSB RADIO, VHF RADIO, SAT.COM, GMDSS)

2603-1006 Laws of Navigation 2 (2)

Course Objectives

1. To understand about the importance ad law of navigation.
2. To be able to take the principle of laws relate to way of navigation work.
3. To promote a positive attitude and good habits in navigation work with carefulness, safety and responsibility.

Course Standards

1. Understand the principles of laws about navigation.
2. Plot navigation by laws.

Course Descriptions

Study about act and laws about navigation in Thai and international territorial waters.

2603-1007 Navigation**2 (2)****Course Objectives**

1. To understand about the principles of navigation.
2. To be able to take the principle of navigation to work.
3. To promote a positive attitude and good habits in navigation work with carefulness, safety and responsibility.

Course Standards

1. Understand the basic principles of navigation.
2. Use map, equipment, logbook and memo about navigation planning based on the principles.

Course Descriptions

Study about navigation history, navigation classify, navigation map, navigation equipment logbook and memo about navigation and basic search.

Course Description

Vocational Courses : Specialized Vocational Courses

Marine Fisheries Specialization

2100-1001	Basic Technical Drawing	2 (4)
2101-2102	Diesel Engine	3 (6)
2101-2103	Small Engine	3 (6)
2101-2301	Ship Engine Installation	3 (6)
2101-2302	Ship Engine Repairs	3 (6)
2101-2304	Ship Electricity	3 (6)
2101-2310	Ship Machine Tools	3 (6)

Look at 2002 Curriculum for Certificate of Vocational Education (Revision Edition 2003),

Area of study: Industrial Trades,

Program: Mechanical

2603-2101	Encircling gill nets Fishery	3 (6)
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Course Objectives

1. To understand about the principles and processes of basic encircling gill nets fishery job.
2. To be able to encircling gill nets fishery practice based on the principle and processes.
3. To promote a positive attitude toward encircling gill nets fishery career and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of basic encircling gill nets fishery work, catch and keep.
2. Choose / use / apply equipment, labour saving machine of encircling gill nets fishery based on the principles and processes.
3. Maintain repairs equipment and tools of encircling gill nets fishery based on the principles and processes.
4. Catch and keep aquatic animal based on the principles and processes.
5. Communication by signal based on the principles and processes.

Course Descriptions

Study and practice about encircling gill nets fishery work, navigation signal, preparation, use and maintain sundeck equipment for encircling gill nets fishery, catch and preserve aquatic animal, fishing boat electronic equipment and tools usability and safety in work.

2603-2102 Fishery Otter Trawl

3 (6)

Course Objectives

1. To understand about the principles and processes of basic fishery otter trawl.
2. To be able to fishery otter trawl practice based on the principle and processes.
3. To promote a positive attitude toward fishery otter trawl career and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of basic fishery otter trawl work, catch and keep.
2. Choose / use / apply equipment, labour saving machine of fishery otter trawl based on the principles and processes.
3. Maintain repairs equipment and tools of fishery otter trawl based on the principles and processes.
4. Catch and keep aquatic animal based on the principles and processes.
5. Communication by signal based on the principles and processes.

Course Descriptions

Study and practice about fishery otter trawl work, otter trawl composition, preparation, use and maintain sundeck equipment for fishery, catch and preserve aquatic animal, fishing boat electronic equipment and tools usability and safety in work.

2603-2103 Seamanship**2 (4)****Course Objectives**

1. To understand about the principles and processes of seamanship.
2. To be able to practice about seamanship based on the principle and processes.
3. To promote a positive attitude toward seamanship work and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the principles and processes of seamanship.
2. Working with safety consideration by principles and processes.
3. Look after ship shell based on the principle and processes.
4. Protect and help rescue based on the principle and processes.

Course Descriptions

Study and practice about type and ship composition, type and size of rope, parking, leaving, turning, pulling, operating, reason of damaged, protect method and rescue.

2603-2104 Sea route Institute - Fishery**2 (2)****Course Objectives**

1. To understand about the important and role of sea route institute –fishery.
2. To be able to apply knowlage for work.
3. To promote a positive attitude toward navigation work and to have good habits concerning responsibilities, carefulness, diligence and patience.

Course Standards

1. Understand the role of sea route institute –fishery.
2. Planning navigation work based on the principles of sea route institute – fishery.

Course Descriptions

Study about all institute about ship controlling based on the principles of sea route institute –fishery.

2603-2105 Coastal Navigation**2 (4)****Course Objectives**

1. To understand about the principles and processes of coastal navigation.
2. To be able to coastal navigation work based on the principles and processes.
3. To promote a positive attitude toward coastal navigation work and to have good habits concerning carefulness, safety and responsibilities.

Course Standards

1. Understand the principles and processes of coastal navigation.
2. Read symbol, abbreviation in map by principles.
3. Use magnet compass and yiro compass based on the principles and processes.
4. Use water meter based on the principles and processes.

