

ACADEMIC GUIDEBOOK



Marine Science and Technology
Undergraduate Program
Faculty of Fisheries and Marine Sciences

Introduction

The Department of Marine Science and Technology is one working unit under the Faculty of Fisheries and Marine Science, IPB University (FPIK-IPB). The Department offers Bachelor degree with Honour (BSc.Hons) in Marine Science and Technology. The department consists of four academic divisions, which includes: Marine Hydrobiology/BIO, Oceanography/OSI, Ocean Acoustics, Instrumentation and Robotics/AIR, and Marine Remote Sensing and Geographic Information System/ISK.

The history of the formation of the Department of Marine Science and Technology (ITK) began with the initial establishment of the Study Program (PS) of Marine Sciences in the academic year 1986/1987. This is in response to the Circular of the Director General of Higher Education No.1023 / D / Q / 1985 concerning the pioneering formation of a new marine science study program (new S1 marine science). Then the IPB Marine Science Study Program was officially confirmed by the Director General of Higher Education Decree No.22 / DIKTI / Kep / 1988 with the principal of developing education and research in the field of marine biological resources exploration. Through the Directorate General of Marine Education Education Project (ADB loan No.894-INO / 895-INO (SF), the main facilities and infrastructure for academic and research activities have been built, namely the Marine Center Building at Darmaga Bogor IPB Campus and the Marine Field Station at Pelabuhan Ratu Sukabumi, West Java.

Based on the Rector's Decree No. 073 / K13.121 / OT / 2000 dated May 27, 2000 the status of the Study Program of Marine Sciences IPB was upgraded to the Major of Marine Science and Technology with the mandate to develop marine science and technology to understand the characters, phenomena and processes of physics, chemistry, biology and marine geology by utilizing marine acoustic and remote sensing methods and technology to explore biological resources and the marine environment.

The Department of ITK IPB is the first Marine Science and Technology Department in Indonesia and has always been a trendsetter in that field. Accredited A by BAN-PT and internationally accredited by the Institute of Marine Science in Engineering, Science and Technology (IMarEST) since 2013, ITK has the best quality lecturers with innovative research.





History

Marine Science and Technology Study Program was Established **1985**

Change to Marine Science and Technology Major **2000**

Change to Marine Science and Technology Department **2003**

2013 Accredited by Institute of Marine Engineering Science and Technology (IMarEST)

Re-accredited by Institute of Marine Engineering, Science and Technology (IMarEST) **2019**

International Undergraduate Program Marine Science and Technology **2020**

2021 Re-accredited by Institute of Marine Engineering, Science and Technology (IMarEST)



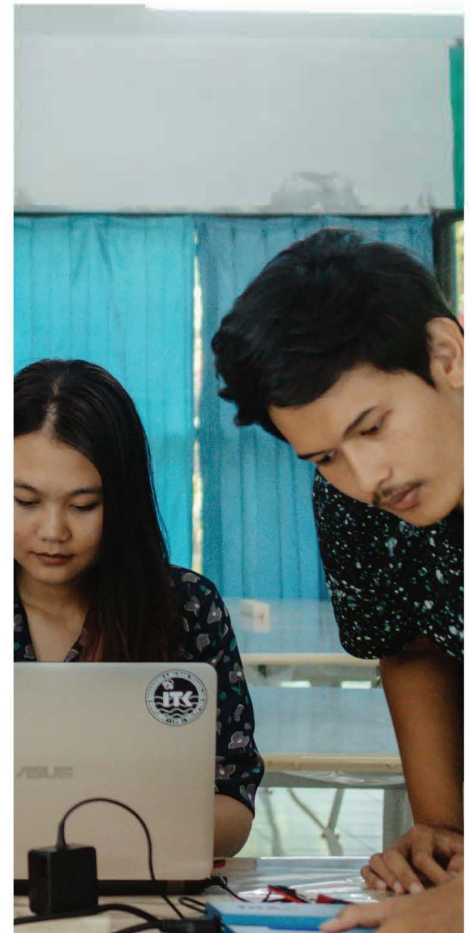
Vision

To become a world-class research-based undergraduate and postgraduate education provider with core competencies in the field of marine science and technology.



