

UNDERGRADUATE PROGRAM IN OCEANOLOGY

Name of program: Bachelor of Science in Oceanology

Training degree: Bachelor of Science

Major: Earth Science

Program code: 7440228

Year: 2022

1. PROGRAM OBJECTIVES

The "Bachelor of Science in Oceanology" program aims to provide human resources with a high level of competence in Oceanology, in Meteorology, or/and in Hydrology. The graduates are expected to develop a solid knowledge in Earth Science, to be able to apply their scientific knowledge and skills in career development in technology and services in Oceanology, Meteorology, and Hydrology, and also to be able to carry out a fruitful scientific research career in these fields and in other related ones.

The objectives of the program are to provide graduates with a broad understanding of Earth Sciences and high ability in scientific research and application. The objectives are described as follows:

- a) General knowledge block: Graduates are expected to develop advanced knowledge in mathematics and natural sciences, and basic knowledge in philosophy and socio-economics.
- b) Background knowledge block: Graduates are expected to develop basic knowledge in physical, dynamical and biogeochemical processes in the oceanic and the atmospheric environments of the earth system.
- c) Advanced knowledge block: Graduates are expected to develop advanced knowledge specialized in Oceanology, Meteorology, and/or Hydrology, and to be able to evaluate and solve specific problems in these fields.
- d) Graduates are also expected to develop skills in field surveys, laboratory working, data processing, numerical simulations, and soft skills in group working, project development and foreign languages.
- e) Graduates are expected to maintain a good working attitude and manners, self development with social and environmental activities during the formation.
- f) Graduates are expected to develop professional skills and ethics for future activities in the working environment and in life.

2. TRAINING PERIOD: 4 years

3. NUMBER OF CREDITS: 129 – 131 credits

| Knowledge modules | Number of credits | | | Number of ECTS credits | | |
|--|-------------------|--------------|--------------|------------------------|------------------|--------------|
| | Required | Optional | Total | Required | Optional | Total |
| I. General Education | | | | | | |
| (excluding Defense Education, English, Basic Computer, Physical Education) | 45 | 6 | 51 | 70.5 | 9.5 | 80 |
| II. Professional Education | | | | | | |
| <i>II.1. Fundamentals of Oceanology</i> | 40 | 0 | 40 | 64 | 0 | 64 |
| <i>II.2. Specialization</i> | 8-10 | 18-22 | 28-30 | 15-18.5 | 28.5 - 37 | 45-52 |
| 1. Oceanology | 10 | 20 | 30 | 18.5 | 32.5 | 51 |
| 2. Meteorology | 10 | 18 | 28 | 16.5 | 28.5 | 45 |
| 3. Hydrology | 9 | 21 | 30 | 15 | 34.5 | 49.5 |
| 4. Oceanology-Meteorology-Hydrology | 8 | 22 | 30 | 15 | 37 | 52 |
| III. Graduating works | 10 | 0 | 10 | 20 | 0 | 20 |
| Total accumulated credits for graduation (I+II.1+II.2+III) | 129-131 | | | 209 – 216 | | |

4. CONTENT OF PROGRAM

Convention about types of courses:

- *Required: R*
- *Optional: O*

4.1. GENERAL EDUCATION

Accumulate the total of **51** credits (excluding Defense Education, Foreign languages, Introduction to Informatics, Physical Education):

4.1.1. Philosophy Marx-Lenin & Ho Chi Minh's Ideology

| No | Code | Courses | Credits | ECTS Credits | Required/Optional | Note |
|----|----------|------------------------------------|---------|--------------|-------------------|------|
| 1 | BAA00101 | Marxist-Leninist Philosophy | 3 | 4.5 | R | |
| 2 | BAA00102 | Marxist-Leninist Political Economy | 2 | 3 | R | |
| 3 | BAA00103 | Scientific Socialism | 2 | 3 | R | |

| No | Code | Courses | Credits | ECTS Credits | Required/Optional | Note |
|--------------|----------|---------------------------------------|-----------|--------------|-------------------|------|
| 4 | BAA00104 | History of Vietnamese Communist Party | 2 | 3 | R | |
| 5 | BAA00003 | Ho Chi Minh 's Ideology | 2 | 3 | R | |
| TOTAL | | | 11 | 16.5 | | |