Course Descriptions

Study and practice about navigation map, symbol, abbreviation, deepness, height in map, navigation equipment, magnet compass, yiro compass and water meter usability.

2603-2106 Fishery Equipment**2 (4)****Course Objectives**

1. To understand about the principles and processes of fishery equipment.
2. To be able to choose / use and maintain fishery equipment based on the principles and processes.
3. To promote a positive attitude toward fisheries work and to have good habits concerning carefulness, safety and responsibilities.

Course Standards

1. Understand the principles and processes of fishery equipment.
2. Choose / use fishery equipment based on the principles and processes.
3. Maintain fishery equipment based on the principles and processes.

Course Descriptions

Study and practice about general basic fishery equipment and usability, Thailand fishery equipment and usability, type of fishery equipment classify by type of aquatic animal, fishery by study from aquatic animal behaviour and fishery area.

2603-2107 Ship and Ship Stability**2 (2)****Course Objectives**

1. To understand the principles and processes about ship and ship stability.
2. To be able to navigation practice based on the principles and processes.
3. To promote a positive attitude toward in navigation work and to have good habits concerning carefulness, safety and responsibilities.

Course Standards

1. Understand the principles and processes about ship and ship stability.
2. Plan loading and ship stability based on the capacity of ship.

Course Descriptions

Study about structure and ship characteristic all type, goods loading, weight movement in ship, every factor that affect to ship stability, ship stability change between voyage, ship stability adjustment.

2603-2108 Navigation for Fishery**2 (4)****Course Objectives**

1. To understand the principles and processes about navigation for fishery.
2. To be able to navigation for fishery practice based on the principles and processes.
3. To promote a positive attitude toward in navigation for fishery work and to have good habits concerning carefulness, safety and responsibilities.

Course Standards

1. Understand the principles and processes about navigation for fishery.
2. Use map and navigation equipment based on the principles and processes.
3. To write and search ship situation based on the principles and processes.
4. Use water meter based on the principles and processes.
5. Use fishery equipment and fishing supporter based on the principles and processes.

Course Descriptions

Study and practice about navigation map, navigation equipment, writing, searching ship situation, usage water meter, fishery equipment and fishing supporter.

2603-2109 Freezers and Cold Storage**2 (2)****Course Objectives**

1. To understand the principles and processes about freezers and cold storage.
2. To be able to apply knowledge to freezers and cold storage work.
3. To promote a positive attitude toward in freezers and cold storage work and to have good habits concerning carefulness, safety and responsibilities.

Course Standards

1. Understand the principles and processes about freezers and cold storage.
2. Plan freezers and cold storage practice based on the principles and processes.
3. Plan to look after and maintain freezers and cold storage based on the principles and processes.

Course Descriptions

Study about work system of freezers and cold storage, freezers instruction, power of coldness system to foods quality, look after management and maintain freezers and cold storage.

2603-2110 Basic Quality Check**2 (4)****Course Objectives**

1. To understand the principles and processes about basic aquatic animal and product quality check.
2. To be able to basic aquatic animal and product quality check based on the principles and processes.
3. To promote a positive attitude toward in basic aquatic animal and product quality check and to have good habits concerning carefulness, safety and responsibilities.

Course Standards

1. Understand the principles and processes about basic aquatic animal and product quality check.
2. Check aquatic animal and product quality by sense method.
3. Check aquatic animal and product quality by chemistry, physics and microbiology method.

Course Descriptions

Study and practice about principles of aquatic animal and product quality check, quality check by sense, chemistry, physics and microbiology method, fresh aquatic animal quality check, fishery product quality check.

2603-2111 Conservation Fishery resource 2 (2)

Course Objectives

1. To understand the principles and processes about conservation fishery resource.
2. To be able to promote and solve conservation fishery resource problem based on the principles and processes.
3. To promote a positive attitude toward in conservation fishery resource and to have good habits concerning responsibilities, carefulness, and safety.

Course Standards

1. Understand the principles and processes about conservation fishery resource.
2. Plan to promote and solve conservation fishery resource problem based on the principles and processes.

Course Descriptions

Study about meaning and importance of conservation fishery resource, situation character, fishing, deterioration of fishery resource and conservation fishery resource method.

2603-41... Marine Fisheries Work * (*)

Course Objectives

1. To understanding about the principle of marine fisheries work.
2. To be able to work in marine fisheries by planning, conducting, evaluating, selecting and using appropriate technology.
3. To promote a positive attitude toward marine fisheries work and to have good habits concerning responsibilities, carefulness, safety, diligent and patient.

Course Standards

1. Understanding about the principle and process of marine fisheries work.
2. Planning of marine fisheries according to job character.
3. Operate marine fisheries according to the principles and processes consider to safety.
4. Choose/ use/ maintain equipment and tool in marine fisheries work according to the principles and processes.
5. Improve marine fisheries work problem according to the principles and processes.