Mission

- 1** Carrying out high quality marine tertiary education and conducting comprehensive student development in order to improve the nation's competitiveness.
- 2** Develop marine science and technology according to the needs of the maritime community in the present and future trends.
- 3** Implement a department management system that is characterized by effective, efficient, competent and accountable entrepreneurship.
- 4** Providing academic facilities and infrastructure that supports the implementation of high-quality multi-strata education programs in the field of marine science and technology.
- 5** Provide competent human resources in their fields for the organization of marine tertiary education.



The Campus

Department of Marine Science and Technology Campus is located in Dramaga, Bogor, West Java, Indonesia



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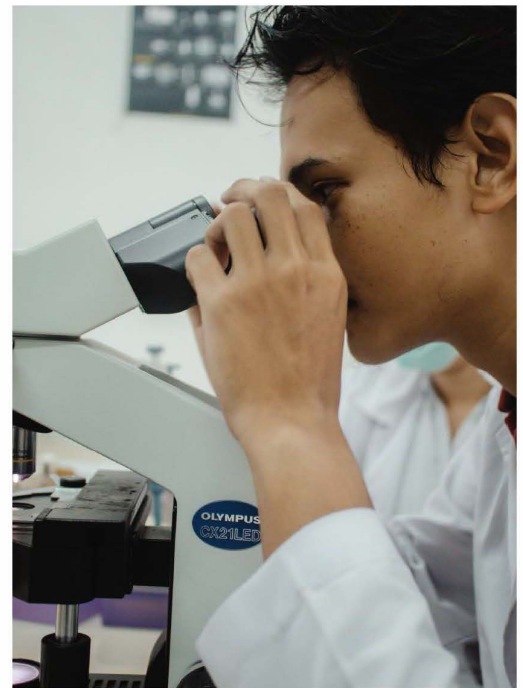
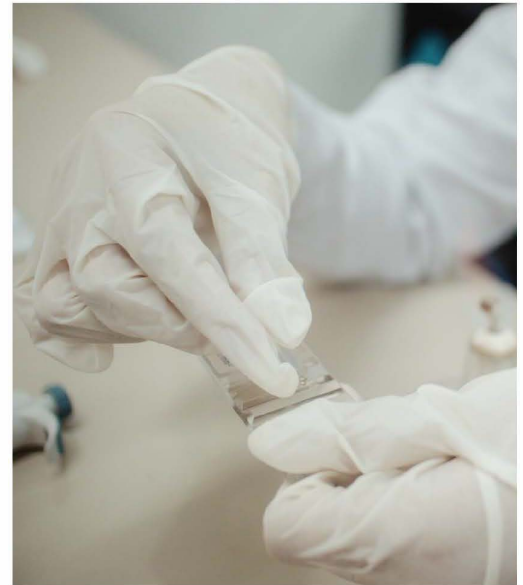
Facilities

Teaching and Research Laboratories

- Marine Bioecology Lab
- Marine Bioprospecting and Biomaterial Lab
- Marine Biodiversity and Biosystematics Lab
- Marine Microbiology Lab
- Scientific Diving Lab
- Physical Oceanography Lab
- Chemical Oceanography Lab
- Bio-geological Oceanography Lab
- Big Data and Ocean Modelling (BIOM) Lab
- Ocean Acoustics Lab
- Fisheries Acoustics Lab
- Acoustic Data Processing and Visualization Lab
- Smart Ocean Instrumentation Lab
- Ocean Automation and Robotics Lab
- Marine Computation Lab
- Geographic Information System Lab
- Marine Remote Sensing and Bio-Optic Lab
- Mapping and Spatial Modelling Lab

Field Station

- > Integrated Fisheries and Marine Observation System (IFMOS), Ancol Jakarta
- > Marine Field Station, Pelabuhan Ratu
- > Tidung Kecil Island in Collaboration with DKI Jakarta Provincial Government



Student Admission

BATCH 1

- 01 REGISTRATION**
Feb 1st - Mar 31th, 2023
- 02 ANNOUNCEMENT**
Apr 7th, 2023
- 03** Selection of **Batch I** based on **report cards** and **English skills**

