



**AIT**  
Asian Institute of Technology



**SCHOOL OF  
ENVIRONMENT,  
RESOURCES AND  
DEVELOPMENT**

ASIAN INSTITUTE  
OF TECHNOLOGY



[www.serd.ait.asia](http://www.serd.ait.asia)



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# Message From The Dean



**W**elcome to the School of Environment, Resources and Development (SERD) of the Asian Institute of Technology, a school with a mission to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy. We offer post-graduate education in three major thematic areas, namely Environment, Resources and Development through twelve different academic degree programs at Master's and Doctoral and Professional Master's level organized in three departments, namely

- 1) Department of Energy, Environment and Climate Change
- 2) Department of Food, Agriculture and Bioresources
- 3) Department of Development and Sustainability

Today's development and environmental problems cannot be addressed by pursuing single specific disciplines. We are committed to address global concerns and mega issues, such as sustainable development goals, climate change and urban sustainability. With the increasing global integration, today's graduate is expected to be a global citizen with regional perception, who is an agent of change in transformative societies with many facets of humanity, economy and technology. Guided by this vision, we offer the academic programs which are dynamic and inter-disciplinary, emphasizing trans-disciplinary research cutting across those multi-disciplinary boundaries tailored to fit the current needs of Asia and beyond.



At the heart of our school is the cohort of faculty and students, who work together creatively to make a meaningful impact for the benefit of the society. Our faculty members represent more than fifteen countries and have globally outstanding track records with demonstrated capabilities in teaching, research and outreach in community engagement. With students from nearly fifty different countries enrolled in various programs, our school provides truly a multicultural learning atmosphere with innovative yet practical knowledge needed for the future professionals to lead the region and beyond. Providing a dynamic and vibrant learning environment beyond the boundary in a residential campus, we put highest efforts to prepare our graduates who are global citizens, work-ready, and capable to lead in their work. As the testimony of what we do, we take enormous pride in the fact that our alums, in more than 100 countries, hold leadership positions in academia, businesses, non-profit organizations, government agencies, private sectors and international organizations around the world.

“ Our cohort of faculty and students work together creatively to make a meaningful impact for the benefit of the society ”

We look forward to welcoming prospective students to study with us; fellow faculty, researchers, partners and collaborators to collaborate with us in teaching, research and outreach; community members to engage in our action research; our own alums to continue serving as our ambassadors; policy leaders to support and provide us with the opportunity to be part of your activities so that we can all together achieve our common goal of sustainable development.

**With my best wishes,**  
Professor Rajendra P. Shrestha

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+66 (0)2 524 6071  
deanserd@ait.asia



## AIT VISION

AIT will strive to become a leading and unique regional multicultural institution of higher learning, offering state of the art education, research and training in technology, management and societal development.

## AIT MISSION

The mission is to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy.

# Asian Institute of Technology

The Asian Institute of Technology promotes technological change and sustainable development in the Asia Pacific region through higher education, research and outreach. Established in Bangkok in 1959, AIT is recognized for its multinational, multi-cultural ethos and has become a leading regional postgraduate institution. AIT is actively working with public and private sector partners throughout the region and with some of the top universities in the world.

The School of Environment, Resources and Development is among one of the school which offer post graduate degrees along with two other schools; The School of Engineering and Technology and The School of Management. There are other units like AIT Solutions and AIT Extension that provide short term trainings and consultancy services.



## FACTS AND FIGURES

**2,047** Students from  
**45+** Countries / Territories

**22,100** Alumni from  
**100** Countries / Territories

**101**  
Adjunct /  
Visiting  
Faculty

**30,000+** Short-term Trainees from  
**70+** Countries / Territories

**3**  
Schools

Approximately  
**450**  
Sponsored  
Research  
Projects worth  
**46**  
Billion Thai Baht

**300+**  
Partners

**753**  
Research and Support  
Staff from  
**42**  
Countries / Territories

**81**  
Internationally recruited  
Faculty from  
**20+**  
Countries / Territories

**1000+**  
courses offered

# Ranking and recognition



# AIT RANKINGS



(Since AIT is an institute that does not offer direct-entry undergraduate programs, some ranking systems do not include AIT in their listing. However, whenever AIT is allowed to participate in rankings, it has always performed exceedingly well).

## SCHOOL OF ENVIRONMENT, RESOURCES AND DEVELOPMENT



The School of Environment, Resources and Development (SERD) at AIT responds to regional needs by mobilizing and enhancing capacities for socially, economically and environmentally sound development in partnership with public and private sector enterprises by offering Master's, Doctoral and Professional Master's degree programs.

The academic programs are offered in an international environment with focus on interdisciplinary education and applied research geared towards sustainable development. The programs are suitably blended with technological, development and management components to qualify as an integrated education for providing appropriate solutions to contemporary issues. Enhancing quality education through high end research, state of the art curriculum and effective pedagogy is the core value at SERD.

For nearly half a century, AIT has been serving the human resource development needs of developing countries in Asia, taking into account their specific development priorities, gender issues and social values. SERD activities and functions are within this framework, as a majority of its graduates return and participate in the development of their countries.

The school will continue its leadership role in offering excellent academic programs relevant to regional needs and responsive to students' interests. This is done by concerted and focused research in areas of high priority conducted by core teams. Outreach will be community-service-oriented.



# Why SERD?



## Our Advantages:

- AIT campus as safe and secure for all groups and gender
- World-class, international faculty from 50+ countries
- Multicultural student body from 60+ countries
- Global network of 22,000+ AIT alumni
- Partnerships with organizations like the UN, ADB, ASEAN, DAAD, NORAD, SIDA, the World Bank along with other national partners
- Over 500 ongoing sponsored research projects
- Multidisciplinary & integrated approach of learning environment with real world cases
- Special assistance and coaching to needy students on English language & courses
- Advanced laboratory and workshop facilities
- Excellent internet facility with campus-wide wifi
- Residential, green, friendly and safe campus for all cultures, age groups and gender

## Available Facilities:

- Laboratory and workshop facilities
- 24 hours laboratory access
- Residential and safe campus
- Campus wide wifi
- Modern library that meets the needs of the digital age
- In-campus dormitories, eateries, sports and recreation facilities
- In-campus medical services and Language Centre



# Our approach to learning

## Individualized academic advising

Every student at AIT has a faculty advisor. Advisors help their advisees devise their study plans and monitor their progress.

## Small class sizes

Small classes enable maximum student-teacher interaction.

## Lectures

A full-time master's student takes an average of 12 credits of coursework per semester in his/her chosen field. Additional courses taken during the break concurrents with preparations for thesis proposal. Doctoral students complete coursework before taking a qualifying examination to advance to candidacy.

## Flexible curriculum

In offering opportunity and choice, we take a flexible approach to teaching. Students design their own study programs according to their inclinations and future career objectives in consultation with and under the guidance of their advisors.

## First-hand research experience

In laboratory courses and in research, students tackle experiments that clarify and complement theories covered in lectures.

## Assessment and examinations

Assessment is based on a mixture of assignments, laboratory work, examinations, projects, research reports or thesis.



## Student LIFE

From breakfast in the cafeteria to late-night discussions, AIT students partake of the great opportunity and experience across cultural borders. Students live in a green and park-like campus that many consider their home away from home. It is known for its natural beauty and relaxed atmosphere, providing a convivial environment for scholarly learning and professional development.

### Dormitories

AIT is a residential campus. There are appropriate housing for all type of students (singles, couples and families). Dormitories are equipped with furniture and 24 hours internet access. Any location in campus can access internet through campus-wide wifi network.

### Sports and Recreation

In-campus sports facilities include a swimming pool, badminton courts, tennis courts, table tennis, basketball courts, football, cricket and hockey fields, squash courts and a golf course. Whether seasoned athletes or novices, students enjoy a wide variety of athletic pursuits.

### Dining

Several eateries on campus provide inexpensive meals catering to a variety of tastes and preferences from around Asia and abroad. Vegetarian and halal menus are served daily.

### Weekend Activities

The Student Union plans regular weekend activities in exploring Thailand and neighboring countries. On-campus, students enjoy weekly movies, parties and sports activities.



### Spiritual / Meditation Facility

AIT supports individual religious participation and spiritual search. Areas for religious worship are provided on campus.

### Visa Assistance

The Government Relations Office handles all visa arrangements for all non-Thai students, faculty and staff, as well as for their spouses and children.

### Medical Services

Health professionals and support medical staff are on hand on a 24-hour basis.

### Child Support

The AIT International School offers early childhood education from kindergarten to Grade 6 for children of AIT faculty, staff and students at affordable costs in campus.