4.1.2. Socio-economics

| No | Code | Courses | Credits | ECTS Credits | Required/Optional | Note |
|--------------|----------|----------------------|----------|--------------|-------------------|-----------------------|
| 1 | BAA00004 | General law | 3 | 4.5 | R | |
| 2 | BAA00005 | Basic Economics | 2 | 3 | O | Choose 1 of 3 courses |
| 3 | BAA00006 | Psychology | 2 | 3 | O | |
| 4 | BAA00007 | Creative Methodology | 2 | 3 | O | |
| TOTAL | | | 5 | 7.5 | | |

4.1.3. Mathematics - Natural Science - Technology - Environment

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|--|---------|--------------|--------------------|-----------------------|
| 1 | MTH00003 | Calculus 1B | 3 | 4.5 | R | |
| 2 | MTH00004 | Calculus 2B | 3 | 4.5 | R | |
| 3 | MTH00030 | Linear Algebra | 3 | 4.5 | R | |
| 4 | MTH00040 | Probability and Statistics | 3 | 4.5 | R | |
| 5 | MTH00081 | Calculus Laboratory 1B | 1 | 2 | O | Choose 1 of 2 courses |
| 6 | MTH00082 | Calculus Laboratory 2B | 1 | 2 | O | |
| 7 | PHY00001 | General physics 1 (Mechanics - Thermodynamics) | 3 | 4.5 | R | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|-----------------------|
| 8 | PHY00002 | General physics 2 (Electromagnetic - Optics) | 3 | 4.5 | R | |
| 9 | PHY00081 | Labwork on General Physics | 2 | 4 | R | |
| 10 | CHE00001 | General Chemistry 1 | 3 | 5 | R | |
| 11 | CHE00002 | General Chemistry 2 | 3 | 5 | R | |
| 12 | BIO00001 | Fundamental Biology 1 | 3 | 4.5 | O | Choose 1 of 2 courses |
| 13 | BIO00002 | Fundamental Biology 2 | 3 | 4.5 | O | |
| 14 | ENV00001 | Fundamental of Environment Science | 2 | 3 | R | |
| 15 | OMH00001 | Introduction to Oceanology, Meteorology and Hydrology | 3 | 5.5 | R | |
| TOTAL | | | 35 | 56 | | |

4.1.4. Informatics

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|-----------------------------|----------|--------------|--------------------|------|
| 1 | CSC00003 | Introduction to Informatics | 3 | 5.5 | R | |
| TOTAL | | | 3 | 5.5 | | |

4.1.5. Foreign languages

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|-----------|---------|--------------|--------------------|------|
| 1 | BAA00011 | English 1 | 3 | 5 | R | |
| 2 | BAA00012 | English 2 | 3 | 5 | R | |

| | | | | | | |
|--------------|----------|-----------|-----------|-----------|---|--|
| 3 | BAA00013 | English 3 | 3 | 5 | R | |
| 4 | BAA00014 | English 4 | 3 | 5 | R | |
| TOTAL | | | 12 | 20 | | |

4.1.6. Physical Education

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|--------------|----------|--------------|--------------------|------|
| 1 | BAA00021 | Gymnastics 1 | 2 | 3.5 | R | |
| 2 | BAA00022 | Gymnastics 2 | 2 | 3.5 | R | |
| TOTAL | | | 4 | 7 | | |

4.1.7. Defense Education

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|----------------------------|----------|--------------|--------------------|------|
| 1 | BAA00030 | National Defense Education | 4 | 7 | R | |
| TOTAL | | | 4 | 7 | | |