BATCH 2

- 01 REGISTRATION**
April 11th- June 25th, 2023
- 02 TEST BASED ON COMPUTER**
Jul 3th, 2023
- 03 ANNOUNCEMENT**
Jul 11th, 2023

Admission Process



International Class participants in 2023 must meet the following requirements :

- > Foreign citizen and Indonesian citizen
- > Graduates of both domestic and foreign science/high school/International school in 2021, 2022 or 2023
- > For Malaysian, should have college certificate
- > If you do not have college certificate (SIJIL), you cannot be accepted as a IPB University's student this year

Program Structure

OPTION 1

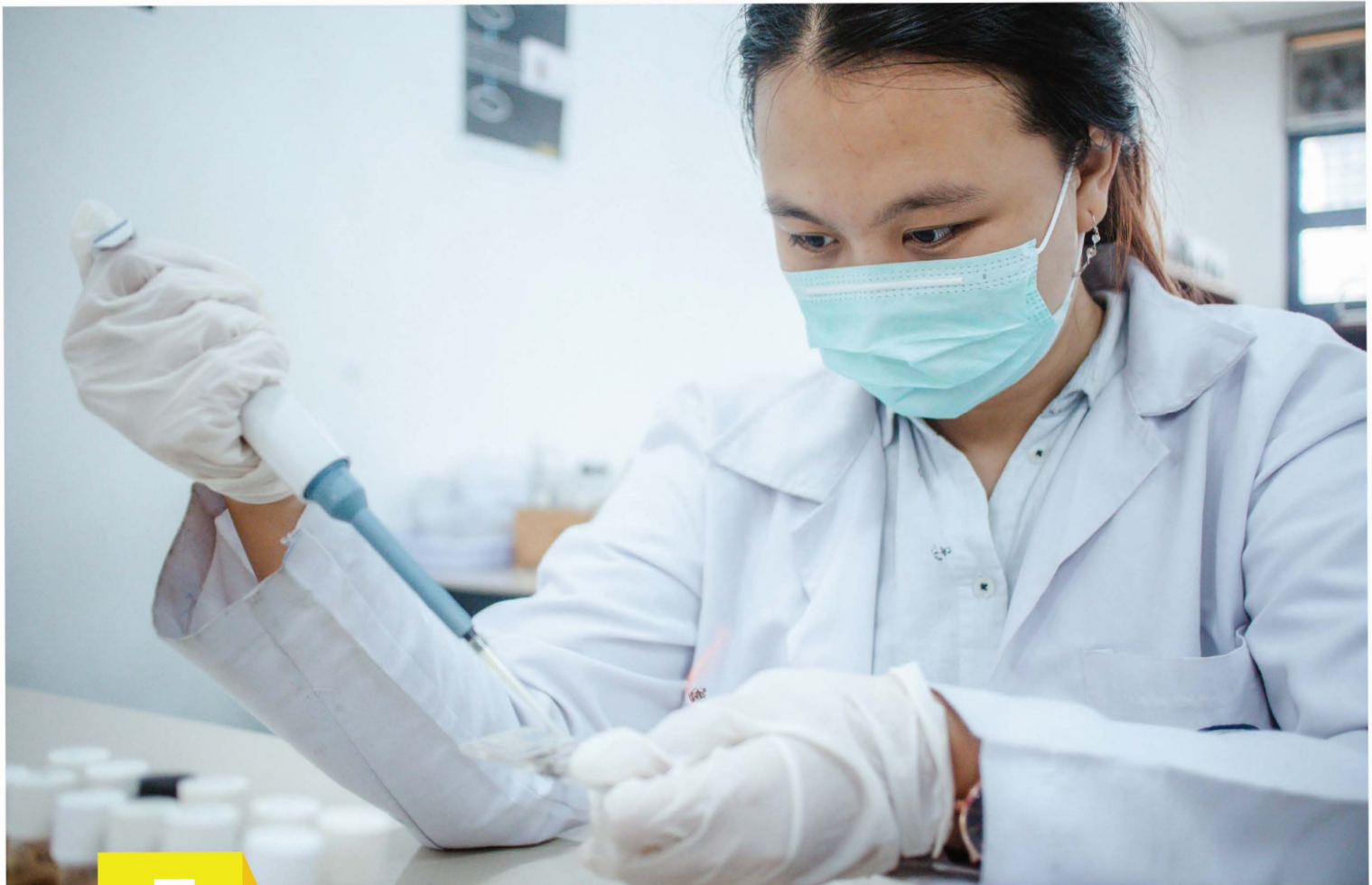
3 + 1 (3 year at IPB University, 1 year at partner University)