# How to APPLY?



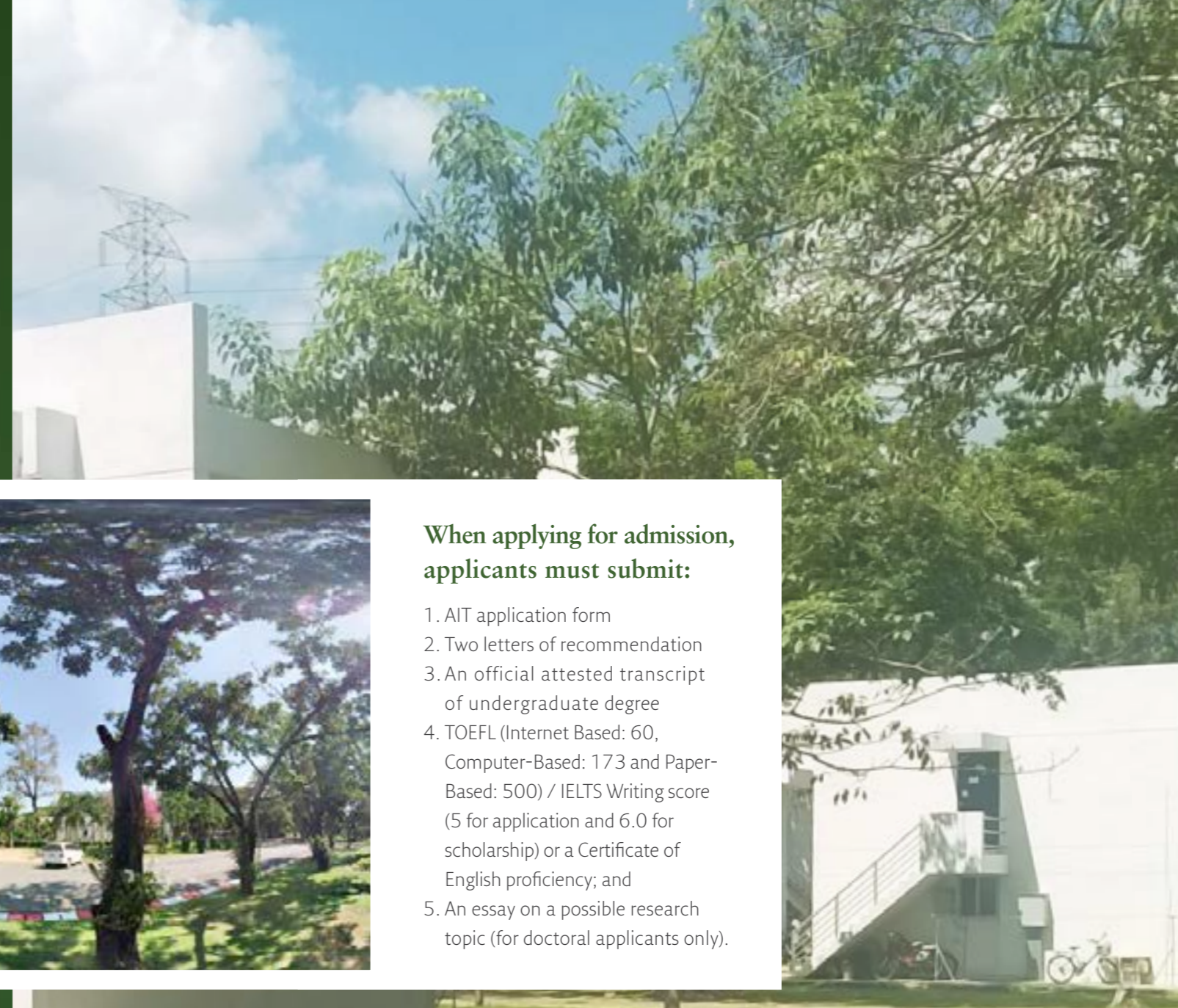
## When applying for admission, applicants must submit:

1. AIT application form
2. Two letters of recommendation
3. An official attested transcript of undergraduate degree
4. TOEFL (Internet Based: 60, Computer-Based: 173 and Paper-Based: 500) / IELTS Writing score (5 for application and 6.0 for scholarship) or a Certificate of English proficiency; and
5. An essay on a possible research topic (for doctoral applicants only).

The School of Environment, Resources and Development seeks applicants who show demonstrated commitment to and enthusiasm for intellectual growth.

## To be eligible for admission to the degree and other programs, a candidate should:

1. Hold a bachelor's degree (a four-year program) or its equivalent in an appropriate Engineering or related field as specified by the academic program
2. Hold the degree from an institution of recognized standing
3. Have undergraduate grades significantly above average (minimum CGPA 2.75/4)
4. Have satisfactory physical and mental health to pursue academic studies at the graduate level; and
5. Possess an acceptable level of English language proficiency.



## For application forms, please contact:

Admissions and Scholarships Office  
Asian Institute of Technology  
P.O. Box 4, Klong Luang  
Pathumthani 12120, Thailand  
☎ +66-2-5245031/33  
☎ +66-2-5246326  
✉ [admissions@ait.asia](mailto:admissions@ait.asia)  
🌐 [Click here to apply online](#)

# Degrees Offered



“ Educate to Integrate Technology, Natural and Social Sciences in Asian Perspective ”



## Doctoral Programs

Full-time doctoral students are required to take a minimum of 84 credits that include a minimum of 18 credits of coursework with special study and 66 credits of thesis. Standard doctoral program is three and a half years or seven semesters. Normally a doctoral student starts their research during third semester of their study.

Each and every student is advised by a Program Committee from beginning to end of the degree program.

Majority of the students are resident in campus. Doctoral students can opt for non-residential status after completion of their coursework.

## Master's Programs

A master's student requires 48 credits to complete the program. Students are given two options; either to pursue a Thesis Option or a Research Option. Students pursuing a master's program under a Research Option enroll for a total of 38 credits of coursework and 10 credits of research study. Students pursuing a master's program under a Thesis Option enroll for a total of 26 credits of coursework and 22 credits of Thesis research.

Standard Master's program is two years or four semesters.

## Other Programs offered

Other programs include diploma and certificate.

To qualify for diploma, a candidate must satisfactorily complete a minimum of 24 credits of coursework including special study leading to the presentation of a project report in a period of one year (or two semesters).

Certificate courses are of one semester equivalent to 12 credits.

Other Program offerings include:

**Double degree opportunity**

**Unified bachelor-master degree program** in partnership with universities in the region and beyond.

# COST AND FINANCING YOUR STUDIES

AIT offers limited number of financial awards in the form of scholarships (full and partial) for master's and doctoral programs, on a highly competitive basis, and for those who show proof of financial need during their study at AIT. Students are expected to supplement the AIT support with their own resources.

## Tuition and fees

Students in full-time attendance are required to pay a registration fee of 20,000 baht per semester and a tuition fee of 16,000 baht per credit. A dollar rate, which is fixed every semester, is given in the table below.

The tuition fees are based on the following minimum credit requirements and number of semesters:

- Doctoral (84 credits/7 semesters),
- Master's (48 credits/4 semesters),
- Diploma (24 credits/2 semesters),
- Certificate (9-12 credits/1 semester).

Study Cost	Doctoral Programs 7 Semester (84 Credits) 42 Months	Master's Programs 4 Semester (48 Credits) 22 Months	Diploma 2 Semester (24 Credits) 12 Months	Certificate 1 Semester (12 Credits) 5 Months
Registration fee 20,000 Baht per semester	Baht 140,000	Baht 80,000	Baht 40,000	Baht 20,000
Tuition fee 16,000 Baht per credit	Baht 1,344,000	Baht 768,000	Baht 384,000	Baht 192,000
<b>Sub Total</b>	Baht 1,484,000	Baht 848,000	Baht 424,000	Baht 212,000
Living / Accommodation / other expenses 11,500 Thai Baht per month	Baht 483,000	Baht 253,000	Baht 138,000	Baht 57,500
<b>Total</b>	Baht 1,967,000	Baht 1,101,000	Baht 562,000	Baht 269,500

\*\* The US dollar will be based on exchange rate quoted at the time of enrollment  
(1 US\$ = 33.18 Baht for August 2017 Semester)



## Partial Scholarships

Partial scholarships in the form of fellowship at master's and doctoral programs are awarded to assist bright but financially needy students and are tenable only for study at AIT. Fellowships normally do not cover the registration fees, associated fees and other incidental expenses as well as living costs, which are the responsibility of individual fellows. Fellowship offers are not transferable to another applicant.



## Full Scholarships (Click Here)

AIT scholarships are provided by AIT's partners: governments, international funding agencies, foundations and corporate/private sectors. Selection of recipients for scholarships is subjected to partners' conditions based on field of study, nationality and/or gender. The scholarships may cover tuition fees and in some cases also cover living expenses.

Royal Thai Government (RTG) Fellowships are offered to qualified applicants from Thailand for all fields of study at AIT in the form of grants that cover tuition and registration fees. Applicants must meet the following minimal CGPA requirements: For the master's scholarships and fellowships, the undergraduate CGPA must be 2.75 or above. For the doctoral fellowship grants, applicants should have undergraduate CGPA of 3.00 or above and graduate CGPA of 3.50 or above.

