ANNUAL REPORT ON RESEARCH 2018
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Chapter 1: Introduction

1.1 AIT Mission

The Asian Institute of Technology promotes technological change and sustainable development in the Asian-Pacific region through higher education, research and outreach. Established in Bangkok in 1959, AIT is actively working with public and private sector partners throughout the region and with some of the top universities in the world.

Recognized for its multinational, multi-cultural ethos, the Institute operates as a self-contained international community at its campus located 40 km (25 miles) north of Bangkok, Thailand.

Besides the usual laboratories and academic buildings, the main campus includes housing, sports, and medical facilities, a conference center, and a library with over 100,000 volumes and 2,426 titles of periodicals. All serve to fulfill the AIT mission to develop highly qualified and committed professionals who play leading roles in the region’s sustainable development and its integration into the global economy.

1.2 AIT Vision

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.

With this clear, timeless vision, the multi-skilled team of students, faculty and staff at AIT are set to continuously strengthen the institution by becoming

- A trailblazer in advanced education in the region, with leadership in IT and new types of multidisciplinary programs.
- An exemplary institution, with an emphasis on academic quality in terms of courses and other aspects of the operation.
- A leader in professional development programs.
- A hub for the implementation of regional/transnational research projects, and a research facility for academic professionals. The hub will network with other academic and research institutions in the region and the world.
- A model international citizen.
- A collaborator and partner of national postgraduate institutions.
- A financially viable, self-sustaining institution, able to draw support from donors, the private sector and individuals, with good governance and strong leadership.
- A strong partner to its alumni, who are principal stakeholders through the AIT Alumni Association (AITAA).
Chapter 2: RESEARCH STATISTICS AND TRENDS

Research Performance

The research projects of AIT are expected to contribute to promoting technological change and sustainable development. As of 31 December 2018,

- 334 sponsored and contracted projects with budget of over THB 1.5 billion are ongoing;
- 173 sponsored and contracted projects with budget of almost THB 312 million were initiated; and
- 186 sponsored and contracted projects with budget of more than THB 213 million were successfully completed.

Below are some examples of ongoing projects that highlight AIT’s global, regional and country development experience, and is not an exhaustive list:

1. The Global Technology Needs Assessment (TNA) project is implemented by UN Environment, Division of Economy and executed by the UNEP DTU Partnership, Denmark. The TNA project is funded by the Global Environment Facility (GEF) and is on its third phase, which is expected to be fully completed in 2021. The project is aimed at assisting developing countries in determining their technology priorities regarding mitigation and adaptation to climate change. AIT is the Regional Center for Asia, having been involved with TNA since its inception. Globally, 23 countries participate in this third phase: Asia (Afghanistan, Myanmar); Asia-Pacific (Nauru, Fiji, Vanuatu); Africa-Francophone (Benin, Central African Republic Chad, Djibouti, Guinea, Niger, Haiti); Africa-Anglophone (Eritrea, Liberia, Malawi, Uganda); Africa-Portuguese (Sao Tome and Principe); Caribbean (Antigua and Barbuda, Dominica, Jamaica, Trinidad & Tobago, Suriname); and Eastern Europe (Ukraine).

2. The Fecal Sludge Management (FSM) Toolbox project covers an array of activities with comprehensive outcomes, including field testing evaluation, training of trainers, Toolbox dissemination, and enhancement of existing tools. These outcomes were tested and verified with hands-on training of FSM practitioners, training of tools with utmost outcome, and in-field evaluation and training in various regions and countries, namely: South Africa, Laos, Myanmar, Uganda, Indonesia, Bangladesh, Cameroon, and India. The Toolbox team is committed in constantly evolving and are engaging in providing practitioners with best possible FSM solutions. Working with its partners, the FSM Toolbox have extensively diverted its resources in pushing through the phase of the application process of its tools to bring about optimistic change in the field of FSM.

3. AIT successfully obtained funding from USAID for the project titled “Connecting Climate change, Hydrology, and Fisheries for Energy and Food Security in the Lower Mekong Region.” The project develops and evaluates dam operation scenarios that optimize both hydropower production and total fish catch in the context of proposed and completed hydropower facilities under climate change scenarios within the 3S basin. The project also aims to develop the capacity of young professionals working in relevant government agencies and responsible for dam operations, water resources management, and fisheries in Cambodia, Lao PDR, Vietnam, and Thailand.
4. AIT is a member of the Climate Technology Centre and Network (CTCN) consortium, the operational arm of the UNFCCC Technology Mechanism, hosted and led by the UN Environment Program and the UN Industrial Development Organization. AIT provides technology solutions, capacity building, and advice on policy, legal, and regulatory frameworks tailored to the needs of Nepal, Bhutan, and Timor-Leste. AIT continues to provide expert technical assistance to technological and developmental intervention for countries in the region and beyond as part of this global project.

5. Along with DHI (Singapore) and ERN International (Mexico), AIT helped create the first comprehensive Disaster Risk Database for Uttarakhand Province in India, which was unveiled by the Finance Minister of Uttarakhand Province Mr. Prakash Pant at an event organized in Dehradun on 12 September 2018. The integrated disaster risk database covering earthquakes, landslides, floods, and industrial hazards, was part of a multi-hazard risk assessment effort taken up under the World Bank funded “Uttarakhand Disaster Recovery Project” following the 2013 cloudburst which caused significant loss of life and property.

6. The Thailand Accident Research Center at AIT with funding from its Consortium of Industry partners, namely, Asian Honda Motor Co. Ltd., Honda Motor Co. Ltd., Yamaha Motor Co. Ltd., and Thai Yamaha Motor Co. Ltd. carry out the project titled “Motorcycle Accident Investigation in Thailand.” Data collection were from the Central and Eastern, Northern, North Eastern, and Southern regions of Thailand. The research aims to analyze and provide information to address the incidence of accidents, including identification of contributing factors in motorcycle accident causation and motorcycle accident injuries in Thailand.

7. AIT received two more EU-funded projects under the Erasmus+ Capacity Building of Higher Education program (Computer Science, Information Management, and Energy). Altogether, there are ten (10) ongoing Erasmus+ projects being implemented, reiterating AIT’s leading role in capacity building for the region and beyond.
Chapter 3: SCHOOL OF ENGINEERING AND TECHNOLOGY

1. VISION

The School of Engineering and Technology (SET) aims to become a unique and prestigious multicultural hub of higher learning in engineering and technology, offering state-of-the-art multidisciplinary programs and cutting-edge research in partnership with the industries for sustainable growth of the region. SET focus is on growth and long-term sustainability by enriching academic reputation and internationality.

2. CORE VALUES

Reflecting the uniqueness of AIT, the following core values are advocated by SET:

- Excellence in teaching / learning
- Excellence in research
- Transparency of administration
- Quality assurance
- Unity in Diversity
- Culture of Collaboration

3. Thematic Groups, Fields of Study and Multi-disciplinary Programs

Through a rice and varied curriculum, students have many opportunities for intellectual growth. The School of Engineering and Technology offers degree and non-degree programs in three thematic groups:

CIVIL AND INFRASTRUCTURE ENGINEERING GROUP

Since the founding of AIT, its civil engineering fields have promoted modern methodologies, emerging technologies and innovative materials for the design and construction of safe and economical infrastructure in the region. The Civil and Infrastructure Engineering group includes the following fields of study:

1) Construction, Engineering and Infrastructure Management (CEIM)
2) Geotechnical and Earth Resources Engineering (GTE)
3) Structural Engineering (STE)
4) Transportation Engineering (TRE)
5) Water Engineering and Management (WEM)

INFORMATION AND COMMUNICATIONS GROUP

Information and communications enable access, connections and sharing, in turn enable knowledge creation and economic opportunity. The fields in the Information and Communications group are:

1) Computer Science (CS)
2) Information Management (IM)
3) Remote Sensing and Geographic Information Systems (RS-GIS)
4) Telecommunications (TC)
5) Information and Communications Technologies (ICT)
Undergraduate Programs

1) Civil and Infrastructure Engineering
2) Computer Science/Information Technology
3) Electronics
4) Industrial Engineering
5) Information and Communication Technology
6) Mechatronics
7) Telecommunications

4. Strategic Research Areas

The School of Engineering and Technology has identified broad research areas related to the strengths of its faculty, its curriculum and its existing facilities that are the building blocks for education niches in engineering and advanced technologies.

The following lists the information about the specific focal areas grouped by Fields of Study.

Computer Science and Information Management (CSIM)

Software Engineering and Development; Information and Knowledge Management

Industrial Systems Engineering (ISE)

Design and development of devices and sensors; Automation and control of machines; Product design and integration of machines and processes; Planning, operation, control and logistics of Industrial systems

Remote Sensing and Geographic Information Systems (RS & GIS)

Remote Sensing (RS); Geographic Information System (GIS); Global Navigation Satellite System (GNSS); Geoinformatics Applications in Environment, Agriculture and Disaster Management, Sensor and WebGIS, Advance Mapping - UAV, LIDAR, Kinematic GPS, Monitoring Upper Atmosphere, Health GIS

5. Academic Outreach Centers

The School of Engineering and Technology has a wealth of innovative and untapped knowledge database from its master’s and doctoral research activities. Many outreach and research centers are set up to transform the knowledge into industrial needs. These centers also serve to transfer the practical aspects and the society impacts of the knowledge and technology back to the class room.

Telecommunications, Information and Communications Technologies (TC, ICT)

Mobile Wireless Communications, Network Performance Analysis, Digital Communications

Geotechnical and Earth Resources Engineering (GTE)

Sustainable geological exploitation for engineering activities; Design of safe structures; Disaster mitigation and rehabilitation

Structural Engineering

Computational Mechanics, Earthquake Resistant Design, Experimentation Methods, Advanced Structural Materials

Transportation Engineering (TRE)

Transportation Planning, Traffic Engineering, Highway and Pavement Engineering, Road Safety and Accident Analysis and Transportation Logistics

Water Engineering and Management (WEM)

Water resources management; Climate change impact and adaptation in water sector; Water related disaster management

ACSIG: Asian Center for Soil Improvement and Geosynthetic

ACSIG provides a strategic location for advanced technological education, researches and outreach activities on the application and effective utilization of ground improvement techniques. Visit ACSIG: http://www.set.ait.asia/acsig/

ACTS: Asian Center for Transportation Studies

ACTS activities include modules on intelligent transportation systems, traffic simulation, freight transport, urban road safety and road safety audit. Visit ACTS: http://www.set.ait.asia/acts/

Geoinformatics Center

Geo Informatics Center is dedicated to development and promotion of remote sensing research and activities in Asia-Pacific by sharing satellite data, research results and experiences with researchers in the region. Visit Geoinformatics Center http://www.geoinfo.ait.asia/

Habitech Center

Habitech activities include research and outreach activities such as training in production and construction, provision of services associated with projects implemented by various organizations, agencies or the private sector. Visit Habitech: http://www.habitech-international.com/home.html


Regional Network Office for Urban Safety

The Regional Network Office for Urban Safety (RNUS) is a collaborative center jointly operated by the AIT and the University of Tokyo for the promotion of
urban safety engineering utilizing advanced engineering technologies including remote sensing and GIS. Visit RNUS: http://www.set.ai.t.asia/rnus/

Thailand Accident Research Center

The Thailand Accident Research Center is an offspring of MOTC’s Road Safety Master Plan acknowledging the lack of information on accidents in Thailand and the need to establish TARC. TARC provides academic back up and a base for road safety research. Visit TARC: http://www.tarc.ai.t.asia, http://www.tarc.or.th/

AIT Center of Excellence in Nanotechnology

The Center of Excellence in Nanotechnology is jointly supported by Thailand’s Nanotechnology Center (NANOTEC) and AIT, to cultivate and foster multidisciplinary activities including research and education in the applications of Nanotechnology in Developing World. Visit CoEN: http://www.nano.ai.t.asia

6. Governance

Dean

VORATAS KACHITVICHYANUKUL, BS, Natl Taiwan Univ; MEng, AIT, Thailand; PhD, Purdue Univ, Indiana, USA.

Professor [Simulation; ERP; Scheduling, Metaheuristics; Parallel Computing] [Planning and Scheduling Systems; Enterprise Resource Planning Systems; Supply Chain Modeling and Analysis; Discrete Event Simulation Software Development; Manufacturing System Simulation; Manufacturing Decision Support Systems; Just-in-Time Manufacturing System]

Associate Dean

SANGAM SHRESTHA, MSc., Institute of Agriculture and Animal Science, Tribhuvan University, Nepal; MSc., Asian Institute of Technology, Thailand; PhD., University of Yamanashi, Japan.

Associate Professor [Climate change and adaptation, Integrated water resources management, Hydrology and water quality modeling, Groundwater development and management, Sustainable water management policy]
3.1 : SET – CIVIL AND INFRASTRUCTURE ENGINEERING GROUP

Since the founding of AIT, its civil engineering fields have promoted modern methodologies, emerging technologies and innovative materials for the design and construction of safe and economical infrastructure in the region. The Civil and Infrastructure Engineering group includes the following fields of study:

1) Construction, Engineering and Infrastructure Management (CEIM)
2) Geotechnical and Earth Resources Engineering (GTE)
3) Structural Engineering (STE)
4) Transportation Engineering (TRE)
5) Water Engineering and Management (WEM)
6) Offshore Technology and Management (OTM)
7) Disaster Preparedness, Mitigation and Management (DPMM)
8) Gender, Transportation and Development

3.1.1 : SET – CONSTRUCTION ENGINEERING AND INFRASTRUCTURE MANAGEMENT FIELD OF STUDY

1. Introduction

The Construction, Engineering and Infrastructure Management (CEIM) field of study prepares students to become effective managers and decision-makers familiar with the modern techniques of construction management, engineering management and infrastructure management. It trains professionals to play leading roles in the international construction industry. It molds students to become active leaders in infrastructure development and management.

Areas of Specialization

Students may choose to either specialize in Construction Engineering and Management (CEM) or Infrastructure Management (IM).

Construction Engineering and Management covers advanced project management approaches to finance, plan, design, construct, monitor and control construction projects. This master’s degree program emphasizes in-depth construction project management approaches such as project organization management, construction planning and control, project procurement, contract management, productivity analysis and improvement, quality and safety improvement, IT in project management, sustainable construction, project financing, Public Private Partnership (PPP) project management, international construction joint venture and construction business strategy.

Infrastructure Management focuses on the processes necessary for the planning and development of new infrastructure, and on maintaining and operating mature infrastructure for sustainability. A wide variety of management topics are covered, such as infrastructure planning, infrastructure economics, infrastructure management systems, optimal maintenance management, reliability of infrastructure systems, asset valuation and utilization, and infrastructure planning under risk and uncertainty.

Research Center

CEIM hosts the EU-ASIA Network of Competence Enhancement on Public Private Partnership (PPP) in Infrastructure Development.

Computer Simulation Lab

- AROUSAL (Construction Project Management Simulator)
- STELLA (System Dynamics Simulation Software)
- Project Scheduling and Resources Management Software
- Contract and Cost Management Software
- @RISK Decision Tool (Risk Analysis)
- Virtual Reality
2. Faculty and Research Staff

CHOTCHAI CHAROENNGAM, BEng, King Mongkut’s Inst of Tech, Thonburi, Thailand; MS, Univ of Kansas; PhD, Univ of Texas at Austin, USA

Associate Professor (Project Planning, Scheduling, and Controls; Construction Productivity Improvement; Public Private Partnership Project; Project Financing)

HADIKUSUMO, BONAVENTURA H. W., BEng, Univ of Diponegoro, Indonesia; MEng, AIT; PhD, Univ of Hong Kong.