OPTION 2

3.5 + 0.5 (3 year at IPB University, half year at partner University)

OPTION 3

4 + 0 (4 year at IPB University)





Curriculum

Common Core Courses

- Religion
- Bahasa Indonesia
- Innovative Agriculture
- Mathematics and Logical Thinking
- Physics of Science and Technology
- English
- Computational Thinking
- Pancasila Education
- Citizenship education
- Basic biology
- Sports and art
- Chemistry of science and technology
- Sociology
- Economy
- Statistics and Data Analysis
- Introduction to Fisheries and Marine Science

Independent Learning Program

- Student Exchange
- Internship/Work Practices
 - > Magang/Praktik Kerja
- Teaching Assistance in the Education Unit (outside IPB University)
- Research (outside IPB University)
- Humanitarian Project
- Entrepreneurial Activities
- Independent Studies/Projects
- Building Village/ Thematic Student Study Service (KKN)

Academic Core Courses, Foundational Literacies, Capstone, & Final Task

- Occupational Health and Safety at Sea
- Ocean Quantitative Method
- Marine Biology
- Introduction to Oceanography
- Fundamental of Ocean Instrumentation
- Fundamental of Ocean Remote Sensing
- Marine Practice 1
- Aquatic Ecology
- Ichthyology
- Tropical Marine Ecology
- Tropical Marine Ecology Practice
- Physical Oceanography
- Chemical Oceanography
- Oceanography Data Acquisition and Analysis
- Fundamental of Ocean Acoustics
- Marine Geographic Information System
- Marine Geographic Information System Practice
- Marine Practice 2
- Scientific Method
- Ocean & Fisheries Big Data Science
- Marine and Fisheries Geospatial Information
- Internship
- Thematic Student Study Service
 - > Kuliah Kerja Nyata (KKN) Tematik
- Seminar
- Comprehensive Examination
- Undergraduate thesis proposal
- Undergraduate thesis



Curriculum

In-depth Prodi Course

- Marine Frontiers
- Marine Literacy
- Marine Biodiversity
- Scientific Diving
- Marine Microbiology
- Marine morphogenetics
- Marine Biogeography
- Marine Bioprospection
- Ecophysiology of Marine Organisms
- Bio-Geological Oceanography
- Methods of Data Analysis and Marine Numerical Modeling
- Environmental Oceanography
- Fisheries Oceanography
- Operational Oceanography
- Marine Instrumentation
- Ocean Acoustics
- Signal Processing
- Underwater Detection Techniques
- Fisheries Acoustics
- Marine Robotics
- Marine & Fisheries Artificial Intelligence
- Image Processing
- Marine Bio-optics
- Marine Remote Sensing
- Marine Resource Surveying and Mapping
- Marine Resource Surveying and Mapping Practicum
- Thermal Remote Sensing
- Marine Algorithms and Programming
- Microwave Remote Sensing

Enrichment Course

- Summer Course
- National Conference (as speaker)
- Talent Development
- Event Management
- Emotional and Social Learning
- Communication and Teamwork
- Complex Problem Solving
- Social Entrepreneurship
- Critical and Creative Thinking
- Negotiating Strategy
- Professional Ethics
- Diversity & Multiculturalism
- Summer Course
- International Conference (as speaker)
- Professional Development
- Talent Development
- Community Development
- Social Entrepreneurship
- Entrepreneurship
- Inclusive & Innovative Leadership
- Innovation and Design Thinking

Academic Activities

1 Student Exchange Program

Credit Earning Activity Student may apply in credit earning program for a semester in partner universities in Asia, Australia, US or Europe. Through this program, students take several marine science and technology or elective course in partner universities