# Academic Programs

## Department of Food, Agriculture and Bioresources

- Agribusiness Management 26
- Agricultural Systems and Engineering 28
- Aquaculture and Aquatic Resources Management 30
- Food Engineering and Bioprocess Technology 32

# Department of Food, Agriculture and Bioresources

## Background

The global food system today is beset by serious challenges and risks. Food demand is on rise due to population growth and changing consumption patterns a production and prices have become more volatile; hunger and poverty levels remain high and unsustainable practices exacerbate environmental challenges. The fundamental need to boost productivity, especially of small to medium holders, increase access to markets, reduce risks, boost rural employment and provide environmental services come in a context where managing the agriculture, livestock and aquaculture practices is challenged by accelerating climate change, population growth, urbanization, environmental degradation, increased market risk, tightening resource constraints, a growing need for engagement of the private sector in delivering public goods, too-slow progress on raising rural incomes and too-slow progress on improving nutrition. World food production needs to be multifold in coming decades, with far less resources (land, water, farmers, energy) available than today. Sustainable agricultural, livestock and aquaculture production in developing countries are facing ever increasing challenges from high use rate of synthetic fertilizers, over reliance on pesticides and antibiotics, very low adoption of biological pest control, low use rate of animal and green manure and low level of farm diversification. Similarly, food safety is receiving heightened attention worldwide as the important links between food and health are increasingly recognized. Improving food safety is an essential element of improving food security, which exist when populations have access to sufficient and healthy food through the development of processing industries for sustainable and safer food product development. At the same time, as food trade expands throughout the world, food safety has become a shared concern among both developed and developing countries and need urgent attention farm-to-fork level. Academic and research activities at the Department of Food, Agriculture and Bioresources focus on problem-solving and creating work-ready graduates who are able to take real-life challenges.



## Academic Programs

Multidisciplinarity is at the very core the department's teaching, research and outreach activities. The students come from multiple disciplines - engineering, technical science, bioscience, social sciences and management. The academic programs are:

- Agriculture Systems and Engineering (ASE)
- Aquaculture and Aquatic Resources Management (AARM)
- Food Engineering and Bioprocess Technology (FEBT),
- Agribusiness Management (ABM),



# Agribusiness Management

The program focuses on training with innovative, creative and business-minded professionals and practitioners who will be able to facilitate processes in small, medium and large scale enterprises in the globally competitive and coordinated food supply chains.

## What should graduates expect:

Graduates from the ABM program can obtain employment in any management related organization, marketing research companies, financial institutions, governmental and non-governmental organizations, development agencies, universities and other research institutions.



## Research Areas:

- Sustainability assessment of agro-industries
- Risk shifting and bargaining power in commodity marketing channels
- Farmers' vulnerability and adaptation to climate change
- Comparative analysis of the profitability of organic and conventional vegetable production systems
- Analysis of fish trade flows
- Contract farming systems
- Enhancing Productivity and Market Linkages
- Agri-food Value Chain Management
- Energy input-output analysis of agricultural systems
- Organic farming
- Analysis of climate change impacts on crop yields using crop simulation models, Food security Agri-Business strategy.
- Food safety and Risk Analysis in food supply chain systems
- Traceability in Food Supply Chain Systems

## Agri-business Management Courses

### REQUIRED COURSES

- Agro-Industrial Systems Development
- Marketing Management and Trade Policies in Agribusiness
- Agribusiness Management: Principles and Practices
- Statistical Methods for Research

### ELECTIVE COURSES

- Safety and Standardization of Food Products
- Agri-Food Supply Chain Management
- Analytical Techniques and Decision Tools for Agribusiness
- Managerial and Business Economics
- Agricultural Sector and Policy Analysis
- Farm Management Economics
- Sustainable Agriculture and Ecological Farming
- Management of Mechanized Agriculture
- Controlled Environment Agriculture

## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in agribusiness management, agriculture, agricultural economics, agricultural engineering, food process engineering, agro-industry, business administration, food science and technology, various social sciences courses and other related fields.

### DOCTORAL PROGRAM

Master's degree in a related field with research experience.



## For more information, please contact:

Agribusiness Management

+66 (0)2 524 5450

+66 (0)2 524 6200

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FAB-secretary@ait.asia

[Click here to Agri-Business Management](#)

# Agricultural Systems & Engineering



In response to regional demand for professional training, Agriculture Systems and Engineering (ASE) offers two areas of specialization: Agricultural Systems (AS) and Agricultural Engineering (AE). Students are trained to develop, adopt and disseminate knowledge and technologies that focus on the utilization and management of biological and agricultural systems and natural resources.

## What should graduates expect:

Graduates of ASE adopt not only the traditional employment path i.e. private companies comprising pesticide, seed and fertilizer, agricultural machinery manufacturing and sales, processing and procurement, agricultural automation and control, organic and chemical-residue free farming, free greenhouses and orchard management, etc., but also they are welcomed at research and development establishments as well as various government and inter-government projects.

## Area of specialization

### AGRICULTURAL SYSTEMS

Agricultural Systems specialization provides a broad understanding of small and medium holder agricultural enterprises. It provides comprehensive understanding of physical and biological production factors affecting agricultural production from the perspective of the producers, including how economic and social forces affect farm enterprises.

### AGRICULTURAL ENGINEERING

Agricultural Engineering specialization places emphasis on the application of engineering principles to agriculture to increase the efficiency of food production through effective use of inputs and management of natural resources.



## Research Areas:

- Sustainable agricultural mechanization and Precision Agriculture
- Controlled environment agriculture
- Techno-Economic & environment performance of agricultural systems
- Wetland traction studies
- Crop production under conventional and organic farming systems in relation to food security and climate change
- Crop tolerance to soil and environmental stresses
- Crop water management
- Climate change impacts on crop yields
- Ecological agriculture and organic farming
- Integrated pest and nutrient management

## Agricultural Systems and Engineering Courses

### REQUIRED COURSES

- Agricultural Systems Analysis (FoS Required)
- Agricultural Environments (FoS Required)
- Farm Management Economics (FoS Required)
- Farm Production and Engineering (AE Required)
- Crop Eco-physiology and Modeling (AS Required)

### ELECTIVE COURSES

- Crop Productivity Management
- Livestock Production Systems
- Integrated Pest Management
- Land Husbandry
- Sustainable Agriculture: Production, Operations and Systems
- Precision Agriculture
- Agriculture Soil Mechanics
- Instrumentation and Measurement Techniques
- Controlled Environment Agriculture
- Design and Testing of Agriculture Equipment

## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in agricultural sciences, agricultural technology or biological sciences, agricultural or mechanical engineering, or related fields.

### DOCTORAL PROGRAM

Master's degree in any related field with research experience

## For more information, please contact:

Agricultural Systems and Engineering

+66 (0)2 524 5450

+66 (0)2 524 6200

FAB-HoD@ait.asia

FAB-secretary@ait.asia

[Click here to Agricultural Systems & Engineering](#)

# Aquaculture & Aquatic Resources Management

While the major emphasis of the past research had been to address poverty, food and nutrition security and creation of employment especially in rural communities, at present AARM's focus is on intensive aquaculture systems that can contribute to sustainable production and profits. AARM has revamped its research focus in tune with the emerging sectoral challenges and the current focus is mainly on generating new knowledge in developing more resource-efficient technologies. AARM also tests and transfers those innovative technologies through building the capacity of individuals and institutions around the globe.

The areas of specialization offered by AARM that integrate cross-sectoral and multidisciplinary themes are:

- Sustainable Aquaculture Technology (SAT)
- Aquatic Resources and Ecosystem Management (AREM)
- Integrated Coastal Management (ICM)

## What should graduates expect:

AARM graduates have wide ranging opportunities to work in industry, to start their own business enterprise, appointment as a faculty member in academic and research institutions or to be involved in aquaculture planning in the public sector, private sectors or development organization.

## Research Areas:

- Biofloc technology in finfish and shellfish aquaculture
- Recirculating Aquaculture Systems
- Integrated multitrophic aquaculture systems
- Aquaponic production systems
- Biosecure systems for healthy aquaculture
- Design and formulation of cost-effective feeding systems in aquaculture
- Selective breeding for genetic stock improvement
- Application of renewable energy in aquaculture production systems
- Rational utilization and management of aquatic resources and ecosystems

## Aquaculture Technology Required Courses

### REQUIRED COURSES

- Aquaculture and Aquatic Resource Systems
- Aquaculture Nutrition and Feed Technology
- Aquatic Seed Production
- Coastal and Inland Fisheries Management
- Aquatic Biodiversity and conservation
- Wetlands Ecosystem Management

## Integrated Coastal Management Courses

### REQUIRED COURSES

- Coastal Ecosystems and Climate Change
- Principles of Integrated Coastal Management
- Tools for Integrated Coastal Management
- Workshop on Integrated Coastal Management
- Seminar on Recent Developments in Integrated Coastal Management

### ELECTIVE COURSES

- Coastal and Inland Aquaculture
- Aquatic Animal Health Management
- Genetics and Biotechnology in Aquaculture
- Aquaculture Planning and Management
- Aquaculture Engineering and Water Quality management
- Geo-informatics for Resources Planning and management



## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in agricultural sciences, aquaculture, biology, marine biology, fisheries science, geography, environmental sciences, agricultural / civil engineering or social sciences.

### DOCTORAL PROGRAM

Master's degree in a field relevant to the chosen area of specialization. Detailed dissertation research outline must be submitted with application.



## For more information, please contact:

Agriculture and Aquatic Resources Management

+66 (0)2 524 5489

+66 (0)2 524 6200

FAB-HoD@ait.asia, FAB-secretary@ait.asia

[Click here to Aquaculture & Aquatic Resources Management](#)



# Food Engineering & Bioprocess Technology

Food Engineering and Bioprocess Technology focuses on the processing technologies in food and bioprocess industries in relation to the materials, processes and equipment for conversion or modification from raw state to value-added forms or characteristics. Two areas of specialization are offered: Food Process Engineering and Bioprocess Technology

## Food Process Engineering

Food Process Engineering focuses on the application of engineering principles to the design of postharvest and food processing equipment; changes that may occur within products during handling, processing, and storage; measuring and controlling the quality of raw food materials; food supply chain safety; the handling and utilization of wastes generated during on-farm processing.