Associate Professor (Construction Information Technology; Construction Project Management; Construction Site Safety; Virtual Reality application in construction; Web-based project design and management; System Dynamic Simulation in Construction; Construction site safety)

DJOEN SAN SANTOSO, BEng., Parahyangan Catholic University, Indonesia; M.Eng, AIT; PhD, Saitama University, Japan

Associate Professor (Infrastructure management in developing countries, construction project management, public transportation, non-motorized transportation, risk management)

Visiting/Adjunct/Affiliated Faculty

Amoussou-Guenou, Roland Ph.D., University of Paris II – Pantheon Assas

Brockmann, Christian Dipl.-Volksw., Dipl.-Kfm. (FernUni Hagen) DEA (ENSM Nantes) Dipl.-Ing. (TU Braunschweig)

Charoenpornpattana, Santi Ph.D., University of Tokyo, Japan M. Eng. Civil Eng. Asian Institute of Technology

Clayton, Terry M.S., Rutgers University

Johan, Johny M. Eng. Asian Institute of Technology M.M., International Management, Presetya, Mulya

Kunatippapong, Burin M.M., Mahidol University M.Eng. Queensland University of Technology, Australia

Nopayak, Watcharinpan Ph.D., Bangkok University and Ohio University (Joint Degree) M.B.A., Asian Institute of Technology

Ogunlana, Stephen O. Ph.D., Loughborough University of Technology M.Sc., University of IFE

Sirirangsi, Poovadol D.Eng., Asian Institute of Technology M.B.A., University of Central Oklahoma

Syposmos, Michael G. B.S. University of South Alabama

3. Grants and Sponsored Research Completed in 2018

Professional Masters in Project Management in Mandalay Myanmar, Aug 2017
Duration: 1- Aug 2017 to 31-Dec-18
Project Investigators: Dr. BHW Hadikusumo
Sponsor: The Myanmar Engineering Society (MES)
Total Contracted Amount (THB):

Professional Masters in Project Management in Yangon Myanmar, October 2017
Duration: 1- Oct 2017 to 31-Dec-18
Project Investigators: Dr. BHW Hadikusumo
Sponsor: Ministry of Construction, Myanmar
Total Contracted Amount (THB):

4. On-going Grants and Sponsored Research

Professional Master Project Management in Mandalay Myanmar, September 2018
Duration: 01-Aug-18 to 31-May-20
Project Investigators: Dr. BHW Hadikusumo
Total Contracted Amount (THB): 2,12,925.00

Professional Master Project Management in Yangon, Myanmar, September 2018
Duration: 01-Sep-18 to 31-May-20
Project Investigators: Dr Djoen S Santosoo
Total Contracted Amount (THB): 1,70,340.00

5. Publications

Papers in Refereed Journal


Huong Thanh Nguyen, Bonaventura H.W. Hadikusumo Human resource related factors and engineering, procurement, and construction (EPC) project success, Journal of Financial Operation and Maintenance of Two Irrigation Barrages in the State of Andhra Pradesh, India

6. Doctoral Students’ Dissertation

Culture and Performance in Vietnam’s Oil and Gas EPC Project
By: Mr. Tran Van Ban
Supervisor: Dr. Bonaventura H.W. Hadikusumo

7. Masters Students’ Theses and Projects

Multi-Level Construction Site Management Problems in Sri Lanka
By: Mr. Pasindu Madara Pathirana
Supervisor: Dr. Bonaventura H.W. Hadikusumo

PPP Model for Urban Infrastructure in Ho Chi Minh City: The Case Study of Investing in Two Additional Reinforced Concrete Overpass Bridges and a Concrete Separator on National Road 1A
By: Ms. Dinh Thi Nhu Hoa
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Cost Efficiency Strategies in Low-Cost Housing Projects
By: Mr. Tran Huynh Vinh Bao
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Contract Management in EPC Contract Power Plant Project: A Case Study of Long Phu 1 Thermal Power Project (1,200MW), Vietnam
By: Mr. Pham Cong Hieu
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Administration and Adaptation of FIDIC’s Red Book in ODA Project: A Case Study of Improvement of Mandalay Water Supply System
By: Ms. El Ei Phyo
Supervisor: Dr. Djoen San Santoso

Human Skills as a Moderating Factor in Project Management Affecting Project Success
By: Mr. Okkar Min
Supervisor: Dr. Bonaventura H.W. Hadikusumo

BIM for Construction Safety Management Visualization
By: Mr. Sajith Methpriya Wettewa
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Critical Contractor’s Stakeholder Management Factors Affecting Project Performance of Construction Projects in Myanmar
By: Mr. Win Lwin Aung
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Entrepreneurial Competencies for SME Business Owners of Construction Companies: A Case Study of an Emerging Economy
By: Mr. Uzair Arif
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Progress Related Measurements and their Impact on Construction Site Management: A Case Study of Large Projects in Nepal
By: Mr. Rajesh Maharjan
Supervisor: Dr. Chotchai Charoenngam

Traditional Project Delivery System Selection and its Impact on Project Management Practices in Real Estate Development Companies in Myanmar
By: Ms. Akary Tun Thein
Supervisor: Dr. Chotchai Charoenngam

Management Process of Critical Risks in Concrete Bridge Construction Projects in Myanmar
By: Ms. Hsu Yadana Htat
Supervisor: Dr. Chotchai Charoenngam
Annual Report on Research 2018

Success Practice of Residential Development Projects for Small Entrepreneurs in Thailand
By: Mr. Siwarat Phakwiwat
Supervisor: Dr. Chotchai Charoenngam

Critical Factors to Achieve Successful Contract Administration Practice in the Myanmar Construction Industry
By: Ms. Thet Htar Zaw
Supervisor: Dr. Chotchai Charoenngam

Development of Organizational Capabilities Through Construction Business Process: Business Advantages for Medium-sized Construction Companies in Myanmar
By: Mr. Thaw Zin Han
Supervisor: Dr. Chotchai Charoenngam

Contract Administration Activities Enhancing Trust and Cooperation between Owner and Contractor in Construction Projects in Myanmar
By: Ms. Thet Swe Zin Than
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Business Practices of Landscaping Companies in Myanmar and their Impact on Landscaping Business
By: Ms. Tin Ei Ei Kyaw
Supervisor: Dr. Chotchai Charoenngam

Existing Practice of Logistics Management and Its Impact on Construction Project Operation: A Case Study of Building Construction Projects in Myanmar
By: Ms. Khin Su Su Wint
Supervisor: Dr. Chotchai Charoenngam

Effective Organizational Management for Small and Medium Construction Companies in Myanmar
By: Ms. May Khine Oo
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Mediating Variables Relating with the Social Intelligence of Project Manager and Stakeholder Management Performance in Construction Projects
By: Ms. Aye Nyein Khaing

Risk Management in Core Operational Processes for Medium Construction Companies: A Case Study in Myanmar
By: Ms. Nang Kham Thein Win
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Financial Management for Business Success of Medium Contractors: A Case Study of Medium Contractors in Sri Lanka
By: Mr. Polwatta Galle Madusha Piumal Gallage
Supervisor: Dr. Chotchai Charoenngam

Financial Management for Financial Stability of Large Contractors: A Case Study of Large Contractors in Sri Lanka
By: Mr. Bagya Chathuska Sooriyaarachchi
Supervisor: Dr. Chotchai Charoenngam

Potential Conflicts in International Construction Joint Venture Projects in Myanmar
By: Ms. May Thu Khant
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Business Process Model of Effective Contract Management in Maldivian Building Projects
By: Mr. Mohamed Haikal Jameel
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Change Order Management in EPC Contracts: A Case Study of Nghi Son Refinery and Petrochemical Complex Project
By: Mr. Vu Tri Dung
Supervisor: Dr. Bonaventura H.W. Hadikusumo

By: Mr. Nguyen Hoang Lam
Supervisor: Dr. Bonaventura H.W. Hadikusumo

An Analysis of Defects, Causation and Management in Building Construction Projects in Vietnam
By: Mr. Bui Anh Tuan
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Effectiveness of Contract Conditions in Design and Build Bridge Projects: A Case Study of the Saigon 2 Bridge Project
By: Mr. Ngo Dinh Thanh
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner’s Quality Management System in the EPC Project: A Case Study of the Electrical Work Packages of Duyen Hai 3 Thermal Power Plant
By: Mr. Tran Duc Huu
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Adoption of Performance Management System Indicator for Project Management Team of Owner: A Case Study of Lexington Project
By: Mr. Pham Thai Hoc
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Legal and Institution Framework for Promotion of PPP Projects in Vietnam
By: Mr. Nguyen Duc Thang
Supervisor: Dr. Chotchai Charoenngam

Audit Practices for Construction Project: A Case Study of Cost Audit for Combined Cycle Power Plant Project Nhon Trach 1, in Dong Nai Vietnam,
Gross Capacity 450 MW, Total Investment 6.5 Thousands of Billions VND
By: Mr. Le Hai Long
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Contractor Contract Management for High-Rise Building Project: A Case Study of Saigon South Office Project - Vietnam
By: Mr. Duong Ton Quoc Truong
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Cost Variation in a Design-Build Project: A Case Study of Nguyen Hue Pedestrian Street in Ho Chi Minh City
By: Ms. Nguyen Thi Vi Thao
Supervisor: Dr. Chotchai Charoenngam

Examining the Practice of Contractor Scheduling Management in Highway Construction Projects
By: Mr. Aung Zaw Myint
Supervisor: Dr. Djoen San Santoso

Management of Equipment Acquisition, Utilization, Operation and Maintenance of Highway Department, Ministry of Construction in Myanmar
By: Mr. Nay Min Htaik
Supervisor: Dr. Djoen San Santoso

Roles and Responsibilities of Consultant in the Planning Stage (Feasibility Study and Technical Design) of the Power Transmission Line Project: A Case Study of 500KV Vinh Tan-Song May Transmission Line
By: Mr. Tran Vinh Phong
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Government Involvement in Project Delivery of Social Housing in Vietnam: A Case Study of "First Home Apartment" Social Housing Project in Angiang Province
By: Ms. Duong Thai Phuong
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner's Contract Administration and Management for Hydropower Project: A Case Study of Balучаung No (3) Hydropower Project
By: Ms. Zin Mar Nwe
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner's Quality Management in an ADB Project: A Case Study of Maubin-Pyapon Rehabilitation Project
By: Mr. Kyaw Min Htoo
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Financial Performance Analysis: A Case Study of Gia Nguyen Construction Company
By: Ms. Ma Hoang Phi
Supervisor: Dr. Chotchai Charoenngam

Financial Performance Analysis: A Case Study of Seareficojonit Stock Company
By: Mr. Tran Minh Tuan
Supervisor: Dr. Chotchai Charoenngam

Development Problem of PPP Infrastructure Projects: A Case Study of the Binh Tien Bridge and Road Projects by Build-Transfer Model
By: Mr. Nguyen Duc Thanh
Supervisor: Dr. Chotchai Charoenngam

Examination of Railway Service Quality Using SERVQUAL and Importance Performance Analysis: Case Studies of Vijayawada and Secunderabad Stations in India
By: Ms. Marni Devi Sai Spandana
Supervisor: Dr. Djoen San Santoso

Developing a Model of Safety Governance for Construction Companies in India
By: Mr. Rakurthi Vinay
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Safety System, Law and Regulations Affecting the Indian Construction Sector
By: Mr. Duddukuru Sri Datta
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Business Process Model of Design Management in Building Projects
By: Ms. Nurukurthi Yamini Satya Sri Lalitha
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Developing a Safety Leadership Skills Model in Construction Projects in India
By: Mr. Pyapali Sai Venkatesh
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Factors Affecting Usage of Precast Systems in Housing Construction in India
By: Mr. Manideep Anchoori
Supervisor: Dr. Djoen San Santoso

Assessing Risk Management Capability of Building Contractors in India
By: Mr. Chandra Bhanu Prakash
Supervisor: Dr. Djoen San Santoso

Major Construction Process Risks in Elevated Rail Projects: A Case Study of Elevated Metro Rail Projects in Indian
By: Mr. Chalak Mohan Siddharth
Supervisor: Dr. Djoen San Santoso

Development of Contract Risk Assessment Tool for Medium-sized Building Contractors in India
By: Mr. Yagnam Kamaltej
Supervisor: Dr. Bonaventura H.W. Hadikusumo

On-Site Factors Affecting Construction Productivity in India
By: Mr. Syed Asharuddin
Supervisor: Dr. Chotchai Charoenngam

Factors Affecting Decision to Bid and Mark-up Decision of Small and Medium Size Contractors in Indian Public Constructions Projects
By: Mr. Vegiraju Venkata Satyanarayana Raju
Supervisor: Dr. Djoen San Santoso

Annual Report on Research 2018

By: Mr. Pye Phyo Maw
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner’s Quality Management of Mixed Asphalt Concrete Road Project - a case study in Mandalay
By: Ms. Khin Aye Thwe
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Strategic Management and Implementation of a Water and Sanitation Project in Mandalay, Myanmar
By: Mr. Tun Win
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Monitoring and Control for Bridge Construction Projects: A Case Study of Doke Hta Wa Di Bridge Project
By: Ms. Tin Moe Khaing
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner’s Project Management Monitoring and Control for Building Construction Projects
By: Ms. Nwe Nwe Htun
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Crisis Management in Delayed Mya Yi Nandar Affordable Housing Projects in Mandalay
By: Ms. Lai Lai Khaing
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Safety Risk Management in Long Span Bridges: A Case Study of Htee-Chaint Bridge Project
By: Ms. Khin Myat Thu Win
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Schedule Plan and Control for a Long Span Bridge Project: A Case Study of the Homalin Bridge
By: Mr. Aung Thi Ha
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Quality Assurance System of Public Sector Building Projects in Myanmar
By: Mr. Kyaw Min Aye
Supervisor: Dr. Djoen San Santoso

Owner’s Contract Management in EPC Projects: A Case Study of Duyen Hai Sea Port Project
By: Mr. Nguyen Van Duy
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Tendering Strategy to Attract and Select a Qualified Contractor for a Cement Factory Project: A Case Study of BF Cement Plant Project
By: Mr. Nguyen Duc The
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Financial Modeling Strategy for a High-Rise Mixed-Use Building Project
By: Ms. Vu Huyen Nga
Supervisor: Dr. Chotchai Charoenngam

Building and Infrastructure Constructor’s Quality Management: A Case Study of TBD Construction Company in Vietnam
By: Mr. Nguyen Quy Liem
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Monitoring and Control for Road Construction Project by Owner: A Case Study of Kyaukse By-Pass Road, Myanmar
By: Ms. Khin Sandar Myo
Supervisor: Dr. Djoen San Santoso