2 Research Collaboration

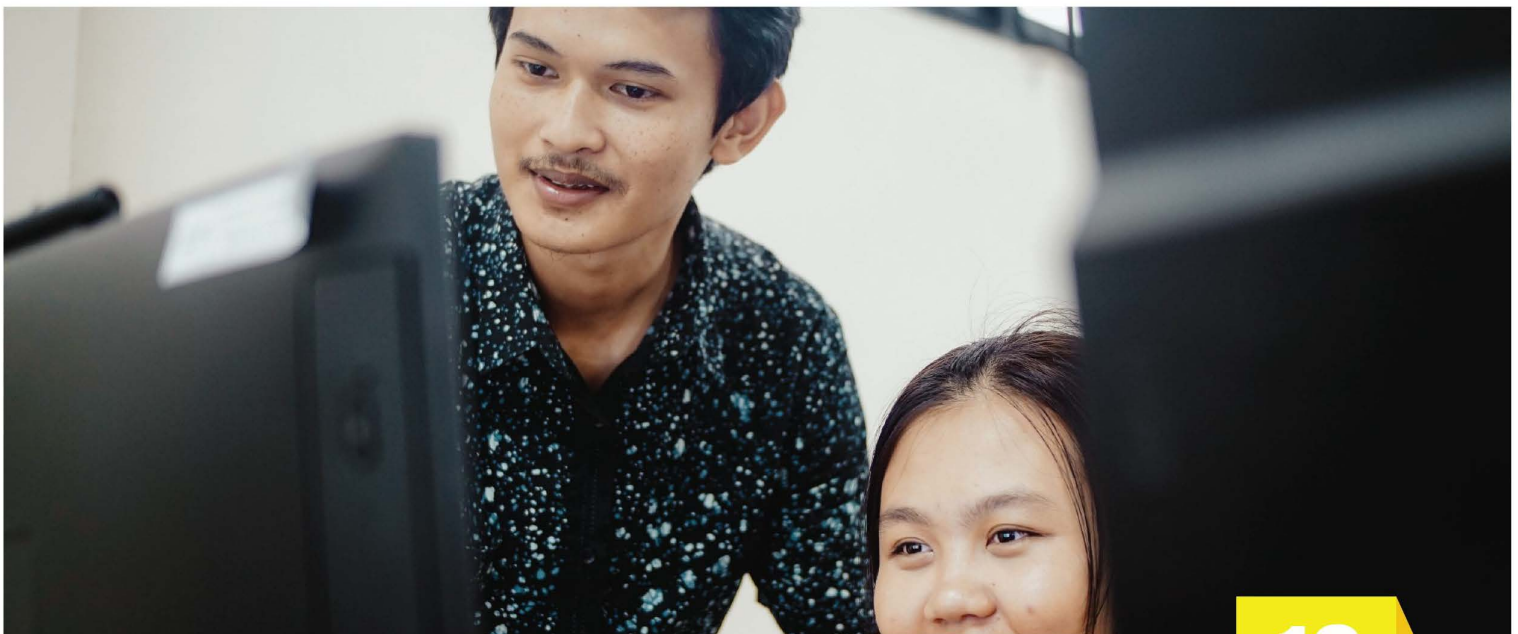
Students will conduct their final year research project in a partner university for a semester. Research is supervised by lecturers from both IPB (home) and partner (host) university

3 Short-term International Activities

Students may participate in international academic program such as, summer courses, winter courses (join with partner universities), training or conferences

4 Internship

As option to final year research project, student is also possible to take internship program at Governmental Institution, NGO, and companies



Academic Activities

at IPB University



Our Partner

- 1 Malaysia**
Universiti Malaysia Terengganu
- 2 Taiwan**
National Sun Yat Sen University
- 3 Japan**
Tokyo University of Marine Science Technology
- 4 Hong kong**
The Hong Kong University of Science and Technology





Universiti Malaysia Terengganu

General Facilities

- Library
- Student Centre
- Student Residential College
- Sport Complex
- Islamic Centre
- Student Support Service (HEPA)
- Health (Health Center University)