4.2. PROFESSIONAL EDUCATION

4.2.1. Fundamentals of Oceanology: Accumulate the total of 40 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|---------------------------------|---------|--------------|--------------------|------|
| 1 | PHY10001 | Functions of a Complex Variable | 2 | 3 | R | |
| 2 | OMH10001 | Computational Methods | 3 | 5 | R | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 3 | OMH10002 | Mathematical Methods for Physics | 3 | 4.5 | R | |
| 4 | OMH10003 | Applied Programming | 3 | 5 | R | |
| 5 | OMH10004 | Fluid Mechanics | 3 | 4.5 | R | |
| 6 | OMH10005 | General Astronomy | 2 | 3 | R | |
| 7 | OMH10006 | Introduction to Oceanography | 2 | 3 | R | |
| 8 | OMH10007 | Introduction to Meteorology | 2 | 3 | R | |
| 9 | OMH10008 | Introduction to Hydrology | 2 | 3 | R | |
| 10 | OMH10009 | Measurements and Analysis of Random Data | 3 | 5 | R | |
| 11 | OMH10010 | Introduction to Ocean-Atmosphere Interaction | 2 | 3 | R | |
| 12 | OMH10011 | Introduction to Geophysical Fluid Dynamics | 3 | 4.5 | R | |
| 13 | OMH10012 | Numerical Modelling for Geophysical Flows | 2 | 3.5 | R | |
| 14 | OMH10014 | Remote Sensing and GIS | 3 | 5 | R | |
| 15 | OMH10015 | Practical Oceanography, Meteorology and Hydrology | 1 | 2 | R | |
| 16 | OMH10016 | Environmental Pollution | 2 | 3.5 | R | |
| 17 | OMH10017 | Data mining in Earth Science | 2 | 3.5 | R | |
| TOTAL | | | 40 | 64 | | |

4.2.2. Specialization

4.2.2.1. Speciality of Oceanology

a. **Compulsory modules:** Accumulate the total of 10 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|--|-----------|--------------|--------------------|------|
| 1 | OMH10104 | Oceanic Currents and Water Circulation | 2 | 3.5 | R | |
| 2 | OMH10105 | Water Wave Mechanics | 2 | 3.5 | R | |
| 3 | OMH10106 | Tides | 2 | 3.5 | R | |
| 4 | OMH10108 | Practical Oceanography | 4 | 8 | R | |
| TOTAL | | | 10 | 18.5 | | |

b. Optional modules: Accumulate the total of 20 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|--|---------|--------------|--------------------|------|
| 1 | OMH10013 | Methods of Data Mining 1 | 2 | 3.5 | O | |
| 2 | OMH10101 | Physical Geography | 2 | 3 | O | |
| 3 | OMH10102 | Introduction to Marine Geomorphology and Geology | 2 | 3 | O | |
| 4 | OMH10103 | Introduction to Estuaries | 2 | 3 | O | |
| 5 | OMH10107 | Special Topics in Oceanography | 2 | 3.5 | O | |
| 6 | OMH10109 | Modelling Tools for Oceanographers | 2 | 3.5 | O | |
| 7 | OMH10110 | Sediment Transport | 2 | 3.5 | O | |
| 8 | OMH10111 | Chemical Oceanography | 2 | 3.5 | O | |
| 9 | OMH10112 | Marine Ecosystem | 2 | 3 | O | |
| 10 | OMH10113 | Physical Oceanography in the East Sea | 2 | 3 | O | |
| 11 | OMH10114 | Marine Governance and Marine Economics | 2 | 3 | O | |
| 12 | OMH10115 | Marine Physics | 2 | 3 | O | |
| 13 | OMH10116 | Ocean Surface Waves | 2 | 3 | O | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 14 | OMH10117 | Resources of Marine Environment and Climate Change | 2 | 3 | 0 | |
| 15 | OMH10118 | Bio-Geochemical Cycles | 2 | 3.5 | 0 | |
| 16 | OMH10119 | Methods of Data Mining 2 | 2 | 3.5 | 0 | |
| 17 | OMH10120 | Data Management and Analysis in Oceanology, Meteorology and Hydrology | 2 | 3.5 | 0 | |
| 18 | OMH10210 | Agricultural Climate | 2 | 3 | 0 | |
| 19 | OMH10212 | Tropical Meteorology | 2 | 3 | 0 | |
| 20 | OMH10216 | Statistical Methods in Climatology | 2 | 3 | 0 | |
| 21 | OMH10309 | Hydrology in Agriculture and Urban | 2 | 3 | 0 | |
| 22 | OMH10310 | Computational Hydrology | 2 | 3.5 | 0 | |
| 23 | OMH10311 | Prediction of Hydrology | 2 | 3.5 | 0 | |
| 24 | OMH10314 | Environmental Hydrology | 2 | 3.5 | 0 | |
| 25 | OMH10410 | Coastal processes along the Mekong Delta | 2 | 3.5 | 0 | |
| 26 | OMH10411 | Special subjects of natural risk and environmental assessment | 2 | 3 | 0 | |
| 27 | OMH10412 | Advanced data mining techniques and applications | 2 | 3.5 | 0 | |
| 28 | OMH10413 | Application of advanced technology in Agro-Meteorology | 2 | 3.5 | 0 | |
| TOTAL | | | 20 | 32.5 | | |