Owner’s Contract Management in ODA-Funded Road Project
By: Ms. Nang Su Mon Win
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Contractual Conditions and Major Delays in a Thermal Power Plant Construction Project: A Case Study of Vietnam
By: Ms. Nguyen Thi Huyen Trang
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Delay of the Project, Causations and Solutions: A Case Study of the Integrated Financial and Material Management System of Vietnam Electricity
By: Ms. Ly Thi Minh Lien
Supervisor: Dr. Bonaventura H.W. Hadikusumo

By: Mr. Le Nam Thang
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Implementation Strategy for ODA-Funded Water Supply Projects in Meiktila City, Mandalay Region, Myanmar
By: Mr. Soe Aung
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Tendering Process in Construction: A Case Study in a Hydropower Project in Vietnam
By: Mr. Duong Van Minh
Supervisor: Dr. Chotchai Charoenngam

Delay in Typical Road Development Projects
By: Mr. Zan Hein Swe
Supervisor: Dr. Chotchai Charoenngam

Safety Management of Long Span Truss Bridge Construction: A Case Study of Bogyoke Aung San Bridge (Bilugyun)
By: Mr. Hla Moe Aung
Supervisor: Dr. Djoen San Santoso

Project Management Unit’s Quality Management of ODA-Funded Road Projects: A Case Study of Maupin Phyarpon Road Rehabilitation Project
By: Mr. Hla Moe Aung
Supervisor: Dr. Djoen San Santoso

Project Management for Building Construction Projects: A Case Study of Mandalar Thiri Football Stadium
Construction Project in Mandalay, Myanmar  
By: Ms. Nwe Ni Win  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

By: Mr. Aung Myo Kywe  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Cost Management in Project Phases of Building Construction Under MOC: A Case Study of Aye Yar Wun Housing Project  
By: Ms. Cho Su Yee  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Improvement of ODA Bridge Project Management Activities: A Case Study of Gyaing (Kawkareik) Bridge Construction  
By: Mr. Kyaw Swar Tun  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Condition Based Maintenance Plan for Road in Myanmar: A Case Study of Taungoo-Leiktho-Rado-Loikaw Road Project (18/2-69/0) =5/-6-mile Kayin State Portion  
By: Ms. Saw Sandar Thein  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Delay Analysis of Small Public Building Projects  
By: Mr. Ye Htut  
Supervisor: Dr. Chotchai Charoenngam

Contract Administration for Contractor’s Payment in Building Projects in Myanmar: A Case Study of Inya Lake Residence Project  
By: Ms. Su Su Hlaing  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Development of an Affordable Housing Program by the Department of Urban and Housing Development (DUHD): A Case Study of Yusana

Garden City Low Cost Housing in Dagon New Town  
By: Mr. Win Naing  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Evaluating Risks of Contract Conditions Affecting Main Contractors: A Case Study of the Asia Royal Hospital Extension Project  
By: Ms. Tin May Aye  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Management of Scope Change in Road Construction Projects: A Case Study of Pyapon-Bogale Road Pilot Project  
By: Mr. Htin Kyaw  
Supervisor: Dr. Chotchai Charoenngam

Safety Management of Highway Construction  
By: Mr. Than Myaing Htoo  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Financial Sensitivity Analysis of the BOT Highway Construction Project: A Case Study of Yangon-Mandalay Highway Road  
By: Ms. Mon Mon Aung  
Supervisor: Dr. Chotchai Charoenngam

Evaluation of Contractual Risks of Contractor’s in Railway Projects  
By: Mr. Aye Maung Maung  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Risk Management for Affordable Housing: A Case Study of the Kyansitmin Affordable Housing Project  
By: Ms. Khin Thi Thi  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Resettlement Action Plan and Strategy for an Infrastructure Project: A Case Study of Thilawa Port Terminal Construction Project in Yangon, Myanmar  
By: Mr. Soe Thein  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Management for Schedule, Cost and Quality Management: A Case Study of “Eindu to Kawkareik Road Improvement Project”  
By: Mr. Thaung Han Soe  
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Comparison of Primavira P6 and the Traditional Planning, Monitoring and Controlling System for a Building Project: A Case Study of the Kyan Sit Min Housing Project  
By: Ms. Thi Thi Khaing  
Supervisor: Dr. Chotchai Charoenngam

Project Organization Management for Road Construction Projects  
By: Mr. Kyaw Wai (A) Htay Win  
Supervisor: Dr. Chotchai Charoenngam
1. Introduction

The Geotechnical and Earth Resources Engineering (GTE) field of study educates students not only in the traditional areas of geotechnical engineering, such as foundation engineering, earth structures, underground excavation and slope engineering, but also in new dynamic areas such as tunneling, ground improvement, geosynthetic engineering, land reclamation, computational techniques, forensic engineering and offshore exploration. GTE students are also trained to solve increasingly challenging environmental problems involving engineering for provision of efficient waste disposal facilities, clean-up of contaminated sites as well as prevention and mitigation of geohazards such as landslides and erosion problems.

Specialization Areas in Geotechnical Engineering:
- Soil Engineering
- Rock Engineering Geology and Applied Geology
- Geoenvironmental Engineering

Interdisciplinary Area of Specialization in:
- Geo-Exploration and Petroleum Engineering (GEPG)

Professional Master Engineering Programs:
- PME in Geotechnical Engineering and Management (PME-GEM)
- PME in Geoexploration and Petroleum Engineering (PME-GEPG)
- PME in Soil Improvement and Geosynthetics Engineering & Management (PME-SIGMA)

Laboratory Facilities

GTE’s laboratories are among the best equipped and most active geotechnique laboratories in the Asia-Pacific region. They include the Soil Mechanics Laboratory, the Rock Mechanics Laboratory, the Engineering Geology Laboratory, the Geo-synthetic Material Laboratory, the Geophysics Laboratory and the Geoenvironmental Laboratory. GTE laboratories support teaching and research activities and also provide commercial testing services for many large national and international infrastructure development projects.

Research Centers

GTE hosts the Asian Center for Soil Improvement and Geosynthetics (ACSIG) to promote training and professional activities in these emerging areas. ACSIG is also the Secretariat of the International Geosynthetic Society-Thai Chapter. GTE is also the home of the Southeast Asian Geotechnical Society (SEAGS) which was established 30 years ago at AIT as the catalyst for promotion of professional activities and cooperation among geotechnical engineers in the region. SEAGS publishes the well-established Geotechnical Engineering Journal.

2. Research Facilities and Laboratories

The Geotechnical Laboratory can be boasted as one of the most equipped geotechnical laboratories in the region with more than 30 years of experience in both soil and rock testing. The laboratory, which offer technical services on testing and research on the engineering behavior and properties of soil and rock; geologic mapping; environmental geophysical surveys; and testing of geosynthetic materials conducted by ACSIG, consists of six (6) sections, i.e., Soil Mechanics, Rock
Mechanics, Engineering Geology, Geoeexploration & Petroleum Geoengineering (GEPG), Geophysics, and Geoenvironmental Engineering.

Soil Mechanics Laboratory

The Soil Mechanics Laboratory has facilities for testing and research on the engineering behavior and fundamental properties of soil. It is equipped to test compaction, seepage, compressibility, deformation and shear strength, soil dynamics, and ground improvement.

Among other equipment, it has an automatic Central Data Acquisition System (CDAS) and two temperature-controlled rooms that house triaxial and consolidation equipment. Its field operation unit has a full range of tools for sampling soils and rocks and field test equipment for vane tests, Dutch cone tests, piezocone tests, pressure-meter tests, screw plate tests, electric logging, and vibration measurements.

Rock Mechanics Laboratory

The Rock Mechanics Laboratory has facilities to determine a variety of the physical and mechanical properties of rocks and rock aggregates required for research and practice.

Moreover, the laboratory is capable of determining hardness, swelling and slake durability index properties of weak rocks. The laboratory has provided testing services to a large number of infrastructure projects in the region.

Engineering Geology Laboratory

The Engineering Geology Laboratory has facilities for research on the engineering behavior and fundamental properties of rocks and minerals.

It provides classification and characterization tests for rock and minerals including petrographic and X-ray diffraction studies. It has stereoscopes, radial line planimetric plotter, stereo-sketch and sketch masters for analysis and interpretation of air photos as applied to mineral explorations, transportation route studies, forestry, and civil engineering.

Geophysics Laboratory

The Geophysics Laboratory is being developed for training and researches in Geosystem Exploration and Petroleum Geoengineering. It has a number of seismic, electric, magnetic and radiometric instruments, including some of the most advanced equipment such as G-856AX PROTON MAGNETOMETER, GRADIOMETER, GEODE SEISMIC SYSTEM and SYSCAL R1 Plus (IRIS Instruments), an all-in-one multi-electrode resistivity and induced polarization (IP) imaging system.

The Laboratory is capable of conducting and assisting in geophysical field surveys for engineering, environmental applications, mineral and groundwater resources, as well as in performing analysis, interpretation and visualization of geophysical data acquired.

Geoeexploration and Petroleum Geoengineering Laboratory

This new laboratory unit hosts high-capacity computers installed with very specialized software used in the upstream sector of petroleum E&P industry, notably with the well-known software for subsurface exploration, petrophysical characterization and reservoir simulation such as Petrel, Techlog, Eclipse, Pipesim, PetroMOD etc. which are worth of more than 2 million USD as donated by Schlumberger to AIT.

Geoenvironmental Laboratory

The Geoenvironmental Laboratory provides a variety of equipment for geoenvironmental engineering research. It has equipment for geotechnical and chemical analysis that supports research in fundamental processes related to soil, water and chemical interactions that are applied to site and risk assessment, waste containment systems, and remedial technology. The chemical analysis equipment, spectrophotometer, from which the ion concentration can be determined with good accuracy and precision, enables research on soil-contaminant interaction.

Flexible wall permeameter, rigid wall permeameter and consolidation cell with permeameter are used to analyze water and chemical migration through waste containment systems. While the electrokinetic cell with advanced monitoring and controlled system is utilized for research in site reclamation and site remediation.

3. Faculty and Research Staff

Emeritus Professor

A S BALASUBRAMANIAM, BSc, Ceylon Univ, Sri Lanka; PhD, Cambridge Univ, UK

Full-time Faculty

NOPPADOL PHIEN-WEJ, BEng, Chulalongkorn Univ, Thailand; MS, PhD, Illinois at Urbana-Champaign, USA.

Associate Professor (Tunnelling and underground excavations in rocks and soils; Slope stability and retaining structures; Landslides; Earth structures and dams; Pile foundations; Buried pipes and culverts)

PHAM HUY GIAO, DEng, MEng, Asian Institute of Technology, Thailand; Dipl Ing (MSc), Bucharest University, Romania

Associate Professor (Exploration and Engineering Geophysics; Petrophysics; Geotechnical Engineering; Computer-aided Analysis in Geoengineering)

KUO-CHIEH CHAO, BSc, National Chung-Hsing University, Taiwan; MS, Colorado State University, USA; Ph.D. Colorado State University, USA


Papers in Conference Proceedings

D T Bergado, P V Long, S Chaiyaput and A S Balasubramaniam, On prefabricated vertical drain (PVD) and deep cement mixing (DCM) / stiffened DCM (SDCM) techniques for soft ground improvement. 2nd International Conference on Sustainable Development in Civil, Urban and Transportation Engineering (CUTE 2018). 17–19 April 2018, Ho Chi Minh City, Vietnam. (Published under license by IOP Publishing Ltd).


6. Doctoral Students’ Theses

The Effect of Soft Soil Layers on the Local Dynamic Response of Floating Piles under Harmonic Lateral Loading

By: Mr. Kullachai Tantayopin
Supervisor: Dr. Punchet Thammarak & Dr. Noppadol Phien-wej

Landslides and Debris Flows at Khao Phanom Benja in Krabi, Southern Thailand

By: Mr. Arsit Iyarak
Supervisor: Prof. Noppadol Phien-wej & Dr. Pham Huy Giao

7. Masters Students’ Theses

Effect of Negative Skin Friction on the Bearing Capacity of PHC Pile in Dinh VU Project

By: Mr. Pham Huu Hai
Supervisor: Dr. Pham Huy Giao

Human Resources Training and Development at Fecon with a Focus on Geotechnical Engineering and Management

By: Ms. Pham Thi Thuy
Supervisor: Dr. Pham Huy Giao

Investigating AIT’s Flood Dyke by Electric Imaging Method

By: Mr. Thet Oo Maung
Supervisor: Dr. Pham Huy Giao

Relationship between Swelling Pressures Determined by a Consolidation-Swell Test and a Constant-Volume Test

By: Mr. Zin Moe Htut
Supervisor: Dr. Kuo-Chieh Chao
Evaluation of Hydrocarbon Potential of Assam Basin, India
By: Ms. Swagata Baruah
Supervisor: Dr. Pham Huy Giao

Evaluation of a Pile Design Method Using the Results of Static Load Tests for a Double-Track Railway Project (Chira Junction to Khon Kaen Station)
By: Mr. Ketkaewngoen Mahakhotchasenichai
Supervisor: Dr. Kuo-Chieh Chao

Application of Stochastic Inversion and Crossplot in the Detection of a Thin Gas Sand in Nam Con Son Basin, Vietnam
By: Mr. Pham Tien Cuong
Supervisor: Dr. Pham Huy Giao

Effects of Kinetic Models on PS Modeling to Evaluate HC Potential of the Amu Darya Basin, Afghanistan
By: Mr. Saifullah Inanch
Supervisor: Dr. Pham Huy Giao

Double Shield Tunnel Boring Machine (TBM) Performance Evaluation Along Mae Ngad-Mae Kuang Water Diversion Tunnel Project
By: Mr. Mohammad Hasib Sarwari
Supervisor: Dr. Kuo-Chieh Chao

Analysis of Shallow Well Log Data for the Characterization of a Mekong Deltaic Aquifer System
By: Mr. Abdul Nasir Jawher
Supervisor: Dr. Pham Huy Giao

Optimization of Pile Group Design Using an Intelligent Design Algorithm
By: Mr. Neti Sakunphanich
Supervisor: Dr. Kuo-Chieh Chao

Well Log Analysis of Thin Reservoir Zones and Source Rock Maturity in Sansai Oil Field, Fang Basin, Thailand
By: Mr. Jirawat Suppithayakorn
Supervisor: Dr. Pham Huy Giao

A Comparative Study of Petroleum Systems in the Sirikit and Wichian Buri Oil Fields
By: Ms. Warittha Sanglee
Supervisor: Dr. Pham Huy Giao

Comparative Study of Pile Capacity Estimated by Different Standards for a Coastal Site in Phu Quoc Island, Vietnam
By: Mr. Pham Binh Trong
Supervisor: Dr. Pham Huy Giao

Analysis of Tunneling Induced Surface Settlement along the MRT Line 1, HCM City
By: Mr. Nguyen Trung Hieu
Supervisor: Dr. Pham Huy Giao

Preliminary InSAR-Based Analysis of Land Subsidence along an UMRT Line in Hanoi
By: Mr. Nguyen Minh Son
Supervisor: Dr. Pham Huy Giao

Near Surface Geophysical and Geotechnical Investigation of a Landslide Site in Lao Cai, Vietnam
By: Mr. Bui Xuan Hanh
Supervisor: Dr. Pham Huy Giao
1. Introduction

The Structural Engineering (STE) field of study teaches students to plan, design, and supervise the construction of infrastructure and facilities essential to modern life. Structural engineers investigate the behavior and design of all kinds of structures, including buildings, skyscrapers, bridges, elevated highways, tunnels, airports, dams, power plants, factories, stadiums, shopping complexes, oil rigs and aircraft. They must ensure that their designs satisfy a given design intent predicated on safety and on serviceability. They are also responsible for making efficient use of funds and materials to achieve these goals. As structures become more complex, structural engineers strive to find innovative solutions to improve the structural performance. Therefore, STE students are taught to keep abreast of the latest developments in advanced structural materials, computational modeling of structural systems, seismic-resistant design, building aerodynamics, construction planning and management and much more. Students are also taught to question and challenge general beliefs and practices in the field through basic and applied research. The STE curriculum is kept up-to-date and relevant through the faculty’s ongoing active involvement in the solution of strategic real world problems outside the classroom. It offers two areas of specialization and the flexibility to construct personalized study programs, either broad-based and multidisciplinary or narrowly focused and highly technical. STE alumni form a strong network of regional leaders in private practice, government service, education and research.