## Bioprocess Technology

Bioprocess Technology focuses on developments in biotechnology and its applications in agro/food, functional food, biopolymers, dairy and meat science, cosmetics and pharmaceuticals. Industrial bioprocess technology for the conversion of raw agricultural products to useful food products, biomaterials with specific growth promoting properties are developed for applications in organic farming. To strengthen applicability of microorganisms for specific purposes, courses are given in genetic engineering of microorganisms. DNA with interesting properties is transferred to produce strains for industrial applications.



## What should graduates expect:

Graduates from the FEBT can work in several areas, including industry, government services, non-government organizations and academia. Many of the M.Sc. students also choose to pursue a Ph.D. degree either at AIT or in another institute elsewhere in the world.

## Food Engineering & Bioprocess Technology Courses

### REQUIRED COURSES

- Food Process engineering
- Bioprocess Technology
- Bioprocess Practical
- Engineering Properties of Food and Biomaterials
- Food Processing Technology Laboratory

### ELECTIVE COURSES

- Processing Effects on Functional Components of Foods
- Food Engineering Operations
- Bioseparation Processes
- Advanced bioprocess Technology Applications
- Enzyme and DNA Technology
- Safety and Standardization of Food Products

## Research Areas:

- Bioprocessing and Value additions of Microbial Resources, Agro-Industrial Residues, Aquatic Resources and Non-timber Forest Products
- Functional Foods and Nutraceuticals Processing and Product Analysis
- Food Safety and Risk Assessment Analysis in Food Supply Chain Systems
- Application of Nanotechnology in Food, Agriculture and Pharmaceuticals
- Delivery and pharmacokinetic studies of Bioactive Compounds including Neutra- ceuticals, drugs etc. in Human and Veterinary Applications
- Novel Food Processing Technologies
- Chemical Sensors and Biosensors for Food Safety Applications
- Postharvest Technology and Management

## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in agricultural or food engineering, chemical engineering, agro-industrial technology, food science, food technology, biochemistry, biopolymer science, environmental engineering, microbiology, molecular biology or related applied sciences.

### DOCTORAL PROGRAM

Master's program in relevant field and detailed dissertation research outline must be submitted with application.



## For more information, please contact:

Food Engineering and Bioprocess Technology

☎ +66 (0)2 524 5450; 524 5488

☎ +66 (0)2 524 6200

✉ [Click here to Food Engineering & Bioprocess Technology](#)

# Department of Energy, Environment and Climate Change

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# Department of Energy, Environment and Climate Change

## Background and Mission

Department of Energy, Environment and Climate Change aims to fulfill AIT's vision of sustainable Asia as Asia is rapidly rising economically, socially and technologically. The efficient utilization and clean energy resources, leap-frogging environmental technologies and management, preserving local and global environment and conducive consumption and behavioral changes, among others are crucial points that the region must pay attentions to. In these realms, we strive to generate new knowledge and options, support their diffusion and implementation.

The Missions of the Department are:

- To develop next-generation leaders who are able to address societal needs of clean energy, utilization of environmental technologies and management and address the burgeoning issue of climate change.
- To serve the society by creating and delivering new solution-oriented knowledge and practices for better energy transitions, challenges to air, water and wastewater related environmental problems and the climate change in rapidly changing Asia through research and outreach.



## Academic Programs

Multidisciplinarity is at the very core of the department's teaching, research and outreach activities. Our academic activities focus on problem-solving and creating work-ready graduates who are able to take real-life challenges once graduated. The students come from multiple Disciplines-Engineering, Science, Economics, Management and Humanities. The academic programs are:

- Energy, with specialization in Energy Technology; Energy Policy Planning and Economics; Electric Power Systems Management
- Environmental Engineering and Management, with specialization in Environmental Technology and Management; Water and Wastewater Engineering
- Climate Change and Sustainable Development
- Energy Business Management



# Climate Change and Sustainable Development

Climate change is the most important international agenda kept at the forefront of everybody that requires mitigation and adaptive solutions for coping with current and changing scenario of the future. The associated issues and concerns are many from local to global level that raises a common question of sustaining our living planet. The issues are primarily linked with carbon emissions leading to global warming, extreme weather events, increasing trend and intensities of natural hazards and disasters, melting of glaciers, loss of biodiversity, threatened ecosystems, uncertainty of water and food security, etc. CCSD program focuses on climate change mitigation, impacts and adaptation at the cross-cutting issues.



## What should graduates expect:

- Work with sectorial experts in the areas of CCSD with critical thinking
- Carry out climate change induced impact assessment, scenario building and identification of potential impacts,
- Initiate climate change induced impact assessment and adaptive measures,
- Undertake policy analysis and development (integration, application and mainstreaming),
- Negotiate and communicate effectively,
- Acquire methods, tools and techniques for analysis, understanding and dissemination, and
- Conduct technology assessment and adopting climate friendly technology for mitigation and adaptation

## Research Areas:

- Technologies and policies for greenhouse gas emission mitigation energy and sustainable development
- Biomass and Bioenergy for climate change mitigation, Clean Coal Technologies, Carbon Capture and Storage
- Participatory scenario design
- Energy and climate policies, economics of climate change, cities and climate change
- International development, NGOs, adaptation to climate change
- Climate change and water resources, climate change impact and adaptation assessment

## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in geography, agriculture, economics, architecture, sociology, engineering, anthropology, planning, political science, development studies, humanities, biosciences, environmental sciences, energy and forestry.

### DOCTORAL PROGRAM

Master's degree in one of the above fields and detailed dissertation research outline must be submitted with application.

## For more information, please contact:

Climate Change and Sustainable Development

☎ +66 (0)2 524 6165

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[EECC-secretary@ait.asia](mailto:EECC-secretary@ait.asia)

## Climate Change and Sustainable Development

### REQUIRED COURSES

- Science of Climate Change and Impacts
- Principles and Practices of Sustainable Development
- Climate Change Mitigation
- Adaptation to Climate Change: Policies and Practices
- Climate Change Mitigation
- Economics of Climate Change
- Climate Change Seminar cum Workshop

### ELECTIVE COURSES

- Climate Change, Agriculture and Food Security
- Climate Compatible and Sustainable Infrastructure Development
- Land Use and Climate Change
- Climate Change Adaptation and Disaster Risk
- Climate Change Impacts, Vulnerability and Adaptation: Concepts, Tools and Practices
- Climate Change Impacts and Adaptation in Fisheries and Aquaculture
- Analytical Tools for Climate Change Adaptation at Local Level
- Climate Change and Water Resources
- Sustainable Agriculture: Issues and Management of Technologies
- Energy Resources and Technologies
- Energy, Environment and Climate Change: Issues and Strategies
- Clean Coal Technologies and Carbon Capture and Sequestration
- GHG Mitigation and Energy Recovery from Waste
- Science of Climate Change and Environment Co-benefit
- Carbon Markets and Carbon Finance

# Energy

Energy Field provides master and doctoral education in areas of Energy Technology, Energy Policy Planning and Economics, and Electrical Power System Management. Jointly with School of Management, it also offers MBA degree in Energy Business. In particular, rapidly emerging areas such as renewable energy, climate change mitigation, smart grids, energy access and regional energy integration, are at the heart of the program which addresses both technological as well as policies and management aspects.



## Areas of Specialization:

**ENERGY TECHNOLOGY** focuses on technological aspects of energy supply and energy conservation, in particular to the fundamental and practical aspects of solar thermal and photovoltaic conservation, bio-energy, and others. It also covers energy management in industrial facilities, buildings and the role of technologies for improving energy efficiency and environmental performance, especially reduction of pollution and greenhouse gases.

**ENERGY POLICY, PLANNING AND ECONOMICS** focuses on policies, incentives, cost / benefits and markets for energy supply and conservation, in particular for cleaner and renewable energy technologies in the context of need for greater energy access and climate change mitigation in developing countries. It also covers economics of energy projects, forecasting energy demand, energy pricing, policy evaluation, power trades and energy markets, amongst others.

**ELECTRIC POWER SYSTEM MANAGEMENT AREA** focuses on efficient management of power grids from generation to user at the highest level of quality assurances with special considerations to the integration of renewable energy and smart grids. It also covers power system operation and control, power system dynamics and stability, power distribution system, including custom power and distributed generation. The emerging issue such as districted generation and power markets, amongst others, are key focuses.

## Research Areas:

- Improving energy access and energy security
- Upscaling renewable energy portfolio in energy mix
- Renewable energy system designs such as for solar and biomass
- Efficient renewable energy integration in grids and smart grids
- Bridging the energy 'efficiency gap' and demand side management
- Regional energy integration to boost energy security and to curtail energy costs
- Low energy and carbon cities
- Climate change mitigation and climate policies

## Preferred Background for:

Energy program operates in multidisciplinary setting and welcome students from various disciplines. This includes engineering, applied sciences, management, economics, and social sciences.