Accommodation/Month

- House rent: **145-240 USD**
- Meals: **110-145 USD**
- Others (Transportation, Internet quota, Electricity): **36-130 USD**

Lab and Learning Facilities

- Bukit Kor Environmental Research Park
- Kenyir Lake Research Centre
- Chagar Hutang Turtle Sanctuary
- Pulau Bidong Marine Research Station
- RV Discovery
- Oceanography Laboratory
- Central Laboratory
- Aquaculture Hatchery



National Sun Yat-sen University Taiwan

General Facilities

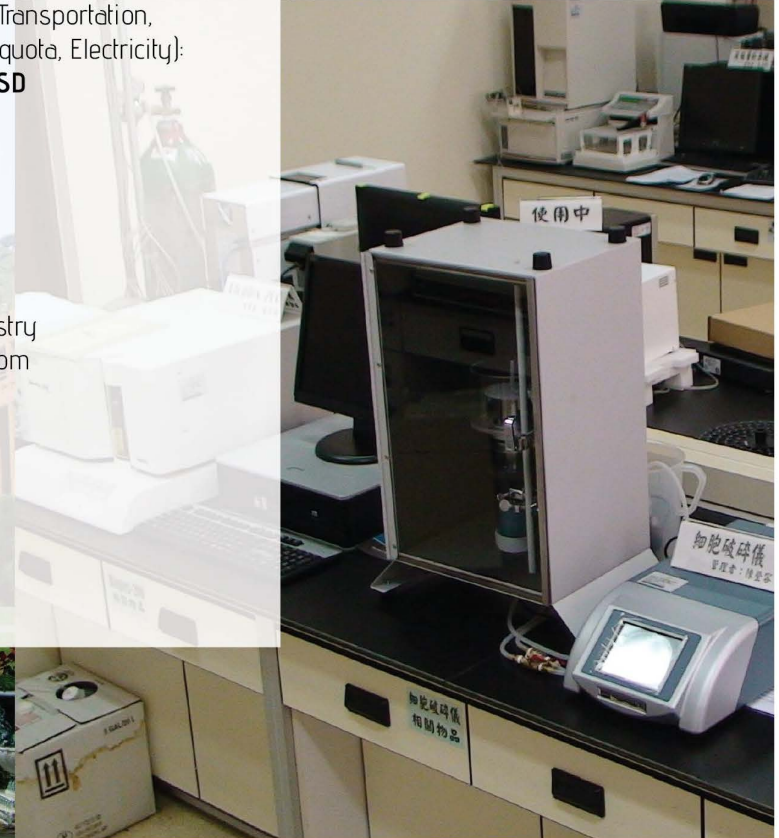
- Bus station
- Convenient Store
- Café & restaurant
- Food court
- Store & shop
- Dormitory office
- Campus clinic
- Sport facilities

Lab and Learning Facilities

- Common laboratory
- The Research Center of Sport and Health Industry
- MBR Seawater and Freshwater Aquaculture Room
- Basic Instrument Room
- Dongsha Atoll Research Station
- Center of Crystal Research
- Ocean Acoustics Laboratory
- Laboratory of Marine Acoustics Propagation

Accommodation/Month

- House rent: **180-360 USD**
- Meals: **72-173 USD**
- Others (Transportation, Internet quota, Electricity): **20-38 USD**