Areas of Specialization

STE students may choose one of two areas of specialization.

Structural Analysis, Mechanics and Computation focuses on computational and applied mechanics, finite element methods, structural dynamics, wind and earthquake engineering, computer-aided design and expert systems.

Structural Design and Materials stresses advanced and low-cost construction materials, concrete technology, advanced design of reinforced and pre-stressed concrete structures, seismic design and wind-resistant design of structures, bridge engineering, and fire protection technology.

2. Research Facilities and Laboratories

Structural Engineering Laboratory

The Structural Engineering Laboratory (STE Lab) has a long history of excellence in advanced structural and material research. The STE Lab is equipped with instruments for scientific research, which provide excellent experimental environment for scholars and experts in the Asian region to enhance academic cooperation and development. Completed in 1975 and renovated in 2000, the structural testing area of the laboratory is a versatile area with a two-storey clear height that can be used to carry out a wide range of tests of building materials, components, structural assemblies and models.

One of principal elements of STE Lab is a strong floor system. The strong floor is a 1.5-meter-deep heavily reinforced concrete mat, covering an area of 380 square meters, with anchorage slots spaced 1 meter apart and cluster points with a capacity of 1,000 kN per cluster. This arrangement provides versatility in the mounting of experiments, and full-size members of complete structures can be loaded to
destruction. A test control room and the hydraulic power supply area are located adjacent to the test floor.

The laboratory is equipped with a series of hydraulic actuators of various load (100 kN to 500 kN.), stroke (+100 mm to +250 mm.) and servo-value capacities for static, dynamic and fatigue testing. Standard laboratory instrumentation for structural engineering is available e.g., extensometer, universal testing machine, ultrasonic pulse velocity and strain gauge preparation, impulse force test hammer, etc.

Seismic Load Simulation Facility

Set up in 2001, the Seismic Load Simulation Facility is basically composed of (1) a rigid, A-shape, steel reaction wall, (2) a 50-ton force generating capacity, 1000-mm piston stroke, hydraulic actuator that operates under precision closed-loop servo value control, and (3) the existing strong reinforced concrete floor of the STE Lab. The facility has the capability to perform various experimental seismic tests on near-full-scale structural models, such as quasi-static tests, cyclic loading tests, and pseudodynamic tests. The facility has been used intensively by many master and doctoral students in STE Field of Study.

Boundary Layer Wind Tunnel Laboratory

This wind tunnel laboratory is a state-of-the-art research facility for the study of wind loads and several complex wind-induced effects on buildings and structures. The laboratory was developed by a joint effort between School of Engineering and Technology at AIT and Faculty of Engineering at Thammasat University. The laboratory, located in Thammasat, is the longest and largest wind tunnel in Thailand. It is capable of simulating atmospheric boundary layer wind as well as smooth and uniform wind in its 2.5m x 2.5m tunnel section with wind speeds varying from 0.5 m/s to 20 m/s. The wind tunnel is well equipped with hot-wire anemometers, pressure transducers with rotary scanning system, multi-component dynamic force sensors, dynamic motion sensors, turn tables, rotary side frames, and several other instruments. With this facility, various types of advanced experimental research study, student training, and industrial aerodynamic tests can be realized. The construction of the wind tunnel was completed in 2003, and it has been used intensively since then by graduated students of AIT and Thammasat University.

3. Faculty and Research Staff

Emeritus Professor

PISIDHI KARASUDHI, Ph.D., Northwestern Univ., USA; M.Eng., AIT, Thailand; B.Eng., Chulalongkorn Univ. Thailand. [Solid Mechanics]

Full-time Faculty

KANOK-NUKULCHAI, WORSAK, Ph.D., Univ of California (Berkeley), USA; M.Eng., AIT, Thailand; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Professor [Computational Mechanics; Finite Element Methods; Tall Building Static and Seismic Analysis; Bridge Engineering; Microcomputer Software for Structural Engineering; Genetic Algorithms; Nonlinear Analysis of Structures and Continua; Plate/Shell Structures; Engineering Education; Nanomechanics]

PENNUNG WARNITCHAI, D.Eng., M.Eng., University of Tokyo, Japan; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Professor [Structural Dynamics; Wind and Earthquake Engineering; Wind Effects of Structures; Bridge Engineering; Control of Structural Vibration]

THANAKORN PHEERAPHAN, Ph.D., and M.Sc., Massachusetts Institute of Technology USA. B.Sc., Virginia Military Institute, USA.

Adjunct Associate Professor

AMORN PIMANMAS, Ph.D., and M.Eng, University of Tokyo, Japan; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Adjunct Associate Professor

PUNCHET THAMMARAK, PhD, The Univ of Texas, Austin, USA; B.Eng. (Hon), Chulalongkorn Univ, Thailand;

Lecturer [Computer Methods of Structural Analysis; Finite Element Methods in Engineering (FE Programming; Dynamic problem & Wave Propagation Analysis; Absorbing Boundary Conditions; Material Nonlinearities; Soil-Structure Interactions; Structural Engineering (Reinforced-Concrete Design /Steel Design]

Visiting/Adjunct/Affiliated Faculty

SOMNUK TANGTERMSIRIKUL, D.Eng., and M.Eng, University of Tokyo, Japan; B.Eng. (Hon), Chulalongkorn Univ, Thailand.

Adjunct Professor [Modeling of concrete behavior, Durability evaluation and service life design of concrete structures, High performance cementitious based materials, Special concrete such as SCC and RCC, Use of wastes and recycled materials in cement and concrete, Health monitoring, Repair and maintenance of concrete structures]
3. On-going Grants and Sponsored Research

Tsunami Hazard Evaluation in Thailand & Tsunami Evacuation Simulation for Identifying Effective Disaster Risk Reduction Measures
Duration: 03-Sep-18 to 02-Sep-20
Project Investigators: Dr. Pennung Warnitchai
Total Contracted Amount (THB): 3228340

Seismic Resistant Design Procedure for Tall Buildings in Thailand
Duration: 20-Sep-18 to 19-Sep-20
Project Investigators: Dr. Pennung Warnitchai
Total Contracted Amount (THB): 3624000

4. Publications

Papers in Refereed Journal


5. Doctoral Students’ Dissertation

Effects of Masonry Infill Walls with Different Opening Configurations on Seismic Behavior of Long-Span Gravity-Load-Designed RC Frames
By: Mr. Surasak Niyompanitpattana
Supervisor: Prof. Pennung Warnitchai

Probabilistic Seismic Hazard Assessment and Site-Amplification Mapping for Pakistan
By: Mr. Saeed Zaman
Supervisor: Prof. Pennung Warnitchai

Evaluation of Nonlinear Seismic Demands of High-rise RC Shear Wall Buildings Using Simplified Analysis Procedures
By: Mr. Fawad Ahmed Najam
6. Masters Students’ Theses

Effect of Grout Proportion on Durability Properties and Shrinkage of Preplaced Aggregate Concrete
By: Ms. Napaporn Leungboonmak
Supervisor: Dr. Thanakorn Pheeraphan & Dr. Punchet Thammarak

Seismic Retrofitting of a Mid-Rise RC Beam Column Frame Buildings with a Non-Symmetrical Arrangement of RC Shear Walls in Nepal
By: Mr. Chananyoo Maneechan
Supervisor: Prof. Pennung Warnitchai

The Experiment on the Precast Frame System with Spliced-Weld Rebar Connection in Beam-Column Joint under Effects from Gravity Load
By: Ms. Moe Pwint Phyu Aung
Supervisor: Dr. Punchet Thammarak

Development of a Tuned Mass Damper Using Multi-Stage Steel-Laminated Rubber Bearings
By: Mr. Phruek Chansukho
Supervisor: Prof. Pennung Warnitchai

Full-Scale Health Monitoring of 26-Story Abandoned Buildings by Acceleration and Modal Strain Measurement under Ambient and Forced Excitations in Comparison with Numerical Analysis
By: Mr. Chaiyapruk Panitchayangkul
Supervisor: Dr. Punchet Thammarak

The Experiments on Rebar Splices for Connections in Ferro U-Shel Precast Beams
By: Mr. Sirisophon Pharatphumikul
Supervisor: Dr. Punchet Thammarak

Damage Identification of a Scaled Model of RC Structural Walls in High-rise Buildings Using the Normalized Modal Strain Approach
By: Mr. Chananyoo Maneecchan
Supervisor: Dr. Punchet Thammarak

Assessment of Nonlinear Seismic Demand of High-Rise RC Shear Wall Buildings by Modal Approach
By: Mr. Nadarajah Vasanthapragash
Supervisor: Prof. Pennung Warnitchai

The Damage Identification of a 3-Continuous Span Reinforced Concrete Bridge Model by Normalized Modal Strain Approach
By: Mr. Sirodom Somboon
Supervisor: Dr. Punchet Thammarak

Seismic Base Isolation of a Mid-Rise RC Shear Walls: Comparison between Conventional and Based Isolated Buildings (Seismic Response Analysis)
By: Ms. Acharaphan Mingkwan
Supervisor: Prof. Pennung Warnitchai

Theoretical Approach to Damage Identification of a Scaled Reinforced Concrete Frame Building Numerical Model by Frequency Factored Damage Index (FFDI)
By: Mr. Jitendra Bhatta
Supervisor: Dr. Punchet Thammarak

Improved Mix Design Method of Self-Compacting Concrete Using Design of Experiment
By: Ms. Phenphitcha Suwannacheep
Supervisor: Dr. Punchet Thammarak & Dr. Thanakorn Pheeraphan

Evaluation of Equivalent Static Forces for the Analysis of Along Wind and Across Wind Responses of Tall Buildings
By: Mr. Krisana Watanautamasatian
Supervisor: Prof. Pennung Warnitchai

Progressive Collapse Potential Analysis of a Reinforced Concrete Frame Mid-Rise Building due to a Column Failure
By: Mr. Rajesh Neupane
Supervisor: Dr. Naveed Anwar & Prof. Pennung Warnitchai

The Experiment on Precast Frame System with the Connection Technique using Tack-Weld in Beam to Column Rebars in Beam-Column Joint under Effects from Gravity Load
By: Ms. Myat Noe Pwint
Supervisor: Dr. Punchet Thammarak

Experimental Study of the Two Continuous Infilled Brick Walls in Precast Concrete Frame under Lateral Reversed Cyclic Load
By: Ms. Yein Thwet Aein
Supervisor: Dr. Punchet Thammarak

Mix Proportioning of Pervious Concrete Using Design of Experiment
By: Ms. Thant Thaw Tar Win
Supervisor: Dr. Thanakorn Pheeraphan & Prof. Pennung Warnitchai

Effect of Soil-Structure Interaction on Seismic Responses of Tall Buildings
By: Ms. Abinayaa Uthayakumar
Supervisor: Dr. Punchet Thammarak & Dr. Naveed Anwar

Mix Proportioning for High Strength Pervious Concrete Using Design of Experiment
By: Mr. Hasitha Premaratne
Supervisor: Dr. Thanakorn Pheeraphan & Dr. Punchet Thammarak

Effects of Nonlinear Response of the Diaphragm on the Design of Podiums in Tall Buildings
By: Mr. Hafiz Faheem Ahmed
Supervisor: Dr. Naveed Anwar & Dr. Punchet Thammarak

Effect of Common Podium on Seismic Performance of Two Unequal-Hight Towers
By: Mr. Balasooriya Mudiyanseelage Pasindu Janith Balasooriya
Supervisor: Dr. Naveed Anwar & Dr. Punchet Thammarak

A Comprehensive Study on Shear Crack Detection in a Structural Core Wall Scaled-Model Using Normalized Modal Strain
By: Ms. Chanida Jaipakdee
Supervisor: Dr. Punchet Thammarak

Effect of Varying Number of Podium Floors on Seismic Performance of a Multi Tower Building
By: Mr. Vaibhav Willson Masih
Supervisor: Dr. Naveed Anwar & Prof. Pennung Warnitchai

The Finite Element Model for Construction of a Seismic Wave Attenuation Model in Thailand
By: Mr. Mohamed Naheem
Supervisor: Dr. Punchet Thammarak
Seismic Retrofitting of Low-Rise RC Frame Buildings with Masonry Infill Walls in Nepal by Mesh Reinforcement
By: Mr. Sharad Wagle
Supervisor: Prof. Pennung Warnitchai

Effect of Common Podium on Seismic Performance of Two Equal Height Towers
By: Ms. Thinn Ei Khine
Supervisor: Prof. Pennung Warnitchai & Dr. Naveed Anwar

Development of Structural Lightweight Concrete by Using Normal Weight Aggregates
By: Ms. May Myat Mon Kyaw
Supervisor: Dr. Thanakorn Pheeraphan & Prof. Pennung Warnitchai

Structural Health Monitoring of a Pile Cap Scaled-Model by the Normalized Modal Strain Approach
By: Ms. Chiraphak Suesat
Supervisor: Dr. Punchet Thammarak

Seismic Retrofit of a Typical Low to Mid-Rise Infilled RC Frame Residential Building in Kabul City, Afghanistan by Using Fiber Reinforced Polymer (FRP) and Textile Reinforced Mortar (TRM)
By: Mr. Mohammad Ali Eltaf
Supervisor: Prof. Pennung Warnitchai

An Experimental Study of Thin U-Shell Ferrocement Precast Beam-Column Connection
By: Ms. Tanyaporn Komvijit
Supervisor: Dr. Punchet Thammarak

Evaluation of Various Structural Systems for Seismic Design of Mid-rise Buildings in Afghanistan
By: Mr. Mohammad Sadiq Busty
Supervisor: Dr. Naveed Anwar & Dr. Punchet Thammarak

Development of Preplaced Aggregate Concrete for Rigid Pavements
By: Mr. Janith Hirosha Gallege
Supervisor: Dr. Thanakorn Pheeraphan & Dr. Punchet Thammarak

Measurement of Wind-Induced Dynamic Stresses in Billboard Structures
By: Ms. Moh Moh Ko
Supervisor: Prof. Pennung Warnitchai

Seismic Base Isolation of Tall Buildings with RC Shear Walls: A Comparison Between Fixed-based and Isolated Buildings
By: Ms. Anastasia Yesica
Supervisor: Prof. Pennung Warnitchai
1. Introduction

The Transportation Engineering (TRE) field of study trains students to solve challenging problems arising from the effects of industrialization and population growth on the movement of people and goods. In cities around the world, movement is hampered by traffic congestion, insufficiency of public transport facilities, traffic accidents, and other conditions. As manufacturing expands globally, businesses are seeking to reduce transportation costs by moving more goods through fewer distribution nodes. Concerns over congestion on highways, increasing pollution and hazardous materials all emphasize the need to maximize the efficiency of our transportation systems. TRE students learn to address these problems by applying advanced knowledge in transportation planning and economics, traffic engineering and the design of highways/pavements and other transportation facilities. Students in TRE acquire advanced skills in planning, design, operations, maintenance, rehabilitation, performance, and evaluation of transportation systems, including their economic and public policy aspects. The curriculum emphasizes development of analytic, problem-solving, design and management skills suitable for public and private sector professional work.