Course Descriptions

Practice about marine fisheries work, planning, improvement, selection, usage and maintain equipment and tool in marine fisheries work, fishing and keep aquatic animal quality, recording work report.

Course Description

Vocational Courses : Project

260...-5001 Project

4 (*)

Course Objectives

1. To gain knowledge and understanding about the principle and process of the project implementation.
2. To be able to apply knowledge, skill and experiences for establishing and developing a career in the workplace.
3. To build personal consciousness and morality in project conduction.

Course Standard

1. Understanding about the principle and process of the project implementation.
2. Planning for project implementation according to work career.
3. Conducting the project according to principle and process.
4. Solving the problem and improve the project conduction.
5. Summarizing and reporting of the project.

Course Description

Various activities promoting knowledge and skill on research/invention for application; developing a career at least 1 project by planning, presentation of the project, conducting, problem and solving and improving, recording, periodical work report, summarizing and reporting of the project.

appendix

**2002 Curriculum for Certificate of Vocational Education
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Area of Study: Fisheries

Occupation Characteristics

Aquaculture

Careers : 1. Career in Aquaculture, fish breeding, fish culture, shimp culture, Aqua-plant propagation.
2. Worker in workplace.

Knowledge : 1. Aquaculture breeding, shimp culture.
2. Aquaculture.
3. Apply technology in Aquaculture.
4. Production management for business.

Skill : 1. Aquaculture breeding.
2. Aquaculture.
3. Apply technology in Aquaculture.
4. Production management for business.

Traits : 1. Honesty.
2. Responsibility.
3. Punctuality.
4. Industrial.
5. Kindness.
6. Well discipline.
7. Human relationship and co-operation.
8. Self-development and knowledge seeking.

Occupation Characteristics

Fish Processing

- Careers :**
1. Career in fish processing, produce and selling.
 2. Worker in workplace, fish processing.

- Knowledge :**
1. Raw material management.
 2. Fish processing by principles and processes.
 3. Packaging, storage and sell product.
 4. Quality control, production system and product.
 5. Sanitation.
 6. Record and basic account.

- Skill :**
1. Fish processing management by principles and processes.
 2. Fish processing.
 3. Use packaging for storage.
 4. Evaluation in cost and selling price.
 5. Controlling law material, production system and product.

- Traits :**
1. Punctuality.
 2. Honesty.
 3. Responsibility.
 4. Diligence and endurance.
 5. Discipline.
 6. Cooperative.
 7. Safety first in using equipment.
 8. Economize.
 9. Industrial.
 10. Self development.

Role and Responsibilities of the Office of the Vocational Education Commission

The Office of the Vocational Education Commission has an important role in provide and promoting Vocational Education and Training based on the quaility and excellence of vocational skills. Role and Responsibilities of Vocational Education Commission are to :

1. prepare a proposal of policy, development plan , vocational education curriculum and standards in every level.
2. operate and coordinate vocational education standards.
3. identify the criteria, budget allocation and management of the resources of vocational education.
4. develop vocational education personnel.
5. promote and coordinate the management of vocational education and training both in the private sector and government, and to identify the criteria and cooperative models with other organizations and workplaces.
6. monitor, evaluate and make report on vocational education management both in government units and the private sector.
7. set up the system , promote and coordinate the information and technology network, and the use of information and communication technology in the management of vocational education and training.
8. carry out administrative work of the Vocational Education Commission and any other work assigned by the Vocational Education Commission.
9. carry out work sanctioned by law as being within the role and responsibilities of Vocational Education Commission or work assigned by the Minister or the Cabinet.

Based on Ministry Regulation B.E. 2546 , the management structure of Vocational Education Commission is as follows :

1. Bureau of General Administration
2. Bureau of Cooperation
3. Bureau of Monitoring and Evaluation
4. Bureau of Policy and Planning
5. Bureau of Personnel Competency Development
6. Bureau of Standards and Qualifications
7. Bureau of Reserch and Development

Programmes Offered

Types of Courses

1. Industry
2. Business Administration
3. Arts and Crafts
4. Home Economics
5. Agriculture
6. Fishery
7. Tourism Industry
8. Textile Industrial
9. Information Technology and Communication

Salutation

This book is prepared by Vocational Education Standards and Qualifications Bureau, Vocational Education Commission, Ministry of Education, to disseminate the information of the curriculum of Vocational Education Commission. We would like to thank all teachers and officers that helped make this book possible.