### MASTER'S PROGRAM

Masters' degree admission requires undergraduate degree from an accredited University.

### DOCTORAL PROGRAM

Doctoral degree admission requires a master degree in relevant area.

## For more information, please contact:

Energy

+66 (0)2 524 5440; 524 5407

+66 (0)2 524 5439

EECC-HoD@ait.asia

EECC-secretary@ait.asia,

<http://energy.ait.asia>

## Energy Courses

### REQUIRED COURSES

#### for all master's students

- Energy Resources and Technologies
- Development and Evaluation of Energy Projects
- Workshop on Energy Issues and Communication
- Energy, Environment and Climate Change Issues & Strategies

### ELECTIVE COURSES

#### 1. Energy Technology

- Solar Thermal Systems Design
- Solar Energy
- Biomass Conversion
- Clean Coal Technologies and carbon capture and sequestration
- Rational Use of Energy in Building
- Energy Management Systems
- Integrated Approach to Energy Auditing
- Demand – Side Management
- Design and Management of Energy Systems

#### 2. Energy Policy, Planning and Economics

- Energy Statistics and Energy Demand Forecasting
- Development and Evaluation of Energy Projects
- Energy Pricing and Applications
- Electricity Economics and Planning
- Energy Economic Modeling and Policy Analysis
- Environmental Policy and Management of Energy System
- Carbon Markets and Carbon Finance

#### 3. Electric Power System Management

- Power System Dynamics and Stability
- Electrical Energy Management
- Distributed Generation
- Smart Grid and Electrical Energy Management Systems
- Generation and Integration of Renewable Energy Sources in Power System
- Optimization and AI Applications in Power System
- Rational Use of Energy in Industry

# Energy Business Management

Given rapidly rising energy demand and supply infrastructure in Asia and beyond, there is a need for a new breed of highly trained specialized professionals who are capable of managing public and private energy utilities as well as operating in the changing energy market environment. Our Energy Business Program is designed to create such human capital. The main focus of the program is to provide students in-depth exposure to modern management approaches, tools and skills needed to face the challenge of changing energy business paradigms and energy markets.

## Graduates from this Program can:

- Demonstrate a clear and in-depth understanding of the contemporary settings within which energy business has to be managed, i.e. national economic development, competition, patterns of technological and market change, and the structure and development of internal enterprise capabilities are included in the curriculum
- Demonstrate the ability to analyze which technologies to invest in, how to structure those investments and how to anticipate and respond to the behavior of the competitors, suppliers and customers
- Demonstrate the ability to understand the issues involved in the process of energy technology acquisition and the interrelationships between technology transfer and research and development management
- Demonstrate the ability to use various methods, tools and techniques for evaluation of various options related to energy business, including regulation, pricing, market assessments and forecasting

## What should graduates expect:

Our program is a new program, we expect our graduate to assume a leadership position in energy business companies and utilities and consulting firms. Our graduates are already working with public utilities, private consulting firms, energy investment financiers and international organization.

## Research Areas:

- Deregulation, competition, emerging market structure in electricity sector
- Market assessment of renewable energy sector and specific low carbon technologies
- Incentives and regulation and its market implications
- Barrier and opportunities for clean energy financing; climate financing as a tool for clean energy financing



## Preferred Background for Masters's and Doctoral Programs

Candidates seeking admission should have at least a Bachelor in engineering or social science backgrounds; economics, management, business, public administration or equivalent.

Masters' degree admission requires sound undergraduate degree, three or four-year program, while doctoral degree admission requires a sound master degree in relevant areas.



## Curriculum Structure

The courses offered are existing courses in SOM and Energy and some course are jointly developed.

### REQUIRED COURSES

- Energy Resources and Technologies
- Development and Evaluation of Energy Projects
- Energy Management System
- Development and evaluation of Energy project
- Energy business communication
- Choice and Transfer of Energy Technologies
- Organizational Behavior and Structure
- Strategic Management of a Firm

### ELECTIVE COURSES

- Innovation and Techno Entrepreneurship
- Strategic Supply Chain Management
- Innovation Marketing and New Product Development
- Management Information Systems
- Corporate Social Responsibility and Ethics
- Project Finance and Risk management
- Energy Statistics and Energy Demand Forecasting
- Design and Management of Energy systems
- Rational use of Energy in Buildings
- Rational use of Energy in Industry
- Electricity Economics and Planning
- Energy, Environment and Climate Changes: Issues and Strategies
- Biomass Conversion
- Power Sector Management under Deregulation
- Rural Electrification and Distributed Generation
- Design of solar systems for thermal and electricity generation applications
- Smart Grid for Sustainable Development
- Solar Energy
- Energy Risk Management

## For more information, please contact:

Energy Business Management

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<http://energy.ait.asia>

# Environmental Engineering and Management



Environmental Engineering and Management (EEM) Field of Study is part of the School of Environment, Resources and Development. The overall program looks for solutions to environmental problems, water supply, hygiene and sanitation, wastewater treatment and disposal systems, air pollution and climate change, solid and hazardous wastes, waste minimization, life cycle assessment, environmental impact assessment and management

EEM conducts the pioneering research in the region to respond timely to the present needs of the region and visioning for the future development. Students at EEM participate actively in various research projects, which help them to put the theoretical knowledge gained from the course work directly into practice.

## Area of specialization:

### ENVIRONMENTAL TECHNOLOGY AND MANAGEMENT

This area of specialization takes a system approach to managing the environment and includes the interrelated roles of industry and government agencies. Environmental engineers and scientists enrolled in this field, study the environmental impacts of development projects. The reckless exploitation of natural resources in developing countries has been at the cost of severe environmental pollution and subsequent degradation. Understanding and management of air, water and land resource deterioration requires that a wide range of disciplinary perspectives are included in the curriculum.

### WATER AND WASTEWATER ENGINEERING

This program is for engineers specializing in planning, design, operation and management of water supply, wastewater treatment and disposal systems. Specializations include water supply and sewerage system engineering, water quality management, water and wastewater treatment systems, groundwater contamination, waste recycling and resource recovery.

## Research Areas:

- Water quality assessment and management, environmental impact assessment, solid waste treatment and management, air-pollution modeling, monitoring and control techniques and industrial pollution control and monitoring, sustainable consumption and production.
- Conventional physico-chemical and biological treatment processes, hazardous industrial waste treatment technologies, industrial bioprocess techniques applied to environmental engineering, advanced water and wastewater treatment, ozonation, membrane techniques, and sludge treatment and management

## Environmental Technology and Management

### REQUIRED COURSES

- Environmental Chemistry and Laboratory
- Environmental Quality Management

### ELECTIVE COURSES

- Air Pollution Engineering and Management
- Solid Waste Management
- Environmental Impact Assessment
- Industrial Waste Abatement and Management
- Environmental Health and Sanitation
- Air Pollution Modeling and Applications
- Applied Microbiology and Laboratory
- Hazardous Waste Technology and Management
- Design of Air Pollution Control Systems
- Principles of Cleaner Production
- Sampling Design for Environmental Monitoring
- Green House Gas (GHG) Mitigation and Energy Recovery from Waste
- Science of Climate Change and Environment Co-Benefit Analysis



## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in biochemical or chemical engineering, civil engineering, environmental engineering, sanitation engineering or related applied sciences, or health science and biomedical science.

### DOCTORAL PROGRAM

Master's degree in one of the above fields and detailed dissertation research outline must be submitted with application.

## For more information, please contact:

Environmental Engineering and Management

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Click here to Environmental Engineering and Management



# Department of Development & Sustainability

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# Department of Development & Sustainability

## Background and Mission

Department of Development and Sustainability aims to respond to emerging challenges to sustainable development in Asia. Asia is changing rapidly economically, socially, politically as well as culturally. In order to effectively address emerging issues in the region, we need to have critical and deep analysis of contexts under a multiplicity of identities - be it by gender, religion, ethnicity, class, age, geographical location, livelihood, nation, etc. The region urgently needs people who are able to organize a multi-disciplinary approach to problem solving, with in-depth understanding and responsiveness to the various needs of local women and men. We strive to generate research and knowledge to meet these needs.

The Missions of the Department are:

- To develop next-generation-leaders able to address emerging and rapidly changing development needs involving various resources - be it natural, human, social, economical, and political, who are equipped with knowledge and attitudes that can contribute to problem solving in practice.
- To serve the society by producing analysis and grounded knowledge that would contribute to improved practices for sustainable development.



## Academic Programs

Multidisciplinary is at the very core of department's teaching, research & outreach activities. Our academic activities focus on problem-solving and creating work-ready graduates who are able to take real-life challenges once graduated. The students come from multiple disciplines- economics, geography, anthropology, sociology, architecture, agriculture, forestry, science, political sciences, management, and humanities. Those with professional development experience are a preferred candidates, and hence the programs have experienced students and peer learning is also an important part of our learning. The academic programs are:

- Disaster Preparedness, Mitigation and Management
- Gender and Development Studies
- Natural Resources Management
- Regional & Rural Development Planning
- Urban Environmental Management

All students are enrolled in the Department, but need to join any of the above academic program. All students take department-wide required course, then proceed to deepen specialized knowledge in academic programs. This enables students to have wider network with other program students as well as understand the inter-connectedness of various disciplines.