Areas of Specialization

TRE students may choose one of two areas of specialization.

Planning and Engineering trains students in planning and logistics as well as traffic and safety. Among other topics, they are immersed to issues relating to transportation systems, urban/regional transportation analysis and planning methods, airport planning & design, and traffic engineering.

Highways and Pavements focuses on design and operation as well as management systems and maintenance. Students in this specialization will become skilled in geometric design and highway safety, design/performance of highways and airport pavement as well as pavement management systems.

Laboratory Facilities

Laboratories in the TRE field of study provide students with up-to-date software, hardware, equipment and high speed Internet connections to ensure seamless research study. Students interested in working on pavement design have the access to the Thailand Department of Highways. TRE students may also use equipment and resources in the ACTS and TARC research centers.

Research Center/Sponsored Research/Training

- Asian Center for Transportation Studies (ACTS)
- Thailand Accident Research Center (TARC)
- Logistics Management at the Intermodel Terminals

2. Faculty and Research Staff

Emeritus Professor

JOHN HUGH JONES, B.S., B.Eng., University of California, USA (Highway Engineering, Transportation Engineering)

Full-time Faculty

KUNNAWEE KANITPONG, Ph.D., University of Wisconsin-Madison; M.Sc., University of Maryland at College Park, USA; B.S., Chulalongkorn University, Thailand.

Associate Professor (Road Traffic Safety, Accident Data Analysis, Highway Materials and Construction,
Pavement Design and Analysis, and Pavement Management System)

THIRAYOOT LIMANOND, Ph.D., University of California, Davis, USA; M.S., Arizona State University, USA; B.Eng., Chulalongkorn Univ., Thailand

Assistant Professor (Sustainable transport, travel demand, transportation planning, traffic engineering, transport energy planning, intelligent transportation system)

SURACHET PRAVINVONGVUTH, Ph.D., Utah State University, USA; M.S., AIT, Thailand; B. Eng., Chulalongkorn University, Thailand

Visiting / Adjunct Faculty

HIRONORI KATO, D.Eng, M.Eng, B.Eng., University of Tokyo, Japan

Visiting Associate Professor (Transportation planning and policy; travel behavioral analysis; transportation project evaluation)

KAZUSHI SANO, D.Eng., M.Eng., B.Eng., University of Tokyo, Japan

Visiting Associate Professor (Transportation Planning, Traffic Engineering, and Logistics)

TAKASHI NAKATSUJI, D. Eng., M. Eng., B. Eng., Hokkaido University, Japan

Visiting Professor (Traffic Engineering, Traffic Flow Simulation, Winter Maintenance, Traffic Accident Reconstruction)

Ampol Karoonsoontawong, Ph.D., M.S., The University of Texas at Austin, USA; B.Eng. (2nd Class Honors), Chulalongkorn University, Thailand

Adjunct Faculty (Transportation Network Modeling, Transportation Logistics, Public Transportation Scheduling, Applied Operations Research)

SHINYA HANAOKA, Ph.D., M.S., B.Eng Tohoku University, Sendai, Japan.

Visiting Faculty (Transportation Network Modeling, Transportation Logistics, Public Transportation Scheduling, Applied Operations Research)

Research Staff

Miss Kanwalai Nachaisit, M.A. (Major: History of Southeast Asia); B.A. (Major English), Silpakorn University, Thailand

Srivarang Jendupakarn, Bachelor of Nursing Science, Burapha University, Chonburi, Thailand

Pathumporn Dabsomsri, B.Eng. (Transportation Engineering), Suranaree University of Technology, Nakhon Rachasima, Thailand

Research Associate

Auearree Jensupakarn, M.Eng. (Transportation Engineering), Asian Institute of Technology; B.Eng. (Civil Engineering), Suranaree University of Technology, Nakhon-Ratchasima, Thailand

Jetpan Wetwitoo, M.Eng. (Transportation Engineering), Asian Institute of Technology; B.Eng. (Civil Engineering), King Mongkut’s University of Technology North Bangkok, Bangkok, Thailand

Santosh Baral, M.Eng. (Transportation Engineering), Asian Institute of Technology; B.Eng. (Civil Engineering, Nepal Engineering College, Changunarayan, Bhaktapur, Nepal

Napong Bubanpong., M.Eng. (Transportation Engineering, Asian Institute of Technology; B.Eng. (Civil Engineering), King Mongkut’s Institute of Technology, Bangkok, Thailand

Ratthapong Meesit, M.Eng. (Transportation Engineering), Asian Institute of Technology; B. Eng. (Civil Engineering), Prince of Songkla University, Songkla, Thailand

Mr. Ridwan B.A. Quaium, M.Sc (Civil engineering), Texas A&M University; B.Sc. (Civil Engineering), Virginia Tech, Blacksburg, Virginia, USA

3. Grants and Sponsored Research Completed in 2018

Road Safety Watch-Central 2014
Duration: 15-Sep-14 to 31-may-18
Project Investigators: Dr Kunnawee Kanitpong
Total Contracted Amount (THB): 10,31,850.29

Toyota Passenger-Car Accident Analysis-Phase 2
Duration: 05-June-17 to 30-June-18
Project Investigators: Dr Kunnawee Kanitpong
Total Contracted Amount (THB): 5,38,036.44

Feasibility Study on Collecting Gasoline Tax from Road Users to Support the Modal Shift from Road to Rail
Duration: 23-sep-16 to 30-sep-18
Project Investigators: Dr. Surachet Pravinvongvuth
Total Contracted Amount (THB): 45,87,500.00

4. On-going Grants and Sponsored Research

Feasibility study on economic, engineering, and environmental impact of the west part of the Bangkok’s 3rd outer ring road project
Duration: 7-Nov-17 to 31-july-19
Project Investigators: Dr Surachet Pravinvongvuth
Total Contracted Amount (THB): 5,233,272.14
Motorcycle Accident Investigation
2018
Duration: 01-Jan-18 to 30-Sep-19
Project Investigators: Dr. Kunnawee Kantipong
Total Contracted Amount (THB): 1,22,07,681

Toyota Passenger-Car Accident Analysis-Phase 3
Duration: 01-Aug-18 to 31-july-19
Project Investigators: Dr. Kunnawee Kantipong
Total Contracted Amount (THB): 5,17,805

5. Publications

Papers in Refereed Journal
Auearree Jensupakarn, Kunnawee Kantipong, Influences of motorcycle rider and driver characteristics and road environment on red light running behavior at signalized intersections, Accident Analysis & Prevention Volume 113, April 2018, Pages 317-324.

6. Masters Students’ Theses and Research Studies

In-depth Analysis of Motorcycle Accidents and their Severity
By: Mr. Boramut Karndee Supervisor: Dr. Kunnawee Kantipong

A Before-After Study on the Effectiveness of GPS Installation Policy to Control Speed of a Fixed Route Bus in Thailand
By: Mr. Ayush Kuinkel Supervisor: Dr. Kunnawee Kantipong

Influencing Factors on Severity of Motorcycle Rear End Collisions in Thailand
By: Mr. Lahiru Maduranga Welagedara Supervisor: Dr. Kunnawee Kantipong

Assessment of Pedestrian Accessibility around Airport Rail Link Stations: A Geographical Analysis Approach
By: Mr. Thamaru Kondasingha Supervisor: Dr. Surachet Pravinovngvuth

Passenger Behavioral Response to Off-Peak Fare Reduction in Airport Rail Link, Bangkok, Thailand
By: Ms. Thanchanok Inmor Supervisor: Dr. Kunnawee Kantipong

Sustainable Logistics Network of Hokkaido by the Strategic Choice Approach
By: Mr. Subaru Shimizu Supervisor: Dr. Kunnawee Kantipong

Intersection Throughput Analysis: A Case Study of a Signalized Intersection with Non-lane Based Mixed Traffic Operations
By: Mr. Hedayatullah Sangin Supervisor: Dr. Surachet Pravinovngvuth

Tailgating Behavior Analysis of Phahonyothin Highway in Thailand
By: Mr. Shahzada Ulfat Supervisor: Dr. Kunnawee Kantipong

Impact Factors of Uber Legalization: A Study of Major Cities Using Uber
By: Ms. Dumingu Hewage Sanuri Tharindi Jayasree Supervisor: Dr. Kunnawee Kantipong

Exploring the Impact of Service Zones on Passenger Rejection Behavior of Bangkok Taxi Drivers
By: Ms. Prapatsorn Atsawatheerasatthien Supervisor: Dr. Kunnawee Kantipong

Development of Average Daily Traffic Database to Improve a Travel Demand Model in Thailand
By: Ms. Patcharaporn Chaiyaboot Supervisor: Dr. Surachet Pravinovngvuth

Severity Impact of Motorcycle Angle Crashes in Thailand
By: Mr. Raveen Vimantha Hetti Arachchige Supervisor: Dr. Kunnawee Kantipong

Applicability of Microscopic Traffic Simulation to Quantify the Impacts of Continuous Access and Limited Access High Occupancy Vehicle Lanes in a Highly Congested Network
By: Mr. Sanishka Dulsara Jayasena Supervisor: Dr. Surachet Pravinovngvuth

Comparison Between Static and Dynamic Assignment Models in Quantifying Pollution Emission in a Large-Scale Network
By: Ms. Yada Khurukul Supervisor: Dr. Surachet Pravinovngvuth

Finite-Element Analysis of Instrumented Flexible and Rigid Pavement Structures
By: Ms. Rathaiachanok Sudajan Supervisor: Dr. Kunnawee Kantipong & Dr. Auckpath Sawangsuriya

By: Mr. Shaik Mohammed Asif Nawaz Supervisor: Dr. Kunnawee Kantipong

Design and Analysis of National Household Travel Survey to Differentiate Travel Characteristics Between House and Condominium Residents
By: Mr. Immidisetti Abhiram Supervisor: Dr. Surachet Pravinovngvuth

Statistical Analysis Methods to Differentiate Thai vs Non-Thai Holiday Travel Behaviors during Songkran Festival in Thailand
By: Mr. Akkem Siva Kumar Yadav Supervisor: Dr. Surachet Pravinovngvuth

Comparison of Two New At-Grade Transportation Networks without Signalized Intersections: Chet Network vs Eichler Network
By: Mr. Annapureddy Naga Vamsi Krishna Supervisor: Dr. Surachet Pravinovngvuth
By: Mr. Lakkapally Manohar
Supervisor: Dr. Kunnawee Kanitpong

Estimating Variation in Pedestrian Safety due to Mobile Phone Usage during Crossings in On-Campus and Off-Campus in Thailand
By: Mr. Shaik Suhail
Supervisor: Dr. Kunnawee Kanitpong
1. Introduction

Today's major challenges for water engineers and managers include securing water for people and for food production, protecting vital ecosystems, and dealing with climate variability and change and uncertainty of water in space and time.

The Water Engineering and Management (WEM) imparts education and training towards an understanding of the complexity of water cycle, utilization, and management. It offers a balanced curriculum covering both engineering and management aspects of water resources. Students acquire knowledge and hands-on practice in tools and techniques to come up with viable and sustainable water management for water, food, energy, and environmental security. Students conduct research on country-specific water related problems, and have opportunities to join research and internship programs with industries and partners.

Academic Programs

Masters and Doctoral Degree Program

WEM offers academic programs leading to Masters Degree, Doctoral Degree, Professional Masters Degree, and Diploma and Certificates covering five focal areas: Agricultural Water, Coastal Water, Urban Water, Water Resources, and Extreme Events and Risk Management.

For further details, please visit www.set.ait.asia/wem/

Double Degree Masters Program

The following Double Degree Masters programs are offered with renowned institutions under which students are awarded two Masters degrees: one from AIT and one from AIT's partner institution.

- Urban Water Engineering and Management (UWEM) in collaboration with UNESCO-IHE, The Netherlands and Environmental Engineering and Management field of study at AIT
- Agricultural Water Management for Enhanced Land and Water Productivity (DD-AWELWP) in collaboration with UNESCO-IHE, The Netherlands
- Hydroinformatics and Water Management (HWM) in collaboration with The University of Nice, Sophia Antipolise, France

Distance-based Program

WEM also offers e-learning programs on:

- Integrated Water Resources Management (IWRM) in collaboration with UNU-INWEH, Canada
- Service Oriented Management of Irrigation Systems (SOMIS) in collaboration with UNESCO-IHE, The Netherlands

The WEM field of study covers five focal areas: Agricultural Water, Coastal Water, Urban Water, Water Resources, and Extreme Events and Risk Management. The curriculum is designed in such a way that students can specialize according to their interests. Courses on Watershed Hydrology, Hydrodynamics, Water Resources Systems, and Concepts in Water Modeling provide the solid foundation to the advanced courses. The curriculum emphasizes tools and techniques in water resources planning and management.

Agricultural Water

Courses impart knowledge and skills necessary for the development and management of water resources for agriculture. They address various multi-disciplinary issues in the
planning, design, implementation, operation and maintenance of irrigation and drainage projects and land and water conservation programs. Current researches in the area include irrigation and drainage system management, cropping systems, erosion and water quality problems, soil conservation and land-use, and watershed management. The management and design of sound engineering works for the control and effective use of coastal zones require in-depth knowledge of hydrodynamics and the understanding of coastal zone phenomena. Coursework and research in Coastal Water cover studies of wave characteristics and their action on beaches, coastal sedimentation, estuarine hydraulics and the applied aspects of coastal zone engineering and management.

Urban Water

Courses relate to water supply and sanitation, storm water, and domestic wastewater and urban drainage for sustainable management of urban areas. The research in relation to urban water focuses on application of state-of-the-art theory in water demand forecasting and management, design and management of water distribution systems in urban and rural areas, real-time hydrological information systems for urban flooding and drainage. Given the ever-growing importance of water quality, an integrated water quality-quality approach is essential. Courses in Water Resources focus on techniques to assess the occurrence and availability of surface and groundwater. Students acquire a sound understanding of basic principles in river engineering and modeling, water resources planning, conjunctive use of surface and groundwater; integrated water resources management and social and environmental impact assessment of water resources projects.