4.2.2.2. Speciality of Meteorology

a. **Compulsory modules:** Accumulate the total of 10 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|--|-----------|--------------|--------------------|------|
| 1 | OMH10201 | Introduction to Thermodynamics of the Atmosphere | 2 | 3 | R | |
| 2 | OMH10202 | Introduction to Dynamic Meteorology | 3 | 4.5 | R | |
| 3 | OMH10203 | Synoptic Meteorology | 2 | 3 | R | |
| 4 | OMH10206 | Practical Meteorology | 3 | 6 | R | |
| TOTAL | | | 10 | 16.5 | | |

b. Optional modules: Accumulate the total of 18 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|---|---------|--------------|--------------------|------|
| 1 | OMH10013 | Methods of Data Mining 1 | 2 | 3.5 | O | |
| 2 | OMH10101 | Physical Geography | 2 | 3 | O | |
| 3 | OMH10113 | Physical Oceanography in the East Sea | 2 | 3 | O | |
| 4 | OMH10114 | Marine Governance and Marine Economics | 2 | 3 | O | |
| 5 | OMH10117 | Resources of Marine Environment and Climate Change | 2 | 3 | O | |
| 6 | OMH10118 | Bio-Geochemical Cycles | 2 | 3.5 | O | |
| 7 | OMH10119 | Methods of Data Mining 2 | 2 | 3.5 | O | |
| 8 | OMH10120 | Data Management and Analysis in Oceanology, Meteorology and Hydrology | 2 | 3.5 | O | |
| 9 | OMH10204 | Climatology and Climate in Vietnam | 2 | 3 | O | |
| 10 | OMH10205 | Special Topics in Meteorology | 2 | 3.5 | O | |
| 11 | OMH10207 | Modelling Tools in Meteorology | 2 | 3.5 | O | |
| 12 | OMH10208 | Introduction to Boundary Layer Meteorology | 2 | 3 | O | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 13 | OMH10209 | Numerical Prediction | 2 | 3 | 0 | |
| 14 | OMH10210 | Agricultural Climate | 2 | 3 | 0 | |
| 15 | OMH10211 | Aeronautical Meteorology | 2 | 3 | 0 | |
| 16 | OMH10212 | Tropical Meteorology | 2 | 3 | 0 | |
| 17 | OMH10213 | Weather Prediction by numerical methods | 2 | 3.5 | 0 | |
| 18 | OMH10214 | Introduction to Ocean Climate and Air-Sea Interaction | 2 | 3 | 0 | |
| 19 | OMH10215 | Microclimatology | 2 | 3 | 0 | |
| 20 | OMH10216 | Statistical Methods in Climatology | 2 | 3 | 0 | |
| 21 | OMH10217 | Introduction to Atmospheric Convection | 2 | 3 | 0 | |
| 22 | OMH10309 | Hydrology in Agriculture and Urban | 2 | 3 | 0 | |
| 23 | OMH10311 | Prediction of Hydrology | 2 | 3.5 | 0 | |
| 24 | OMH10410 | Coastal processes along the Mekong Delta | 2 | 3.5 | 0 | |
| 25 | OMH10411 | Special subjects of natural risk and environmental assessment | 2 | 3 | 0 | |
| 26 | OMH10412 | Advanced data mining techniques and applications | 2 | 3.5 | 0 | |
| 27 | OMH10413 | Application of advanced technology in Agro-Meteorology | 2 | 3.5 | 0 | |
| TOTAL | | | 18 | 28.5 | | |