# Disaster Preparedness, Mitigation and Management

DPMM is an interdisciplinary academic program at AIT that aims to produce high quality professionals for better contribution in disaster preparedness, mitigation and management.

## What should graduates expect:

Acquire competence for risk assessment of natural and human induced disasters, preparedness and emergency response; Learn the process of preparing the Disaster Management Plan at different levels (national, regional, state and local levels); Mitigate the disasters; Develop critical thinking and analytical skills; Design the DRR measures (structural and non-structural); Formulate appropriate policies and strategies for disaster management; Contribute in capacity building for public, private, community and non-profit organizations; Link and synthesize between climate risks and disaster management; Communicate risks and networking with development institutions and stakeholders; and Build community and institutional resilience for disaster.

## Research Areas:

- Emergency response and preparedness
- Vulnerability and risk assessment
- Coping and adaptation
- Disaster risk reduction and management
- Institutional and community capacity building
- Mitigation of flood, drought, cyclone, earthquake disasters
- Tsunami and coastal engineering
- RS and GIS Technology for disaster mitigation
- Human conflicts and humanitarian emergency management
- Governance and participatory DRM
- Social capital and DRM



## Course Structure:

### CATEGORY I - INTRODUCTION TO DPMM

- Managing Disasters
- API Course in Disaster Management and Humanitarian Assistance

### CATEGORY II - DISASTER MITIGATION

- Mitigation of Earthquake Disasters
- Floods and Droughts
- Climate Hazards and Early Warning Systems
- Remote Sensing and GIS for Disaster Mitigation

### CATEGORY III - DISASTER PLANNING AND MANAGEMENT

- Human Conflicts and Humanitarian Emergency Management
- Community Based Disaster Risk Reduction and Management - Theory and Practice
- Disaster Response and Emergency Management
- Disaster Governance, Policy and Risk Management

## Preferred Background for:

### MASTER'S DEGREE

The target groups of Master's Degree Program are those who are looking for a career in disaster preparedness, mitigation and management, along with the Faculty and Staff of universities and research institutions. After completing the Master's Program, students have the advantage of doing further studies in doctoral program in DPMM. The minimum entry requirement for this degree is a Bachelor's degree from a recognized university. The total credit requirement of this course is 48 credits, which include 26 credits course work and 22 credits thesis research. It is a 22 months' academic program distributed in 4 semesters.

### DOCTORAL PROGRAM

Faculty and Staff of Universities, Researchers, Senior Staff of Government and International Agencies, and NGOs /INGOs are the appropriate candidates for this program. They can have better career opportunities after the completion of this degree. Students must possess a master's degree with 3.5/4 CGPA for the enrollment. Total credit requirement for the doctoral program is 84.

### PROFESSIONAL MASTER'S DEGREE

Those who are currently working in disaster-related institutions, and would like to expand their knowledge base to meet the present and future performance challenges are the target group of this degree. Credits earned in this degree can be transferred to regular master degree program in DPMM if the requirements are met. The entry requirement is a Bachelor's degree plus 3/4 years of work experience. Students will have to cover 33 credits including an internship. This is a 12 months' academic program distributed in 2 semesters and an internship.

### POST-GRADUATE CERTIFICATE

This program is designed for those with interest in disaster related activities. Students can transfer the credits to professional masters or regular master degree program in DPMM as well as to programs in appropriate fields of study. Bachelor's degree is the minimum requirement of the course. It is 12 credits course (4 courses of 3 credits each) with the duration of 15 weeks (1 semester).

### DIPLoma PROGRAM

This program is targeted to those who wish to enhance their knowledge in DM. Four years bachelor's degree is the minimum requirement of the course. The program is of one year, which requires a minimum of 24 credits of coursework, with a minimum of 2 credits and maximum of 6 credits of special studies leading to a presentation of a project report.



## For more information, please contact:

Disaster Preparedness, Mitigation and Management

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DS-secretary@ait.asia,

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# Gender & Development Studies

Gender and Development Studies (GDS) highlights both the need for specialized academic degree awarding studies in gender and development, and the integration of gender analysis and gender relation perspectives in AIT's other fields of study. GDS offers degree programs, graduate level courses and provides substantial input to student's masters and PhD dissertation research. Short courses and workshops are also offered on gender planning and gender analysis in various development fields. GDS is linked through international networks to other academic institutions, non-government organizations and human rights organizations that strive to promote gender equality, sustainable natural resources management, and socially equitable development in Asia. Particular areas of concern include gender, technology and economic development; globalization and human rights; migration and rural transformation; trade and enterprise; gender based violence; culture and gender relations; social determinants of health; sexual and reproductive rights.



## What should graduates expect:

As gender specialists, GDS graduates have been active in mainstreaming / incorporation of gender issues in their respective academic, professional and administrative units. Our graduates have established their own NGO, gender departments in universities, became politicians, social development leaders, business women and working in other areas as prominent gender equality advocates. GDS graduates find employment in various GOs, NGOs & international development organizations and research/academic institutions. During 2006-2014, over 60% of GDS graduates were employed in NGOs and international organizations, 22% in government services, 15% in academic institutions, and the remaining pursuing higher degrees (PhD).

## Research Areas:

The program focuses on gender analysis in the areas such as:

- Empowerment
- Work, employment and income generation in the global economy
- Political participation
- Media representation
- Food security
- Gender-based violence
- Labor migration and forced migration
- Cross-border investment and infrastructure development
- International aid and its impact
- Health Disparities and Health Equity
- Reproductive health and rights
- Globalization and Small-scale enterprises
- Agriculture and rural livelihood
- Communication for Social Change
- Gender and development studies courses

## Gender and Development Studies Courses

### REQUIRED COURSES

- Gender and Development: Principles and Concepts
- Gender, Culture and Human Development
- New Technologies, Industrialization and Gender

### ELECTIVE COURSES

- Gender Politics, Civil Society and Human Rights
- Gender, Enterprise, and Organizations
- Gender, Rural Livelihoods and Sustainable Development
- Gender, and Development Economics
- Gender, Analysis and Gender Responsive Development Planning
- Gender, Migration and Human Trafficking in Asia
- Gender and Global Health
- Gender and Development Communication

## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree or equivalent in geography, economic, sociology, history, anthropology, public administration, psychology and other related disciplines; and/or demonstrable experience in development work, gender analysis and commitment to gender equality.

### DOCTORAL PROGRAM

Master's degree in a field relevant to the chosen program of study and detailed dissertation research outline must be submitted with application.

## For more information, please contact:

- Gender and Development Studies
- ☎ +66 (0)2 524 5668; 524 6387
  - ☎ +66 (0)2 524-6431
  - ✉ DS-HoD@ait.asia  
DS-secretary@ait.asia
  - 🌐 [Click here to Gender and Development Studies](#)

# Natural Resources Management

Natural resources are the basis of livelihoods and economies of every nation in Asia. Given the rich cultural, social, political, and biophysical diversity across Asia, the professionals working in natural resources management need a strong working knowledge of interrelated sciences. NRM is designed to train the professionals in contemporary topics related to terrestrial and coastal resources, ranging from their stocktaking, sustainable use and governance to climate change mitigation and adaptation through interdisciplinary approaches. Through teaching, research and outreach activities, the NRM FoS seeks to develop professionals who can contribute to the conservation and sustainable management of natural resources, including terrestrial and coastal resources.

The complex nature of NRM issues requires a broad range of skills and techniques ranging from the social to the physical sciences. The NRM field of study therefore specializes in areas as diverse as community-based natural resources management, forestation and forestry, integrated land management, biodiversity conservation, climate mitigation /adaptation and the valuation of ecosystem services. We provide education and research opportunities leading to Master and Ph.D. degrees in NRM.

NRM also provides training, outreach and capacity-building opportunities to a growing number of partners on many NRM related areas. In addition to providing training, we have assisted universities in Nepal, Indonesia, Laos PDR, Vietnam, Cambodia and other countries to develop their capacity to implement academic programs related to natural resources management.

## What should graduates expect:

Graduates will be able to perform assessment of natural resources, analyze the NRM problems, develop appropriate policy interventions for better management and conservation of natural resources and engage in professional activities regarding the management of natural resources, biodiversity conservation, climate change mitigation and adaptation.

## Research Areas:

- Sustainable use and management of natural resources such as forests, fisheries, agricultural lands
- Forest carbon management and climate change mitigation
- Biodiversity conservation, payment for ecosystem services, assess and benefit sharing, biodiversity offsetting
- Linking natural resources management with climate change and sustainable development
- Natural resources management and food security in Asia



## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in environmental science, bioscience, agriculture, soil science, natural resources geology, geography, forestry, botany and zoology.

### DOCTORAL PROGRAM

Master's degree in one of the above fields and detailed dissertation research outline must be submitted with application.