Climate change impact and adaptation in water sector is an active area of research and education at WEM. In-depth knowledge and hands-on practice on mathematical modeling of water resources systems is provided. Flooding is a natural phenomenon and various human activities as well as climatic changes have aggravated the problem causing economic losses. Students are exposed to an understanding of the behavior of rivers, and to design appropriate structural and non-structural alternatives for the effective management of rivers and waterways. Research in the area of Extreme Events and Risk Management includes drought analysis and management, river flow analysis, and flood control and mitigation, flood modeling and forecasting, flood plain development and management. Research in the area of climate change and water resources include downscaling of climatic variables at local scale and impact and adaptation studies of future climate on water resources and on water use sectors.

In addition, WEM offers the following Double Degree Masters programs with renewed institutions under which students are awarded two Master degrees: one from AIT and one from AIT’s partner institution.

- Urban Water Engineering and Management (UWEM) in collaboration with UNESCO-IHE, The Netherlands and Environmental Engineering and Management field of study at AIT
- Agricultural Water Management for Enhanced Land and Water Productivity (DD-AWELWP) in collaboration with UNESCO-IHE, The Netherlands
- Hydroinformatics and Water Management (HWM) in collaboration with The University of Nice, Sophia Antipolis, France

WEM also offers e-learning programs on:
- Integrated Water Resources Management (IWRM) in collaboration with UNU-INWEH, Canada
- Service Oriented Management of Irrigation Systems (SOMIS) in collaboration with UNESCO-IHE, The Netherlands

WEM also encourages students to undertake internship program and receive students from partner institutions under exchange and dual degree program.

2. Faculty and Research Staff

Emeritus Professor
ASHIM DAS GUPTA, BEng, Assam Engineering College, India; MEng, DEng, AIT, Thailand.

Visiting Professor (Integrated water resources management; Groundwater development and management; Modeling and monitoring)

Full-time Faculty

MUKAND SINGH BABEL, BEng, Rajasthan Agricultural Univ, India; MEng, DEng, AIT, Thailand.

Professor [Hydrologic and water resources modeling as applied to integrated water resources management; Watershed modeling and management; Water resources allocation and management; Water resources and socio-economic development; Water supply system and management; Climate change impact and adaptation; Groundwater resources management; and Flood and drought analysis, forecasting and management]

SANGAM SHRESTHA, MSc., Institute of Agriculture and Animal Science, Tribhuvan University, Nepal; MSc., Asian Institute of Technology, Thailand; PhD., University of Yamanashi, Japan.

Associate Professor [Climate change and adaptation, Integrated water resources management, Hydrology and water quality modeling, Groundwater development and management, Sustainable water management policy]
Visiting Faculty

ASHIM DAS GUPTA, BEng, Gauhati Univ, India; MEng, DEng, AIT, Thailand.

Visiting Professor [Integrated Water Resources Management; Groundwater Development and management; Modeling and monitoring]

ROBERTO CLEMENTE, BSAE, Univ of the Philippines at Los Baños; MEng, AIT, Thailand; PhD, McGill Univ, Canada.

Associate Professor [Focal areas related to irrigation/ drainage, and land and water resource assessment and management; Studies on the impacts of fertigation on water quality, modeling surface/subsurface transport of water and solutes, performance evaluation of irrigation and drainage systems, and assessment of soil erosion hazard and soil quality dynamics in agricultural watersheds; Joint research on water harvesting and management and soil hydraulic characterization in sloping agricultural lands; Future research focuses on evaluation and optimization of soil, water, chemical and crop management schemes to enhance agricultural productivity without jeopardizing environmental quality]

AKIYUKI KAWASAKI, BEng, MEng, Deng., Yokohama National University, Japan

Visiting Associate Professor [Geographic Information System / City and regional planning / Transboundary river / Benefit sharing / Land-use modeling / Disaster management (Landslide and flood)]

TAWATCHAI TINGSANCHALI, BEng, Chulalongkorn Univ, Thailand; MEng, DEng, AIT, Thailand.

Visiting Professor [Flood Control Engineering and Management; Flood Forecasting, Warning and Flood Disater Management; River Engineering and Hydropower; Water Resources Project System Optimization]

SYLVAIN PERRET, MS and PhD, University of Montpellier II, France; DSc, Ecole Polytechnique de Lorraine, Nancy, France.

Visiting Associate Professor [Water economics and governance, with special interest onto valuation approaches of rural and environmental water uses, irrigation systems’ performances and evaluation, environmental assessment of production systems, governance in irrigation systems, integrated water resource management and governance at the river basin level, social participation in the water sector]

DAMIEN JOURDAIN, BEng, MSc, Ecole Nationale Superieure Agronomique Montpellier, France; PhD, University of Montpellier I, France

Visiting Assistant Professor [Agricultural & Natural Resources Economics/ Farm Modeling/ Water and Watershed Management / Payment for Environmental Services]

H. RAMESH, M.Tec., The National institute of Engineering, Mysor, Ph.D., National Institute of Technology Karnataka, Kurathkal, India.

Visiting Assistant Professor [Water Resources Engineering, Hydraulic, and Civil Engineering]

SANTOSH G. THAMPI, M Tech., IIT. Madras, Ph. D., IIsc, Bangalore, India

Visiting Professor [Hydraulics, Water Resources Engineering, Soil and Civil Engineering]

Affiliated Faculty

SUTAT WEESAKUL, D.Eng, M.Eng, Asian Institute of Technology; BEng, Chulalongkorn University, Thailand [Numerical computation in sea and coastal area including flood propagation using developed computer programs; Application in solving urban drainage problem using both engineering and management approaches; the on-line urban flood warning system at Sukhumvit, Bangkok, Thailand providing useful information in daily life during rainy season are disseminated in http://www.wap.ait.ac.th; Improvement of hydraulic design using physical hydraulic model test in hydropower; hydropower development projects in Lao and Myanmar and improvement in design of intake, diversion tunnel, riparian outlet, energy dissipater, spillway and head pond]

3. Grants and Sponsored Research Completed in 2018

Physical Hydraulic Model Studies of Upper Yeywa Hydropower Project
Duration: 01-jul-2015 to 31- jan-18
Project Investigators: Mr. Arturo G. Roa
Total Contracted Amount (THB): 65,900,000.00

4. On-going Grants and Sponsored Research

Connecting climate change, hydrology & fisheries for energy and food security in Lower Mekong Basin
Duration: 01-jan-2018 to 31- Dec-2020
Project Investigators: Dr. Sangam Shrestha, Dr. Vilas Nitivathanon and Dr. Duc Hoang Nguyen
Sponsor: USAID
Total Contracted Amount (THB): 6,930,000

Mapping groundwater resilience to climate change & human development in Asian cities
Duration: 01-sep-2018 to 31- Aug-2021
Project Investigators: Dr. Sangam Shrestha, Dr. S. Mohana Sundaram
Total Contracted Amount (THB): 2,975,360.00
Training on Hydrological Modeling for Water Accounting
Duration: 18-Dec-2017 to 31-May-2019
Project Investigators: Dr. Sangam Shrestha
Total Contracted Amount (THB): 9,95,488.00

SWINDON-Sustainable Water Management in Developing Countries-Regional Coordinator
Duration: 01-Jan-2018 to 31-Dec-2019
Project Investigators: Prof. Mukand S. Babel
Total Contracted Amount (THB): 9,12,000.00

A comparative study of global & local model for climate change impact assessment in Asian region
Duration: 12-Jan-2018 to 31-Dec-2019
Project Investigators: Dr. Sangam Shrestha
Total Contracted Amount (THB): 2,892,534.23

The training programme for Nepal on "Developing project proposal for submission to the Green Climate Fund" Duration: 01-Sep-2018 to 31-Dec-2019
Project Investigators: Prof. Mukand S. Babel
Total Contracted Amount (THB): 1,443,936.00

ENRICH: Enhancing Resilience to future Hydro-meteorological extremaes in the Mun river basin in Northeast of Thailand
Duration: 01-Oct-2018 to 30-Sep-2021
Project Investigators: Prof. Mukand S. Babel, Dr. Sangam Shrestha
Total Contracted Amount (THB): 5,000,000.00

5. Publications

Papers in Refereed Journal


Shrestha, S., Editorial of special issue on climate change impact on water environment, Science of the Total Environment.


Lee, E., Jayakumar, R., Shrestha, S., Han, Z., Assessment of transboundary aquifer resources in Asia: Status and progress towards sustainable groundwater management, Journal of Hydrology: Regional Studies.

Lek sungnoen, N., Andriyas, T., Andriyas, S., ECe prediction from EC1:5 in inland salt-affected soils collected from Khorat and Sakhon Nakhon basins, Thailand, Communications in Soil Science and Plant Analysis.

Boonwichai, S., Shrestha, S., Babel, M.S., Weesakul, S., Datta, A., Climate change impacts on irrigation water requirement, crop water productivity and rice yield in the Songkram River Basin, Thailand, Journal of Cleaner Production.


Sharma, D., Babel, M.S., Assessing hydrological impacts of climate change using bias-corrected downscaled precipitation in Mae Klong basin of Thailand, Meteorological Applications.


Naditha Imbulana, Shakhthi Gunawardana, Sangam Shrestha and Avishak Datta, Projections of extreme precipitation events under climate change scenarios in Mahaweli River Basin of Sri Lanka, April 2018Current science 114(7).


Anil Aryal, Sangam Shrestha & Mukand S. Babel, Quantifying the sources of uncertainty in an ensemble of


Pallav K. Shrestha, Sangam Shrestha, Sarawut Ninsawat. How significant is sub-daily variability of rainfall for hydrological modelling of floods? A satellite-based approach to sub-daily downscaling of gauged rainfall, Meteorological Applications.


6. Doctoral Students’ Dissertation

Predictions of Suspended Sediment Yield in Ungauged Basins in North of Thailand
By: Mr. Piyawat Wuttichaikitcharoen
Supervisor: Prof. Mukand S. Babel

Assessment of Climate Change Impacts on Water Resources and Agriculture in Data-scarce Kabul Basin, Afghanistan
By: Mr. Masoud Ghulami
Supervisor: Prof. Mukand S. Babel

7. Masters Students’ Theses and Research Studies

WEM
Streamflow Estimation in Ungauged Basins Using Regionalization Approaches: An Application to Bang Giang-Ky Cung River Basin
By: Mr. Minh Vu Nguyen
Supervisor: Prof. Mukand S. Babel

Optimization of Economic Return from Water Using the Water-Energy-Food Nexus Approach: A Case of Karnafuli Basin, Bangladesh
By: Mr. Mostafizur Rahman
Supervisor: Prof. Mukand S. Babel

Impact of Climate Change on Water Balance Components in the Upper Ping River Basin, Thailand
By: Mr. Bashir Ahmad Rahman
Supervisor: Prof. Mukand S. Babel

Assessment of the Climate Change Impact and Evaluation of Adaptation Strategies for Water Resources and Rice Production in the Songkhram River Basin, Thailand
By: Mr. Siriwat Boonwichai
Supervisor: Dr. Sangam Shrestha

Application of Radar-Rainfall for Inflow Estimation to Kaeng Krachan Reservoir, Thailand
By: Ms. Arisara Nakburee
Supervisor: Prof. Mukand S. Babel

Economic Assessment of Upgrading Irrigation Water Supply Systems in Lam Takhong Area, Buriram Province, Thailand
By: Ms. Manatchanok Pannak
Supervisor: Dr. Duc Hoang Nguyen

Assessment of Hydropower Potential in the Karnali River Basin, Nepal
By: Mr. Ameya Piya
Supervisor: Dr. Sangam Shrestha

Assessment of Climate Change Impacts on River Hydrology and Morphology and Resulting Socio-

Economic Vulnerability: A Case Study of the Chindwin River Basin in Myanmar
By: Ms. Kuruwita Arachchige Naditha Damsarani Imbulana
Supervisor: Dr. Sangam Shrestha

Impact of Climate Change and Mining Activities on Loading of Selected Metals in Chindwin River, Myanmar
By: Ms. Shakti Kalpani Gunawardana
Supervisor: Dr. Sangam Shrestha

Development of a Simplified Dam-Gated Operation Rule Curve for the Sao River Reservoir in Vietnam
By: Mr. Bijay Panthi
Supervisor: Dr. Sangam Shrestha

Assessing Water Supply and Demand under Climate Change Scenarios in Quetta, Pakistan
By: Mr. Shehzad Ilyas
Supervisor: Dr. Duc Hoang Nguyen

Nature-Based Solution for Water Management: A Case Study in the Rangsit Area, Thailand
By: Mr. Sirapee Ditthabumrung
Supervisor: Dr. Sutat Weesakul

Collaborative Risk Informed Decision Analysis for Climate Change Adaptation in Municipal Water Supply of Colombo, Sri Lanka
By: Ms. Yasas Upeakshika Amilakumari Bandara
Supervisor: Prof. Mukand S. Babel

Assessment of Irrigation Water Requirement, and Water Productivity of Rice under Ratoon and Conventional Cultivation under Climate Change Scenarios: A Case Study of the Phrapimon Irrigation Project Area in Thailand
By: Mr. Pannavit Fuangthong
Supervisor: Dr. Sangam Shrestha

Evaluation of Ecosystem-Based Adaptation for Soil and Water Conservation: A Case of Huai Ta Poe Watershed, Northeastern Thailand
By: Mr. Gamlath Rallage Miyuru Bandara Gunathilake
Supervisor: Prof. Mukand S. Babel
Climate Change Impacts on Water Balance and Streamflow Regime in the Jalaur River Basin, Philippines
By: Ms. Christsam Joy S. Jaspe
Supervisor: Prof. Mukand S. Babel

Data Assimilation for Real-Time Forecast of Influent Flow and Ammonia in a Wastewater Treatment Plant: A Case Study of Damhusean Catchment, Copenhagen
By: Mr. Husnain Tansar
Supervisor: Prof. Mukand S. Babel

Evaluation of Integrated Rice Farming Systems: A Case of Bang Ban District in Ayutthaya Province, Thailand
By: Mr. Horace Charles Kakhawi
Supervisor: Dr. Franciscus Xaverins Suryadi & Prof. Mukand S. Babel

Assessment of Climate Change Impact and Incorporation of Environmental Flows on Hydropower Production: A Case Study of the Chhukha Hydropower Project in the Wangchu River Basin, Bhutan
By: Ms. Denkar
Supervisor: Dr. Sangam Shrestha

Climate Change Impact on Water Resources and Crop Yield in the Mohana River Basin, Nepal
By: Ms. Nisha Tripathee
Supervisor: Dr. Sangam Shrestha

Climate Change Impact on Streamflow and Irrigation Water Requirement for Rice Cultivation in the Chindwin River Basin, Myanmar
By: Ms. Myat Su Mon
Supervisor: Dr. Sangam Shrestha

Large Scale Urban Drainage Modeling in the Eastern Bangkok Metropolitan Area
By: Mr. Seng Theara
Supervisor: Dr. Sutat Weesakul

Water Use and Consumption of Selected Manufacturing Industries: Analysis and Comparison of Selected Brands
By: Ms. Eaindra Oo
Supervisor: Prof. Mukand S. Babel

Assessment of Socioeconomic and Institutional Factors Affecting Adoption of Drip Irrigation System in Punjab, Pakistan
By: Mr. Saadi Ahmad
Supervisor: Dr. Avishek Datta, Dr. Sangam Shrestha

Modeling the Impact of Irrigation and Fertigation Scheduling on the Tuber Yield of Drip Irrigated Potato in Sahiwal District, Punjab, Pakistan
By: Mr. Shakil Abbas
Supervisor: Dr. Sangam Shrestha, Dr. Avishek Datta