4.2.2.3. Speciality of Hydrology

a. **Compulsory modules:** Accumulate the total of 9 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|-------------------------|----------|--------------|--------------------|------|
| 1 | OMH10301 | River Dynamics | 2 | 3 | R | |
| 2 | OMH10303 | Watershed Hydrology | 2 | 3 | R | |
| 3 | OMH10305 | Practical Hydrology | 3 | 6 | R | |
| 4 | OMH10307 | Estuarine Hydro-Ecology | 2 | 3 | R | |
| TOTAL | | | 9 | 15 | | |

b. Optional modules: Accumulate the total of 21 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|---------------------------------------|---------|--------------|--------------------|------|
| 1 | OMH10013 | Methods of Data Mining 1 | 2 | 3.5 | O | |
| 2 | OMH10302 | Hydraulics | 3 | 4.5 | O | |
| 3 | OMH10304 | Hydrological Topics | 2 | 3.5 | O | |
| 4 | OMH10306 | Geography and Hydrogeology | 2 | 3 | O | |
| 5 | OMH10308 | Hydrological Modelling Tools | 2 | 3.5 | O | |
| 6 | OMH10309 | Hydrology in Agriculture and Urban | 2 | 3 | O | |
| 7 | OMH10310 | Computational Hydrology | 2 | 3.5 | O | |
| 8 | OMH10311 | Prediction of Hydrology | 2 | 3.5 | O | |
| 9 | OMH10312 | Hydrological and Hydraulics Models | 2 | 3.5 | O | |
| 10 | OMH10313 | Hydrologic Measurement | 2 | 3.5 | O | |
| 11 | OMH10314 | Environmental Hydrology | 2 | 3.5 | O | |
| 12 | OMH10315 | River Engineering | 2 | 3 | O | |
| 13 | OMH10316 | Management of Water Resources | 2 | 3 | O | |
| 14 | OMH10110 | Sediment Transport | 2 | 3.5 | O | |
| 15 | OMH10113 | Physical Oceanography in the East Sea | 2 | 3 | O | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 16 | OMH10114 | Marine Governance and Marine Economics | 2 | 3 | 0 | |
| 17 | OMH10117 | Resources of Marine Environment and Climate Change | 2 | 3 | 0 | |
| 18 | OMH10118 | Bio-Geochemical Cycles | 2 | 3.5 | 0 | |
| 19 | OMH10119 | Methods of Data Mining 2 | 2 | 3.5 | 0 | |
| 20 | OMH10120 | Data Management and Analysis in Oceanology, Meteorology and Hydrology | 2 | 3.5 | 0 | |
| 21 | OMH10210 | Agricultural Climate | 2 | 3 | 0 | |
| 22 | OMH10214 | Introduction to Ocean Climate and Air-Sea Interaction | 2 | 3 | 0 | |
| 23 | OMH10216 | Statistical Methods in Climatology | 2 | 3 | 0 | |
| 24 | OMH10101 | Physical Geography | 2 | 3 | 0 | |
| 25 | OMH10410 | Coastal processes along the Mekong Delta | 2 | 3.5 | 0 | |
| 26 | OMH10411 | Special subjects of natural risk and environmental assessment | 2 | 3 | 0 | |
| 27 | OMH10412 | Advanced data mining techniques and applications | 2 | 3.5 | 0 | |
| 28 | OMH10413 | Application of advanced technology in Agro-Meteorology | 2 | 3.5 | 0 | |
| TOTAL | | | 21 | 34.5 | | |

4.2.2.4. Speciality of Oceanology – Meteorology – Hydrology

a. **Compulsory modules:** Accumulate the total of 8 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|-------------------------------------|----------|--------------|--------------------|------|
| 1 | OMH10401 | Dynamics of Marine Environment | 2 | 3.5 | R | |
| 2 | OMH10403 | Dynamics of Atmospheric Environment | 2 | 3.5 | R | |
| 3 | OMH10406 | Practical Majors | 4 | 8 | R | |
| TOTAL | | | 8 | 15 | | |