For further information and requires, please contact:

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Vocational Education Commission,
Ministry of education,
Bangkok 10300

Tel. 0-2281-5555 Ext.1406

Fax. 0-2627-1210

**Agricultural and Fishery Institution
under Vocational Education Commission**

	Tel.	Fax.
Northern Region I		
1. Chiang Mai Agricultural and Technology College	0-5331-1392	0-5331-1994
2. Lamphun Agricultural and Technology College	0-5397-6223	0-5397-2255
Northern Region II		
3. Phrae Agricultural and Technology College	0-5461-3313	0-5461-3340
Northern Region III		
4. Chiang Rai Agricultural and Technology College	0-5367-4350	0-5367-4350
5. Phayao Agricultural and Technology College	0-5448-1607	0-5448-3054
Northern Region IV		
6. Sukhothai Agricultural and Technology College	0-5564-1076	0-5564-1080
7. Tak Agricultural and Technology College	0-5551-2834	0-5551-2835
8. Kamphaeng Phet Agricultural and Technology College	0-5571-2264	0-5573-6244
Northern Region V		
9. Phichit Agricultural and Technology College	0-5669-1153	0-5669-1151
10. Phetchabun Agricultural and Technology College	0-5672-1595	0-5672-3047
North Eastern Region I		
11. Khon Kaen Agricultural and Technology College	0-4328-9193	0-4328-9194
North Eastern Region II		
12. Udon Thani Agricultural and Technology College	0-4221-8022	0-4226-6103
North Eastern Region III		
-		
North Eastern Region IV		
13. Maha Sarakham Agricultural and Technology College	0-4374-6284	0-4374-6285
14. Roi Et Agricultural and Technology College	0-4356-9117	0-4356-9118
North Eastern Region V		
15. Yasothon Agricultural and Technology College	0-4571-1090	0-4571-2740
16. Ubon Ratchatani Agricultural and Technology College	0-4534-4124	0-4534-4125

	Tel.	Fax.
North Eastern Region VI		
17. Buri Ram Agricultural and Technology College	0-4461-1159	0-4461-1899
18. Si Sa Ket Agricultural and Technology College	0-4561-2934	0-4561-3438
North Eastern Region VII		
19. Nakhon Ratchasima Agricultural and Technology College	0-4432-5495	0-4432-5494
20. Chaiyaphum Agricultural and Technology College	0-4481-1160	0-4481-1583
Southern Region I		
21. Pattani Fishery College	0-7333-6183	0-7343-7506
Southern Region II		
22. Satun Agricultural and Technology College	0-7479-1013	0-7479-1096
23. Phatthalung Agricultural and Technology College	0-7460-2348	0-7461-2220
24. Songkhla Agricultural and Technology College	0-7438-8477	0-7438-9118
25. Tinsulanon Fishery College	0-7433-3642	0-7433-3525
Southern Region III		
26. Ranong Agricultural and Technology College	0-7782-1669	0-7782-1488
27. Chumphon Agricultural and Technology College	0-7753-6215	0-7753-6214
28. Chumphon Fishery College	0-7750-5734	0-7750-5735
29. Surat Thani Agricultural and Technology College	0-7739-9263	0-7739-9079
Southern Region IV		
30. Nakhon Si Thammarat Agricultural and Technology College	0-7548-6314	0-7548-6314
31. Trang Agricultural and Technology College	0-7528-4153	0-7528-4152
Southern Region V		
32. Krabi Agricultural and Technology College	0-7562-1645	0-7562-1645
33. Phangnga Agricultural and Technology College	0-7649-6451	0-7649-6528
Central Region I		
34. Phetchaburi Agricultural and Technology College	0-3247-1611	0-3247-1611
35. Ratchaburi Agricultural and Technology College	0-3223-3300	0-3235-9794
Central Region II		
36. Chainat Agricultural and Technology College	0-5643-1511	0-5643-1512
37. Uthai Thani Agricultural and Technology College	0-5651-1146	0-5651-3630
38. Nakhon Sawan Agricultural and Technology College	0-5635-5420	0-5635-5420
Central Region III		
39. Sing Buri Agricultural and Technology College	0-3651-1360	0-3652-0497
40. Bang Sai Agricultural and Technology College	0-3536-6306	0-3536-6305

	Tel.	Fax.
Central Region IV		
41. Lopburi Agricultural and Technology College	0-3663-9312	0-3649-1370
Central Region V		
42. Kanchanaburi Agricultural and Technology College	0-3451-2448	0-3451-7482
43. Supanburi Agricultural and Technology College	0-3559-5056	0-3559-5055
Central Region VI		
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Eastern Region I		
44. Sa Kaew Agricultural and Technology College	0-3723-1793	0-3723-1296
Eastern Region II		
45. Chachoengsao Agricultural and Technology College	0-3859-9122	0-3859-9010
46. Chonburi Agricultural and Technology College	0-3823-8290	0-3823-7053
Eastern Region III		
-		
Bangkok Metropolis I		
-		
Bangkok Metropolis II		
47. Agricultural Engineering Training Centre	0-2567-0784	0-2567-1224