Exchanging Wetting Patterns and Water Distribution in Drip Irrigated Substrate Culture Using Thermography
By: Mr. Amir Saleem
Supervisor: Dr. Peeyush Soni, Dr. Sangam Shrestha

Techno-Economic-Environmental Evaluation of Drip Irrigation Systems Using Drip Line and Drip Tape in Punjab
By: Mr. Sarmad Rasheed
Supervisor: Prof. Mukand S. Babel, Dr. Peeyush Soni

Assessment of Climate Change Impact on Irrigation Water Demands and Rainwater Harvesting for Drip-Irrigated High Value Crops in Pothohar, Pakistan
By: Mr. Zahid Hussain
Supervisor: Dr. Sangam Shrestha, Dr. Avishek Datta

Development of a GIS-Based Model for Selection of Suitable Irrigation Methods and Crops in Punjab, Pakistan
By: Mr. Muhammad Imran
Supervisor Prof. Mukand S. Babel, Dr. Peeyush Soni

Assessment of Water Footprints of Maize and Cotton under Conventional and Drip Irrigation in Punjab, Pakistan
By: Mr. Aamir Shahzad
Supervisor: Dr. Avishek Datta, Dr. Sangam Shrestha

Integrated Analysis of Maize Production under Electric and Diesel Powered Drip and Furrow Irrigation Systems in Punjab, Pakistan
By: Mr. Muhammad Usman Aslam
Supervisor: Dr. Peeyush Soni, Prof. Mukand S. Babel

UWEM Development and Application of Domestic Water Security Index for Addis Ababa City, Ethiopia
By: Mr. Yonas Tewodros Assefa
Supervisor: Prof. Mukand S. Babel, Dr. Janez Susnik

Health Risk of Waterborne Infections in Contaminated Urban Floodwater: The Case Study of Sukhumvit in Bangkok, Thailand
By: Ms. Rhoda Mutanu Mutua
Supervisor: Dr. Sutat Weesakul, Dr. Zoran Vojino
1. Introduction

AIT’s Offshore and Technology & Management Program (OTM) is the first of its kind to provide regional post-graduate study in upstream oil and gas education, and is designed to combine application-oriented course work, field studies and internships into a curriculum from which graduates are equipped with the skills and knowledge-and-practice-readiness to work in the upstream sector of oil and gas industry. The one-year Professional Master of Engineering (PME) program in OTM is specifically designed to serve current professionals in the oil and gas industry that already have work experience and want to broaden their knowledge of the field while obtaining a master’s degree during a short leave of absence from their jobs. The two-year MEng program follows a curriculum of one year of coursework, a 10-week internship and one year of thesis work, and is open to all students with relevant bachelor degrees.

Areas of Specialization

OTM offers three specializations in the upstream E&P sector of the oil and gas industry.

- Offshore Structural Design and Construction
- Oil and Gas Management

Admission Requirements
Admission for professional master degree requires at least 3 years of work experiences in the industry.

Partners
- Department of Mineral Fuels of Thailand (DMF)
- Petroleum Institute of Thailand (PTIT)

Collaborators

Academic Sector
- City University London (UK)
- Petronas University
- Chulalongkorn University (Thailand)

Industries
- Department of Mineral Resources of Thailand
- PTTEP of Thailand
- Chevron Thailand Exploration and Production Ltd.
- Schlumberger Overseas S.A.
- Total Exploration and Production Thailand
- Thai Oil Company Limited
- Mitsui Oil Exploration Co., Ltd.
- CUEL Limited
- Thai Nippon Steel Engineering and Construction Corp. Ltd.
- Palang Sophon Two Ltd.
- Bechtel International, Inc.
- Pearl Oil (Thailand) Ltd.
- Worley Parsons (Thailand) Ltd.
- Technip Engineering (Thailand) Ltd.
- Foster Wheeler International Corporation
- The Bangchak Petroleum Public Co. Ltd.

Field Study

The curriculum structure is designed to combine course works in the class and practical study at field sites in order to enhance the student understanding and knowledge in bridging the gap between theory and practical works. Student can also benefit from the field trips for their future employment. Minimum one trip for each semester is conducted to fabrication yard in order to directly watch the fabrication and load-out works of jacket and topside deck structures.
Internships

A number of oil and gas companies, partner universities and institutes either in Europe, Australia, Southeast Asia and Thailand can be selected for internship place during the short-semester time from May to July. Petronas University, City University, London in UK, Thai Nippon Steel in Thailand, Singapore and Indonesia, CUEL in Thailand and others can be student destinations to acquire practical work experience.

Laboratories

Design and Computation Laboratories

The laboratories are facilitated with a number of computers and a number of softwares such as Schlumberger’s software package, SACS and in-house developed programs under the support of AIT-AECCOMS

OTM Reading Room

The room is equipped with latest offshore related magazines, books, computers, photocopy machine, table, sofa and pantry can be used as a place for discussion, reading and studying

2. Faculty and Research Staff

Full-time Faculty

GREGORY L.F. CHIU, M.Sc. Civil Engineering, Columbia University, New York, USA; PhD. Civil Engineering, Stanford University, California, USA

Professor of Practice (Offshore Technology and Management)

Adjunct Faculty

L.F. BOSWELL, PhD, University of Leeds; Doctor of Science, Technical University of Isai; DSc, Technical University of Cluj Napoca

POOVADOL SIRIRANGSI, MBA, University of Central Oklahoma the United State; Deng., Asian Institute of Technology, Bangkok, Thailand

PORNPONG ASAVADORNEJA, M.Eng, Asian Institute of Technology, Bangkok, Thailand; D.Eng, Asian Institute of Technology, Bangkok, Thailand

SARUNPHONG ARTICHARTE; M.Sc., Texas A&M University, USA

THITISAK BOONPRAMOTE, M.Sc., Colorado School of Mines, USA; Ph.D., Colorado School of Mines, USA

WINAI OUYPORNPRASERT, M. Eng, Chulalongkorn University, Bangkok, Thailand; Ph.D., University of Innsbruck, Austria

APISIRI SOOKSAEN, M.Eng., Chulalongkorn University, Bangkok, Thailand

3. Masters Students’ Theses and Internships

Development of an Internet of Things Model for Gas Transmission Pipelines in the Oil and Gas Business
By: Ms. Suda U-Sadieng
Supervisor: Dr. Bui V. Dao

Time Delay Evaluation of LNG Storage Tank Construction
By: Ms. Hnin Htet Wai Aung
Supervisor: Dr. Bui V. Dao

Risk Assessment for EPC of LNG Terminal
By: Mr. Zarni Kyaw
Supervisor: Dr. Bui V. Dao

Time Series Analysis for West Texas Intermediate (WTI) Crude Oil Price Behavior with Shale Oil Production in U.S.
By: Mr. Korrawat Kulkraisri

Mitigation Measures for Pipelines in Fault Crossing Areas
By: Mr. Wasan Santipasukchok
Supervisor: Dr. Bui V. Dao

Probabilistic Estimation of the Scheduling and Budgeting for Reusing the Wellhead Platform in Gulf of Thailand
By: Mr. Natawat Prasopsukchok
Supervisor: Dr. Bui V. Dao
3.2: SET – INDUSTRIAL SYSTEMS ENGINEERING GROUP

For several decades, AIT has served in the development of the region by equipping young engineers with the high-tech knowledge required to work in complex industrial environments. Since its inception, the industrial Systems Engineering (ISE) thematic group at AIT has contributed to this mission by focusing on industrial competitiveness and innovation for sustainable growth in the region.

The ISE group is comprised of the following field of studies:

1. Mechatronics (MEC)
3. Industrial and Manufacturing Engineering (IME)
4. Nanotechnology

3.2.1: SET – MECHATRONICS and MICROELECTRONICS & EMBEDDED SYSTEMS FIELDS OF STUDY

1. Introduction

Mechatronics

The Mechatronics (MEC) field of study provides students with expertise not only as builders of components of engineering technologies but also system integrators. Mechatronics provides students with new insights into the field of automation through an integrated consideration of mechanics, electronics, and information technology. The curriculum is designed to provide multidisciplinary knowledge and to develop the ability to design mechatronics systems.

At present, most academic institutions and industries in the Asian region are only system integrators. Components are procured from more developed countries (e.g. computer numerically controlled machines, robots, and automated guided vehicles) and are integrated as a system (e.g. flexible manufacturing system). To support the growth of the region’s economy, expertise not only as system integrators but also as builders of components of advanced technologies must be developed. The growing number of electronic devices and the strong interactions between mechanical and electronic parts no longer permit separate investigations of these components. Mechatronics provides new insights through an integrated consideration of mechanics, electronics and information technology. The curriculum is designed to provide multidisciplinary knowledge and to develop the ability to design mechatronics systems.

Microelectronics and Embedded Systems

The Microelectronics (MIC) field of study addresses the increasingly critical demand for microelectronics expertise in the Asia-Pacific region’s rapidly growing industrial sector. Students...
study a balanced mix of technologies including analog and digital circuit design and processing-related topics such as failure analysis, as well as integrated circuit miniaturization and newly emerging specializations such as nanotechnology. The Microelectronics curriculum was designed and is constantly adapted in partnership with microelectronics companies and collaborating universities overseas.

### 2. Research Facilities and Laboratories

Mechatronics and Microelectronics and Embedded Systems fields of study share all the laboratory facilities with the Industrial & Manufacturing Engineering field of study. There are several well equipped laboratories with the primary function of supporting the students and faculty for teaching and research and to conduct outreach programs.

**Mechatronics and Automation Laboratory**

The Mechatronics and Automation laboratory is well equipped with many PLC systems (SS, S7200/300/400, INDRAMAT, BOSCH), distributed control systems (PCS7), operator panels (OPS, OP17/DP and OP35), a PC-based human machine interface package (WINCC) and networked field buses (PROFIBUS, INTER-BUS and SERCOS). The lab has mobile robots (NOMAD, PIONEER 2), robot arms (CRS), an industrial robot (KUKAKR15), a self-made open architecture CNC machine, CNC control systems (MTC200, SINUMERIK 8100/8400), image processing systems (DVT, MATROX) and FPGA’s (XILINX-1i VIRTEX PRO, ALTERA). Software such as SYNOPSYS IC Design, ANSYS, ANSYS, ADAMS and many types of special sensors and actuators are also available for research use.

Mechatronics faculty and students work in close collaboration with industry and government sectors in the areas of industrial automation, robotics, control, system design and integration. Some examples of ongoing projects include a medical tele-analyzer, automated visual inspection systems, MEMS design, an autonomous flying robot, automating centrifuge machines, an autonomous underwater robot and automating crystallization processes.

**Simulation Laboratory**

This lab is equipped with networks of Pentium PC for general applications and internet access, high end CAD/CAM & Simulation software such as ARENA and AutoMOD. In addition, a high performance computer facility with parallel cluster is also available for research use.

**IC Design Laboratory**

The Integrated Circuit Design laboratory gives students access to a wide variety of professional software applications including ANSYS, Orcad, ModelSim SE, Xilinx ISE, Synopsys, Leonardo Spectrum LS and Tanner (S-Edit for Schematic Capture, T-Spice and W-Edit for Simulation and LEdit for Physical Layout). The laboratory’s facilities are used for analog and digital circuit design, microchip design and fabrication, MEMS, microactuators and micro-sensors design, computational electronics, and so on. Fabrication facilities are available through the National Electronics Technology Center and the National Science and Technology Development Administration located in nearby Science Park.

**Nanotechnology Center of Excellence (CoEN)**

The Center of Excellence in Nanotechnology addresses the creation of knowledge in areas relevant to industries. Activities include joint research with other local and international universities and institutes, education and training personnel in the field of nanotechnology, technology transfer and promotion of public and industrial awareness of nanotechnology. This center provides international platform for academicians and researchers from the region, AIT and our partnered universities worldwide to work together with the industries. Current research activities at the CoEN is based on a unifying concept of using inexpensive wet chemical methods and self-organisation processes to fabricate innovative materials, develop diagnostic tools, and apply nanoparticles to environmental issues amongst others. Activities of the CoE at AIT include, but not exclusively, research and development focused on the application of nanoparticles, nanomaterials, devices and sensors. The CoE will support innovative research suited to the region, education and training of highly qualified personnel and in increasing public and industrial awareness of nanotechnology, amongst other activities like arranging conferences, workshops etc.

### 3. Faculty and Research Staff

**Full-time Faculty**

JOYDEEP DUTTA, BSc (Hons), St Edmund’s College; MSc (Physics), North Eastern Hill Univ; PhD, IACS, Calcutta Univ, India.

**Professor** [Functional materials, nanomaterials, Nanoparticles, self-organisation, Biomimetic processes, Polyelectrolyte deposition, Gas sensors, Bio-sensors, optoelectronic devices]

MANUKID PARNICHKUN, BEng, Chulalongkorn Univ, Thailand; MEng, PhD, Univ of Tokyo, Japan

**Professor** [Robotics, control, and measurement (involves with design and development of hardware and software of mechatronics devices); New robot mechanism, novel control algorithm, and innovative measurement concept are investigated]

NITIN V AFZULPURKAR, BEng, Univ of Poona, India; PhD, Univ of Canterbury, New Zealand
Associate Professor [Computer vision (pattern recognition and image processing); MEMS design, fabrication for electronic and bio medical applications; Soft computing algorithms for robotics and automation applications; Mechatronics applications for industrial use]

MONGKOL EKPANYAPONG, B.Eng., Chulalongkorn, Univ, Thailand; M.Eng. Asian Institute of Technology, Thailand, M.Sc., Ph.D., Georgia Institute of Technology, USA

Adjunct Faculty [Span carbon nanotube synthesis & thermodynamics, nano metal composite materials fabrication and optical properties, template synthesis of gold-55 quantum dot clusters\,\,thesis & optical characterization]

Chanchana Thanachayanont, Ph.D., Imperial College, London, U.K.

Assistant Professor [Embedded Systems, Computer Architecture, VLSI design (Low power design), Physical VLSI design, High Performance Computing, GPGPU, DSP]

HARSHA ABYEYKOON, B.Sc., University of Moratuwa, M.Sc., Phd, Keio Univ., Yokohama, Japan.

Adjunct Faculty [Electrical Engineering]

Metha Jeeradit, Ph.D. (Electrical Engineering) from Stanford University, USA

Assistant Professor (Mechatronics)

Visiting Faculty

Dr. Bidyadhar Subudhi , PhD in Control System Engg. from Univ. of Sheffield, UK.

Visiting Professor, currently Professor at the Department Electrical Engg., National Institute of Technology Rourkela, India.

Dr. Zahid Raza, Ph.D. in Computer Science, Jawaharlal Nehru University, India.

Visiting Faculty, currently an Assistant Professor in the School of Computer and Systems Sciences, Jawaharlal Nehru University, India.