b. Optional modules: Accumulate the total of 22 credits

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|---|---------|--------------|--------------------|------|
| 1 | OMH10013 | Methods of Data Mining 1 | 2 | 3.5 | O | |
| 2 | OMH10101 | Physical Geography | 2 | 3 | O | |
| 3 | OMH10102 | Introduction to Marine Geomorphology and Geology | 2 | 3 | O | |
| 4 | OMH10110 | Sediment Transport | 2 | 3.5 | O | |
| 5 | OMH10113 | Physical Oceanography in the East Sea | 2 | 3 | O | |
| 6 | OMH10114 | Marine Governance and Marine Economics | 2 | 3 | O | |
| 7 | OMH10115 | Marine Physics | 2 | 3 | O | |
| 8 | OMH10116 | Ocean Surface Waves | 2 | 3 | O | |
| 9 | OMH10117 | Resources of Marine Environment and Climate Change | 2 | 3 | O | |
| 10 | OMH10118 | Bio-Geochemical Cycles | 2 | 3.5 | O | |
| 11 | OMH10119 | Methods of Data Mining 2 | 2 | 3.5 | O | |
| 12 | OMH10120 | Data Management and Analysis in Oceanology, Meteorology and Hydrology | 2 | 3.5 | O | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 13 | OMH10208 | Introduction to Boundary Layer Meteorology | 2 | 3 | 0 | |
| 14 | OMH10210 | Agricultural Climate | 2 | 3 | 0 | |
| 15 | OMH10211 | Aeronautical Meteorology | 2 | 3 | 0 | |
| 16 | OMH10212 | Tropical Meteorology | 2 | 3 | 0 | |
| 17 | OMH10216 | Statistical Methods in Climatology | 2 | 3 | 0 | |
| 18 | OMH10309 | Hydrology in Agriculture and Urban | 2 | 3 | 0 | |
| 19 | OMH10310 | Computational Hydrology | 2 | 3.5 | 0 | |
| 20 | OMH10311 | Prediction of Hydrology | 2 | 3.5 | 0 | |
| 21 | OMH10314 | Environmental Hydrology | 2 | 3.5 | 0 | |
| 22 | OMH10402 | Coastal processes | 2 | 3.5 | 0 | |
| 23 | OMH10404 | Marine eco-hydrology Dynamics | 2 | 3.5 | 0 | |
| 24 | OMH10405 | Special Topics in Oceanology, Meteorology, and Hydrology | 3 | 5 | 0 | |
| 25 | OMH10407 | Modelling Tools | 3 | 5.5 | 0 | |
| 26 | OMH10408 | Weather Forecast | 2 | 3.5 | 0 | |
| 27 | OMH10410 | Coastal processes along the Mekong Delta | 2 | 3.5 | 0 | |
| 28 | OMH10411 | Special subjects of natural risk and environmental assessment | 2 | 3 | 0 | |
| 29 | OMH10412 | Advanced data mining techniques and applications | 2 | 3.5 | 0 | |
| 30 | OMH10413 | Application of advanced technology in Agro-Meteorology | 2 | 3.5 | 0 | |
| TOTAL | | | 22 | 37 | | |

4.2.3. Graduating works: Accumulate the total of 10 credits (1 of 2 Options)

4.2.3.1. Option 1:

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|-------------------|-----------|--------------|--------------------|------|
| 1 | OMH10395 | Graduation Thesis | 10 | 20 | R | |
| TOTAL | | | 10 | 20 | | |

4.2.3.2. Option 2:

a. Speciality of Oceanology

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 1 | OMH10390 | Graduation Seminar | 4 | 8 | R | |
| 2 | OMH10121 | Special Topics in Ocean-Atmosphere Interaction | 2 | 3.5 | O | |
| 3 | OMH10202 | An Introduction to Dynamic Meteorology | 3 | 4.5 | O | |
| 4 | OMH10203 | Synoptic Meteorology | 2 | 3 | O | |
| 5 | OMH10204 | Climatology and Climate in Vietnam | 2 | 3 | O | |
| 6 | OMH10205 | Special Topics in Meteorology | 2 | 3.5 | O | |
| 7 | OMH10218 | Data analysis and weather prediction by statistical methods | 2 | 3.5 | O | |
| 8 | OMH10301 | River Dynamics | 2 | 3 | O | |
| 9 | OMH10304 | Hydrological Topics | 2 | 3.5 | O | |
| 10 | OMH10306 | Geography and Hydrogeology | 2 | 3 | O | |
| 11 | OMH10307 | Estuarine Hydro-Ecology | 2 | 3 | O | |
| TOTAL | | | 10 | 20 | | |