## Natural Resources Management Courses

### REQUIRED COURSES

- Ecological Principles for Natural Resources Management
- Natural Resources Management Issues in Asia
- Research Design for Natural Resources Management
- Land Resources Management
- Integrated Natural Resources Planning and Policy

### ELECTIVE COURSES

- Biodiversity and Conservation
- Forestry
- Integrated Land Use Management Systems
- Geospatial techniques for Natural Resources Management
- Natural Resources Degradation and Conservation
- Natural Resources Economics Society and Natural Resource land use climate change
- Dynamic modeling of environmental systems
- IFRI Research Methodology
- Natural Resources Economics



## For more information, please contact:

Natural Resources Management

+66 (0)2 524-6387

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DS-HoD@ait.asia, DS-secretary@ait.asia

<http://nrm.ait.asia/>

# Regional and Rural Development Planning

The Regional and Rural Development Planning of SERD focuses on rural poverty, improvement of the quality of life and social and economic development of rural areas. Practice oriented rural-regional planning is carried out regularly at district and sub-district levels following a participatory and integrated approach. Attention is paid to management of development institutions, infrastructure and physical resources. Sectoral and spatial planning is equally emphasized along with the management of rural development programs and local development projects to strengthen rural communities for sustainable development.

Selected areas of concern are: poverty analysis; concepts and processes of rural and regional development; community development planning; agricultural development and planning; public policy; planning and management of rural development programs and projects; regional planning techniques; rural-urban relations; NGO management policy and development administration; sustainable development theories and practices; and decentralization and governance.

## Research Areas:

- Community development, NGOs, human conflicts and adaptation to climate change
- Adaptation, Coping & Community Resiliency and Natural Disaster Management and Participation
- Decentralized Planning (Local Development Planning and Governance)
- Natural Resources Management and Sustainable Agriculture
- Regional and Rural Development Planning Inclusive of Methodology, GIS Applications and Evaluation of Projects
- Rural Urban Relations
- Watershed Management

## What should graduates expect:

Graduates from this program can work in policy making through working for international organizations, aid agencies, national governments, foundations, NGOs and civil society organizations (CSOs). Many RRDP graduates teach in the universities and work as researchers in reputed research organizations and think tanks.



## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in Geography, Economics, Sociology, Anthropology, Public Administration, Agricultural Science, Architecture, Civil Engineering, Rural and Regional Planning, and other related disciplines. Professional experience in rural development related areas would be an added advantage.

### DOCTORAL PROGRAM

Master's degree in one of the above fields and detailed dissertation research outline must be submitted with application

## Regional and Rural Development Planning Courses

### COURSES

- Rural and Regional Development
- Agricultural Development Planning
- Sustainable Development Theories and Practices
- Rural-Urban Relations
- Community Development Planning
- NGO Management Policy and Development Administration
- Decentralization and Governance
- Social Research Methods in Development Planning
- Regional Planning Techniques
- Project Planning and Management
- Research Design and Methods
- Rural-Regional Planning Workshop
- Development Economics
- Geographic Information System (GIS)
- Remote Sensing
- Gender and Development: Principles and Concepts
- Gender, Rural Livelihoods and Sustainable Development
- Gender Analysis and Gender Responsive Development Planning

## For more information, please contact:

Regional and Rural Development Planning

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🌐 [Click here to Regional and Rural Development Planning](#)

# Urban Environmental Management

The magnitude and dynamics of urbanization place an enormous burden on organizations and professionals responsible for the planning and management of urban regions.

Urban Environmental Management (UEM) responds to the need to examine urban growth and environmental problems from the management and planning perspectives to contribute to the development of sustainable, inclusive and resilient cities. The core objectives are understanding dynamics of urban regions and developing effective interventions using various decision support systems and instruments in multi-stakeholder settings.

UEM draws on and integrates theories and perspectives in established disciplines of urban planning, urban and regional development, urban economics, sustainable development and urban policy and management studies into a distinctive framework of problems, issues and questions concerning the urban environment, in a developing country/city context. Themes include urbanization processes, urban indicators and monitoring, spatial analytical techniques, governance of urban regions, modeling and scenario analysis, training in waste management, environmental assessment for water-related policies and developments, etc.

## Research Areas:

- Urban sustainable land use planning and management
- Management of urban infrastructure and services
- Environmental systems analysis and sustainability assessment
- Water supply and sanitation management in urban regions
- Urban solid waste management and recycling
- Adaptation approaches to disaster risks and climate change in urban areas
- Urban development and management information systems
- Eco-sensitive planning and low impact development in urban areas
- Policies and measures in addressing issues such as urban ecological footprint, low carbon cities and societies
- Community-based urban environmental management
- Urban and regional planning matters, including preparation of city and regional plans.

## What should Graduates expect:

### INTERNATIONAL AND REGIONAL NON-GOVERNMENTAL ORGANIZATIONS

- International Water Resources Association
- Association of Environmental Professionals (AEP)
- Conservation International (CI)
- The Nature Conservancy
- The Environmental Investigation Agency (EIA)

### INTER-GOVERNMENTAL AND GOVERNMENTAL ORGANIZATIONS

- The United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)
- United Nations Development Programme (UNDP)
- Asian Development Bank (ADB)
- Department of Public Works and Town Country Planning, Thailand
- Local Government Academy, Philippines
- Department of Urban Development and Housing, Myanmar
- The Swedish International Development Cooperation Agency (SIDA)
- The Canadian International Development Agency (CIDA)

### PRIVATE SECTOR AND CORPORATES:

- Siemens AG
- Sumitomo Group
- The Central Pattana (CPN)
- Team Consulting Co., Ltd., Thailand

### UNIVERSITIES AND RESEARCH INSTITUTES

- Helsinki University of Technology, Finland
- University of Tokyo, Japan
- Yokohama National University, Japan
- Institute of Global Environmental Strategies, Japan



## Preferred Background for:

### MASTER'S PROGRAM

Undergraduate degree in architecture, civil and environmental engineering, economics, geography, law, natural science, public administration, sociology, or urban and regional planning

### DOCTORAL PROGRAM

Master's degree in a field relevant to UEM FoS; preferably with two years of relevant professional experience and detailed dissertation research outline must be submitted with application.



## Urban Environmental Management Courses

### REQUIRED COURSES

- Urban Environmental Management Systems
- Urban Environmental Management Research Methods and Techniques
- Urban Environmental Planning and Management Workshop

### ELECTIVE COURSES

- Urban Planning and the Built-Environment
- Environmental Science and Technology for Decision Makers
- Disaster Management in Urban Environmental Planning
- Management of Urban Housing, Infrastructure and Services
- Strategic Environmental Assessment for Urban Development
- Governance and Urban Management
- Urban Economics and Finance
- Assessment and Implementation of Development Projects
- Mega-City Development and Management

### SELECTED TOPICS

- Systems Analysis and Quantitative Methods
- Public Management for Urban Professionals
- Spatial Analysis for Urban Environmental Management
- Urban Resilience and Risk Management
- Urban Governance and Economics for Holistic Waste Service Delivery

## For more information, please contact:

Urban Environmental Management

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<http://www.uem.ait.asia/>

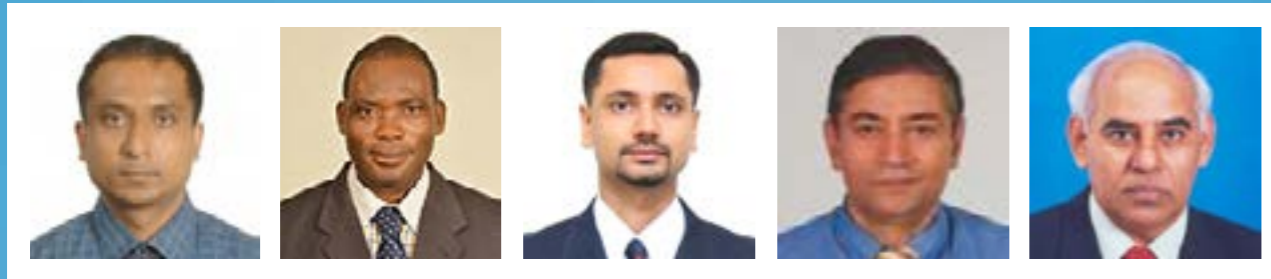
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- ▶ Department of Energy, Environment and Climate Change 63
- ▶ Department of Development and Sustainability 64