Tokyo University of Marine Science and Technology

General Facilities

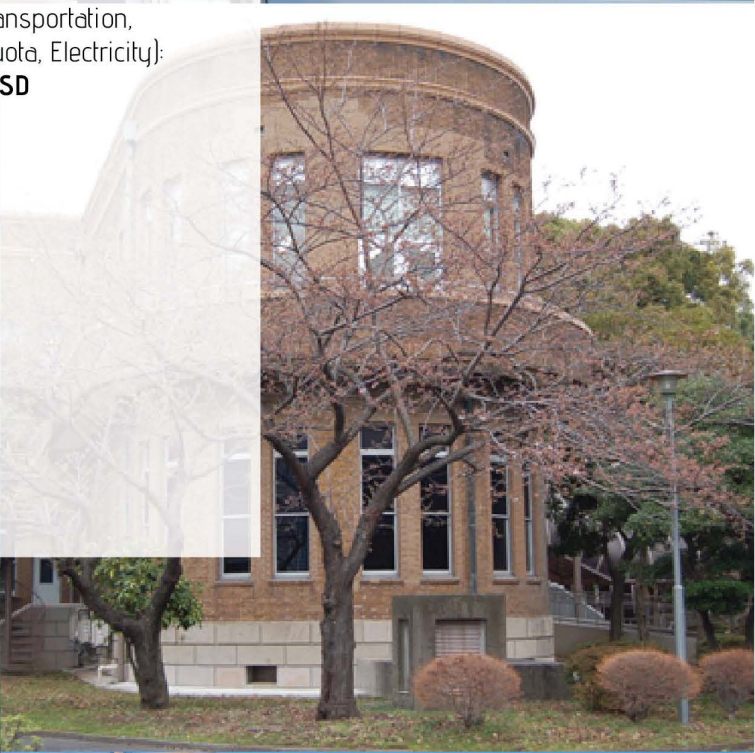
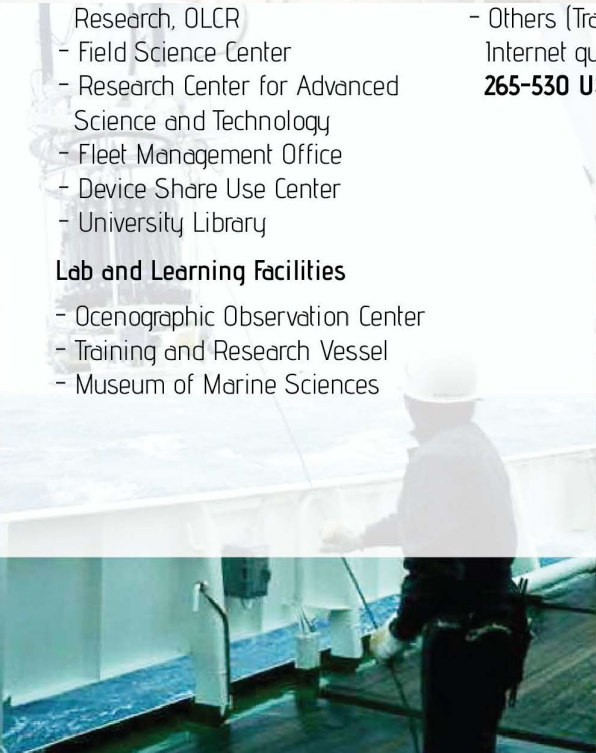
- Health Service Center
- Office of Liaison and Cooperative Research, OLCR
- Field Science Center
- Research Center for Advanced Science and Technology
- Fleet Management Office
- Device Share Use Center
- University Library

Lab and Learning Facilities

- Oceanographic Observation Center
- Training and Research Vessel
- Museum of Marine Sciences

Accommodation/Month

- House rent: **450-650 USD**
- Meals: **55-310 USD**
- Others (Transportation, Internet quota, Electricity): **265-530 USD**





The Hong Kong University of Science and Technology

General Facilities

- Conference Lodge
- Bridge Link
- Fok Ying Tung Graduate School
- IAS Building
- Indoor Sports Facilities
- Information Center
- Laboratory
- Library
- Student Hostels

Lab and Learning Facilities

- Center for Ocean Research in Hong Kong and Macau (CORE)
- Ocean Research Facility and Water Technology Center
- Big Data Institute
- Aerodynamics and Acoustic Facility
- Atmospheric Research Center

Accommodation/Month

- House rent: **800-2225 USD**
- Meals: **6-8 USD**
- Others (Transportation, Internet quota, Electricity): **259-300 USD**

An underwater photograph showing a diver on the left, illuminated by a bright light, swimming towards a large, colorful coral reef on the right. The water is clear and blue, with sunlight filtering through from above. The diver is wearing a wetsuit and has a tank on their back. The coral reef is diverse, with various shapes and colors including red, orange, and brown.

Department of Marine Science and Technology Faculty of Fisheries and Marine Sciences

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