b. Speciality of Meteorology

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 1 | OMH10390 | Graduation Seminar | 4 | 8 | R | |
| 2 | OMH10103 | Introduction to Estuaries | 2 | 3 | O | |
| 3 | OMH10104 | Oceanic Currents and Water Circulation | 2 | 3.5 | O | |
| 4 | OMH10106 | Tides | 2 | 3.5 | O | |
| 5 | OMH10107 | Special Topics in Oceanography | 2 | 3.5 | O | |
| 6 | OMH10121 | Special Topics in Ocean-Atmosphere Interaction | 2 | 3.5 | O | |
| 7 | OMH10218 | Data analysis and weather prediction by statistical methods | 2 | 3.5 | O | |
| 8 | OMH10301 | River Dynamics | 2 | 3 | O | |
| 9 | OMH10304 | Hydrological Topics | 2 | 3.5 | O | |
| 10 | OMH10306 | Geography and Hydrogeology | 2 | 3 | O | |
| 11 | OMH10307 | Estuarine Hydro-Ecology | 2 | 3 | O | |
| TOTAL | | | 10 | 20 | | |

c. Speciality of Hydrology

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|--|---------|--------------|--------------------|------|
| 1 | OMH10390 | Graduation Seminar | 4 | 8 | R | |
| 2 | OMH10103 | Introduction to Estuaries | 2 | 3 | O | |
| 3 | OMH10104 | Oceanic Currents and Water Circulation | 2 | 3.5 | O | |
| 4 | OMH10106 | Tides | 2 | 3.5 | O | |
| 5 | OMH10107 | Special Topics in Oceanography | 2 | 3.5 | O | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|---|-----------|--------------|--------------------|------|
| 6 | OMH10121 | Special Topics in Ocean-Atmosphere Interaction | 2 | 3.5 | O | |
| 7 | OMH10202 | An Introduction to Dynamic Meteorology | 3 | 4.5 | O | |
| 8 | OMH10203 | Synoptic Meteorology | 2 | 3 | O | |
| 9 | OMH10204 | Climatology and Climate in Vietnam | 2 | 3 | O | |
| 10 | OMH10205 | Special Topics in Meteorology | 2 | 3.5 | O | |
| 11 | OMH10218 | Data analysis and weather prediction by statistical methods | 2 | 3.5 | O | |
| TOTAL | | | 10 | 20 | | |

d. Speciality of Oceanology – Meteorology – Hydrology

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|----|----------|---|---------|--------------|--------------------|------|
| 1 | OMH10390 | Graduation Seminar | 4 | 8 | R | |
| 2 | OMH10103 | Introduction to Estuaries | 2 | 3 | O | |
| 3 | OMH10107 | Special Topics in Oceanography | 2 | 3.5 | O | |
| 4 | OMH10121 | Special Topics in Ocean-Atmosphere Interaction | 2 | 3.5 | O | |
| 5 | OMH10204 | Climatology and Climate in Vietnam | 2 | 3 | O | |
| 6 | OMH10205 | Special Topics in Meteorology | 2 | 3.5 | O | |
| 7 | OMH10218 | Data analysis and weather prediction by statistical methods | 2 | 3.5 | O | |
| 8 | OMH10304 | Hydrological Topics | 2 | 3.5 | O | |

| No | Code | Courses | Credits | ECTS Credits | Required /Optional | Note |
|--------------|----------|------------------------------------|-----------|--------------|--------------------|------|
| 9 | OMH10306 | Geography and Hydrogeology | 2 | 3 | 0 | |
| 10 | OMH10307 | Estuarine Hydro-Ecology | 2 | 3 | 0 | |
| 11 | OMH10409 | Integrated Coastal Zone Management | 2 | 3 | 0 | |
| TOTAL | | | 10 | 20 | | |