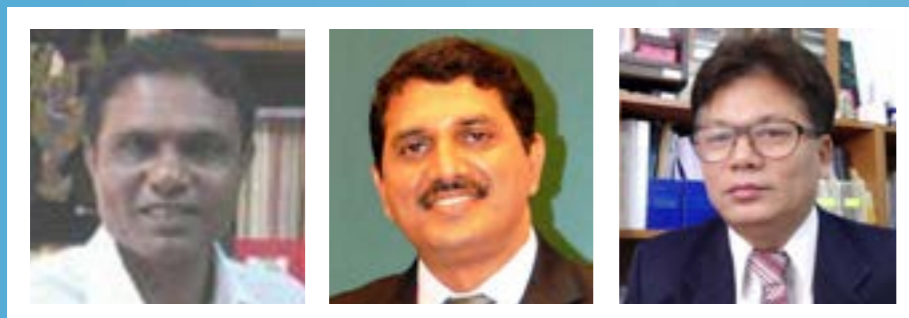
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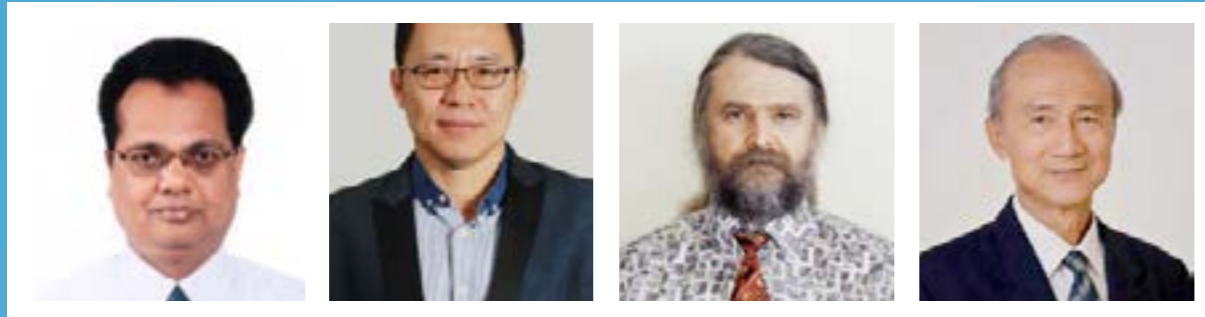
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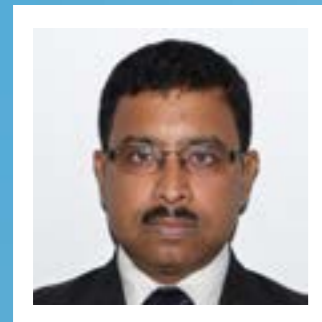
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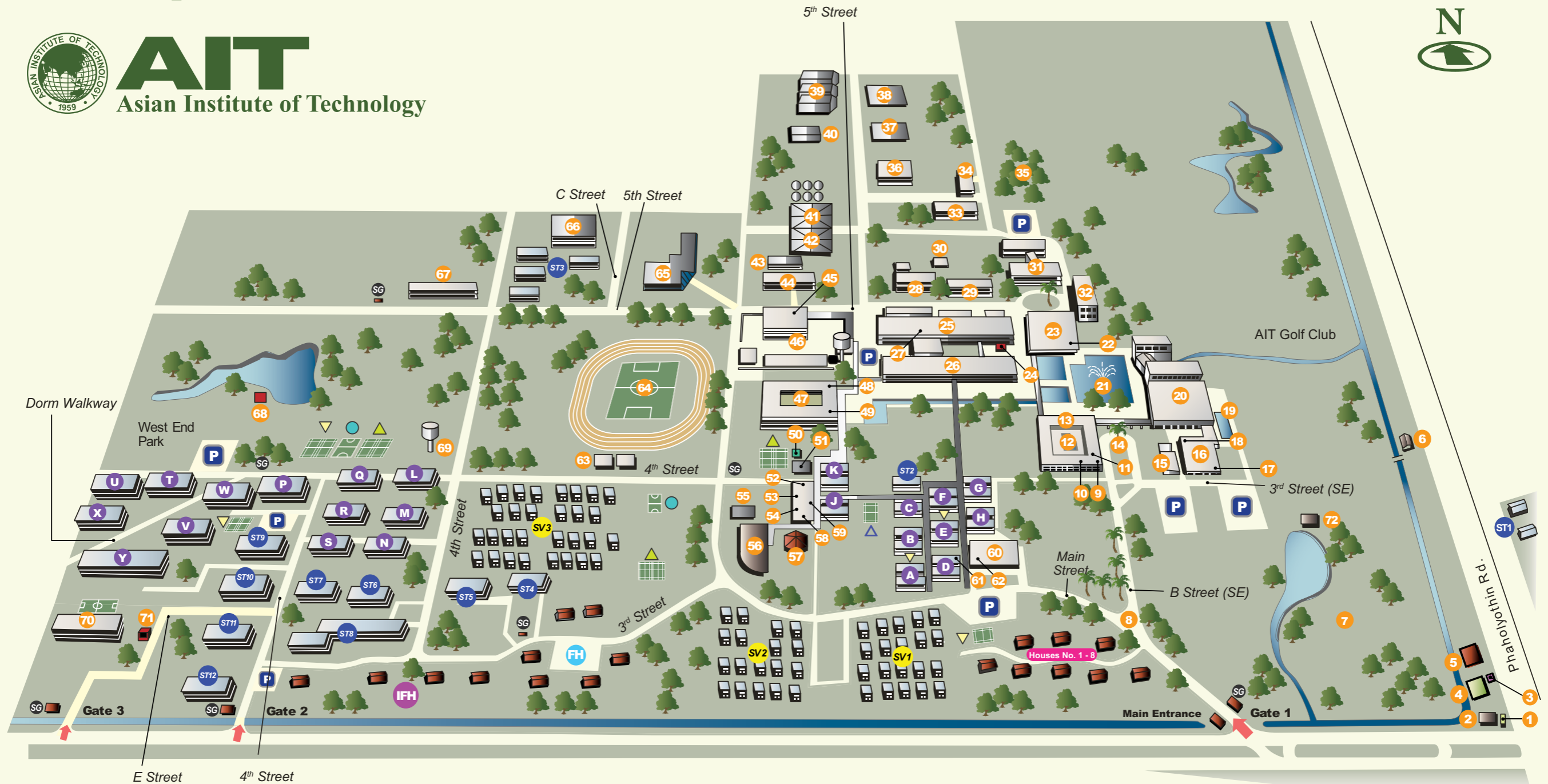
📘 SERD





# AIT

Asian Institute of Technology



**Academic and Research Buildings**

- 25 Academic North Building
  - ▷ School of Engineering and Technology (SET)
- 26 Academic South Building
  - ▷ School of Environment, Resources and Development (SERD)
- 67 School of Management (SOM)
- 44 Agricultural Systems Engineering
- 70 AIT International School
- 43 Aqua Outreach
- 42 Aquaculture Laboratory
- 36 Biotechnology (BT)
- 65 Chalerm Prakiat Building
  - ▷ Industrial Systems Engineering and Management (ISE)
- 29 Computer Science and Information Management (CSIM)
- 30 Distributed Education Center (DEC)

- 40 Entomology Laboratory
- 31 Energy (ET)
- 37 Environmental Research Station
- 41 Food Processing Laboratory
- 34 Geoinformatics Center
- 66 Habitech Park
- 60 Internet Education and Research Laboratory (intERLab)
- 47 Library
- 48 Language Center
- 32 Outreach Building
  - ▷ AIT - UNEP RRC.AP
  - ▷ Center of Excellence in Nanotechnology
  - ▷ RIMES
  - ▷ Télécoms Sans Frontières
- 35 Plant Nursery
- 39 Protected Cultivation Green Houses
- 33 Pulp and Paper Technology (PPT)
- 28 Telecommunications (TC)

**Administration**

- 12 Administration Building
  - ▷ AIT Alumni Association
  - ▷ Alumni Affairs Office
  - ▷ Centre of Excellence on Sustainable Development in the context of Climate Change
  - ▷ External Relations and Communications Office (ERCO)
  - ▷ Fundraising Office
  - ▷ Government Relations Unit (GRU)
  - ▷ President's Office
  - ▷ Registry Office
  - ▷ The Wetlands Alliance
- 17 AIT Consulting
- 23 AIT Extension
  - ▷ Milton E. Bender Jr. Auditorium
  - ▷ Helpdesk

- 20 AIT Conference Center
    - ▷ Asian Regional Center of Excellence in Millennium Development Goals (ARCMDG)
    - ▷ CSR Asia at AIT
    - ▷ UN AIT
    - ▷ Yunus Center in AIT
  - 49 Media and Communications Unit (MCU)
  - 46 Sodexo
  - 59 Student Union Office
- Facilities**
- 3, 55 108 Convenience Store
  - 71 AITCS Kiosk
  - 16 Arcade
  - 51 Bicycle Repair Shop
  - 15 Bookstore

- 56 Cafeteria
  - ▷ SU Cafe'
- 45 Campus Mailing Office
- 50 Copying Service (S.Santi)
- 53 Copying Service (Thai Saguan)
- 58 Fitness Center
- 62 Grocery Shop
- 10 Hom Krun Coffee
- 54 Indy Cafe
- 4 Kasikorn Bank
- 5 Klong Luang Post Office
- 11 Klong Luang Post Office (AIT Branch)
- 2 Knowledge City Police Station
- 57 Korea House
- 61 Laundry Service
- 18 Medical Clinic
- 7 Queen Sirikit Arboretum Garden
- 24 SERD Kiosk
- 27 SET Coffee Shop

- 9 Siam Commercial Bank
  - 38 Solid Waste Landfill Management Unit
  - 64 Sports and Football Field
  - 63 Squash Court
  - 52 SU Snack Bar (Indian Food)
  - 19 Swimming Pool
  - 22 Thai Food Restaurant
  - 72 Vietnamese Restaurant
  - 68 West End Kiosk
- Landmarks**
- 62 AIT Circle
  - 63 AIT Fountain
  - 64 AIT Globe Landmark
  - 1 AIT Signboard
  - 69 Water Tank

- Housing**
- Dorm
  - Staff Houses
  - Houses No. 1 - 8
  - FH : Faculty Houses
  - IFS : International Faculty and Staff Houses
  - SV : Student Villages
- ▽ Badminton Court  
 ● Basketball Court  
 ▲ Tennis Court  
 ▲ Volleyball Court  
 ● SG : Security GuardHouse  
 P Parking Area



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Asian Institute of Technology

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