LOUIS GABOR HORNYAK, Ph.D. (1997), Colorado State University. Instructor (Introduction to Nanoscience) and Research Professor, Department of Metallurgical & Materials Engineering, Colorado School of Mines in Golden, Colorado

Adjunct Faculty [Transmission Electron Microscopy; Semiconductor Physics; Quantum Physics; Solar Cells; and Nanoparticles]

Metha Jeeradit, Ph.D. (Electrical Engineering) from Stanford University, USA

4. Grants and Sponsored Research Completed in 2018

Preparation of Commercialization of Walking Rehabilitation Robot Project
Duration: 01-Dec-2015 to 31-mar-2018
Project Investigator (s): Dr. Manukid Parnichkun, Dr. Matthew N. Dailey
Total Contracted Amount (THB): 800,000.00

Video Analytic Platform for CCTV security
Duration: 01-jul-2016 to 31-oct-2018
Project Investigator (s): Dr. Mongkol Ekpanyapong, Dr. Matthew N. Dailey
Total Contracted Amount (THB): 1,38,92,650.00

Automated Vehicle Identification Service Platform
Duration: 01-jul-16 to 31-jul-2018
Project Investigator(s): Dr Mongkol Ekpanyapong & Dr Matthew N Dailey
Total Contracted Amount (THB): 16,72,000.00

Workshop on Robotics & Simulation
Duration: 20-jan-18 to 30-apr-2018
Project Investigator(s): Dr. A.M. Harsha S. Abeykoon
Total Contracted Amount (THB): 31,500.00

Development of Autonomous Mobile Robotic Chair with Ability of Staircase Climbing for Handicapped and Elderly People Project
Duration: 01-Feb-15 to 31-Jan-2018
Project Investigator(s): Dr Mongkol Ekpanyapong
Total Contracted Amount (THB): 15,90,000.00

5. On-going Grants and Sponsored Research

Development of a Laser Guided Vehicle Project
Duration: 01-Jul-17 to 30-june-2021
Project Investigator(s): Prof. Manukid Panichkun
Total Contracted Amount (THB): 2,930,000

6. Publications

Papers in Refereed Journal

Noppadol Ajjanaromvat, Manukid Parnichkun, Trajectory tracking using online learning LQR with adaptive learning control of a leg-exoskeleton for disorder gait rehabilitation, Mechatronics Volume 51, May 2018, Pages 85-96.


7. Doctoral Students’ Dissertation

Mechatronics

Modelling, Simulation and Design of a Broadband Ultrasonic Location through the Wall Surveillance Systems for People and Object Detection
By: Ms. Yin Thu Win
Supervisor: Dr. Nitin V. Afzulpurkar, Dr. Huynh Trung Luong

Position and Attitude Control of a Quadrotor
By: Mr. Nicom Promkajin
Supervisor: Prof. Manukid Parnichkun

Development and Control of a Pneumatic Surgery Robot
By: Mr. Wiput Tuvayanond
Supervisor: Prof. Manukid Parnichkun

Iterative Learning Control of a Leg-Exoskeleton for Rehabilitation
By: Mr. Noppadol Ajjanaromvat
Supervisor: Prof. Manukid Parnichkun

Microelectronics and Embedded Systems

Investigation of Surface-Enhanced Raman Scattering Systems on Graphene Foam Towards Trace Amounts of Molecule Detection
By: Mr. Chavis Srichan
Supervisor: Dr. Mongkol Ekpanyapong

8. Masters Students’ Theses and Projects

Microelectronics

Development of a Bipedal Walking Robot on Sagittal Plane Based on Zero-Moment Point Tracking
By: Mr. Antonio Pardilla Jegillos, Jr.
Supervisor: Prof. Manukid Parnichkun

Design and Development of an Automatic Jumping Robot with a Four-Wheel Drive System
By: Ms. Khang Thandar Hnin
Supervisor: Prof. Manukid Parnichkun

Development of a Basketball Shooting Robot
By: Mr. Miyuru Pradeepal Weerathunge
Supervisor: Prof. Manukid Parnichkun

Development of a Serpentine Robot
By: Mr. Masimbulu Vidanalage Ruvinda Sandeep Masimbulu
Supervisor: Prof. Manukid Parnichkun

Autonomous Control for a Rice Field Weeding Robot
By: Mr. Sabeethan Kanagasingham
Supervisor: Dr. Mongkol Ekpanyapong

Energy Harvesting from Vibration Source Using Piezo-MEMS Cantilever
By: Mr. Kaushik Sarma
Supervisor: Dr. Gabriel Louis Hornyak

Real Time CCTV Footage Car Detection and Counting through Blob Tracking Technique
By: Mr. Pati Satish
Supervisor: Dr. Song Weon Keun

Development and Balancing Control of an Active Omni-Wheeled Unicycle
By: Mr. Sudarshan Mark Samarasinghe
Supervisor: Prof. Manukid Parnichkun

Sensor Fusion-Based Navigation Control of Driverless Car
By: Ms. Ambegoda Liyanage Nipuni Apsara Perera
Supervisor: Prof. Manukid Parnichkun

Development and Control of a Stair Climbing Robotic Mobile Platform
By: Mr. Bhashitha Channa Widana Gamage
Supervisor: Prof. Manukid Parnichkun

Design and Implementation of Smart Shopping Cart by RFID Technology
By: Ms. Nemalidinne Sai Megana
Supervisor: Dr. Mongkol Ekpanyapong

Low-Cost Optical Transducer Based on Utilization of Light Dispersion in a Fluid Channel
By: Mr. Zaw Myo Naing
Supervisor: Dr. Mongkol Ekpanyapong, Dr. Waleed Mohammed

Head-movement Gesture Recognition Using Artificial Neural Networks with Multi-Layer Perceptron Algorithm
By: Ms. Bitlla Sabitha
An Infant Facial Expression Recognition System Using Deep Convolutional Neural Network
By: Mr. Golam Fahad Mullick
Supervisor: Dr. Mongkol Ekpanyapong

Lane Detection for Accident Avoidance in Rainy Thai Scenarios Using Computer Vision and a Robust Deep Learning Methodology
By: Ms. Neha Fathima
Supervisor: Dr. Mongkol Ekpanyapong

Classification of Apes Using a Deep Convolutional Neural Network
By: Mr. Pulabhotta SNB Ashish Sharma
Supervisor: Dr. Song Weon Keun

Seatbelt Detection and Binary Classification Using YOLOv3
By: Mr. Ravuri Sri Sai Teja
Supervisor: Dr. Mongkol Ekpanyapong

Material Recognition Using Deep Learning Techniques
By: Ms. Nampally Tejasri
Supervisor: Dr. Mongkol Ekpanyapong

Navigation of Weeding Robot Using LiDAR
By: Mr. Tarun Pulluri
Supervisor: Dr. Mongkol Ekpanyapong
3.2.2: SET – INDUSTRIAL AND MANUFACTURING ENGINEERING
FIELD OF STUDY

1. Introduction

Industrial and Manufacturing Engineering field of study prepares students for manufacturing management and decision support positions in industry and public sector, by equipping them with a broad range of decision making skills for a variety of applications. The IME curriculum reflects the objective of imparting fundamental knowledge to develop the ability to address complex industrial issues, emphasizing on how to design, operate, control, and optimize the production systems.

2. Research Facilities and Laboratories

IME field shares all the laboratory facilities with Mechatronics and Microelectronics and Embedded Systems fields of study. There are several well equipped laboratories with the primary function of supporting the students and faculty for teaching and research and to conduct outreach programs.

**Computer Integrated Manufacturing (CIM) Laboratory**

The Computer Integrated Manufacturing (CIM) laboratory was officially inaugurated on September 23, 1991. It provides the hardware and software support for Industrial Systems Engineering. Many research activities have been carried out in close collaboration with industry and government sectors in the areas of Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Computer Numerical Control (CNC), Rapid Prototyping (RP) and Medical Technology. The CIM Laboratory also provides specialized training and consultancy services in CAD, CAM, CNC Machining, Reverse Engineering, Rapid Prototyping, Packaging Technology, Flexible Manufacturing Systems [FMS], and Development of Postprocessor for 5-axis CNC.

The CIM Laboratory is equipped with available CAD/CAM software includes UNIGRAPHICS NX4, Master CAM 9.1, Mechanical Desktop 6, AutoCAD Inventor Series, SolidWorks 2005, CAM 2000, Mimics 6.3 & Magic 5.4.

**Metrology Laboratory**

Metrology Laboratory provides the hardware and software support for teaching and research activities in Industrial Systems Engineering. Metrology Laboratory is equipped with Measuring Instruments (Zeiss CMM, Mitutoyo Profile Projector, Taylor Hobson Surface Roughness Tester, Lab View Hardware & Software).
Simulation Laboratory

This lab is equipped with networks of Pentium PC for general applications and internet access, high end CAD/CAM & Simulation software such as ARENA and AutoMOD. In addition, a high performance computer facility with parallel cluster is also available for research use.

3. Faculty and Research Staff

Full-time Faculty

VORATAS KACHITVICHYANUKUL, BS, Natl Taiwan Univ; MEng, AIT, Thailand; PhD, Purdue Univ, Indiana, USA.

Professor (Simulation; ERP; Scheduling, Metaheuristics; Parallel Computing) [Planning and Scheduling Systems; Enterprise Resource Planning Systems; Supply Chain Modeling and Analysis; Discrete Event Simulation Software Development; Manufacturing System Simulation; Manufacturing Decision Support Systems; Just-in-Time Manufacturing System]

MARIO T. TABUCANON, BSEE, BSME, Cebu Inst of Tech, Philippines; MEng, DEng, AIT, Thailand.

Professor (Multiple Criteria Decision Making; Operations and Production Management; Operations Research; Project Management; Systems Modeling)

ERIK L J BOHEZ, Burgerlijk Werktuig Kundig Electro-Technisch Ingenieur, Rijks Universiteit Gent (State University of Ghent, Belgium); Kandidat Burgerlijk Ingenieur, Rijks Universiteit Gent (State University of Ghent, Belgium); Technisch Ingenieur Electro-Mechanica, Hoger Technisch Instituut Sint Antonius Gent, (Higher Technical Institute Saint Antonius Ghent, Belgium).

Associate Professor (Computer Aided Design; Computer Aided Manufacturing; Computer Graphics; Computer Numerical Control; Five Axis Machining; Robust Control; Simulation of Metal Removal; [CNC/CAD/CAM; Mold and Die Design, Eco-Design, Biomechanics, Industrial Packaging]

HUYNH TRUNG LUONG, BEng, Ho Chi Minh City Univ of Tech, Vietnam; MEng; DEng, AIT, Thailand.

Associate Professor [Emergency inventory policies and inventory policies for perishable products; Supply chain design; Measures of bullwhip effect in supply chains; Availability-based and reliability-based maintenance; Fuzzy quality control charts; Statistical design of experiments; Network flows related problems]

PISUT KOOMSAP, BEng, Thammasat Univ, Thailand; MSc, Univ of Louisville; PhD, The Pennsylvania State Univ, USA

Associate Professor [Sensing and Control for Manufacturing Processes and Systems; Laser Applications in Manufacturing; Rapid Prototyping; Condition-Based Maintenance; Continuous Improvement]

Visiting Faculty

Indrajit Mukherjee, Ph.D. in Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India.

Visiting Assistant Professor, currently Assistant Professor in the Shailesh J. Mehta School of Management, IIT Bombay.

Dr. Sounak Kumar Choudhury, Ph.D. in Manufacturing Science in Mechanical Engineering, Lumumba University, Moscow, Russia.

Visiting Professor, currently Professor in the Mechanical Engineering Department of the Indian Institute of Technology (IIT) Kanpur, India

4. Grants and Sponsored Research Completed in 2018

Development and implementation of Impulse Pump as Turbine from centrifugal pump for small hydropower plant for provincial electricity Authority
Duration: 01-Nov-2016 to 01-Nov-2018
Project Investigator (s): Dr Erik L.J. Bohez
Sponsor: PAT/PEA
Total Contracted Amount (THB): 14,098,055.00

The international Simulation and Modelling conference 2017
Duration: 15-Oct-2017 to 14-Oct-2020
Project Investigator: Dr. Pisut Koomsap
Total Contracted Amount (THB): 37,105,538.40

5. On-going Grants and Sponsored Research

Curriculum Development of Master's Degree Program in Industrial Engineering for Thailand Sustainable Smart Industry
Duration: 01-Oct-2016 to 30-Jun-2018
Project Investigator (s): Prof Voratas Kachitvichyanukul
Sponsor: Multi Donor
Total Contracted Amount (THB): 1,500,000.00
6. Publications

Papers in Refereed Journal

Sakulphan, K., Bohez, E.L.J., A new optimal selection method with seasonal flow and irrigation variability for hydro turbine type and size, Energies.


Rakesh Raut, Balkrishna Eknath Narkhede, Bhaskar B. Gardas, Huynh Trung Luong, An ISM approach for the barrier analysis in implementing sustainable practices: The Indian oil and gas sector, Benchmarking: An International Journal

Nicom Promkajin, Manukid Parnichkun Development of a robust attitude control for nonidentical rotor quadrotors using sliding mode control, International Journal of Advanced Robotic Systems-January 21, 2018

Mangla, S.K., Luthra, S., Jakhar, S.K., Tyagi, M., Narkhede, B.E., A simple approach to estimating freshwater discharge in branched estuarine systems, Benchmarking

Rasool, F., Koomsap, P., Afsar, B., Panezai, B.A, A framework for disruptive innovation, Foresight 11 June 2018

Conference papers

Duangthida Hussadintorn Na Ayutthaya, Pisut Koomsap, An application of ‘love’ model for assessing research experience, July 2018 Conference: The 25th ISTE International Conference on Transdisciplinary Engineering, At Modena, Italy


Ririn Diar Astanti, The Jin Ai, Dachuan Gong, and Huynh Trung Luong, Comparison of Two Buyer-Vendor Coordination Models, IOP Conference Series: Materials Science and Engineering

7. Doctoral Students’ Dissertation

A New Optimal Selection Method, Geometry Design and Validation for Hydro Turbine Type and Size of a Micro Hydropower Plant in Thailand
By: Mr. Kiattisak Sakulphan
Supervisor: Assoc. Prof. Erik L. J. Bohez, Dr. Mongkol Ekpanyapong

Inventory Positioning Problem under the Vendor-Managed Inventory Policy
By: Mr. Jayalal Wettasinghe
Supervisor: Dr. Huynh Trung Luong

8. Masters Students Theses and Projects

Industrial and Manufacturing Engineering

Forecasting Models for Demand of Containers Throughput in "Cat Lai Terminal-Saigon New Port", Vietnam
By: Mr. Phan Hoang Vu
Supervisor: Dr. Huynh Trung Luong

Forecasting Demand of High Volume Product of Hop Tri Company, Vietnam
By: Mr. Dang Hai Duong
Supervisor: Prof. Voratas Kachitvichyanukul

Applying Lean Concept to Reduce Headcount at a Wire Bond Module at the Intel Factory in Vietnam
By: Mr. Du Chan Tai
Supervisor: Prof. Voratas Kachitvichyanukul

Mitigate the Bullwhip Effect and Inventory Variance in Supply Chains by Use of Statistical Process Control Based Forecasting System
By: Mr. Zin Di Aung
Supervisor: Dr. Huynh Trung Luong

Design of Personalized Product Service System Using an Analytic Hierarchy Process
By: Mr. Matara Arachchige Janitha Yasasvi Pemasiri
Supervisor: Dr. Pisut Koomsap

Improving the Fibers and Scaffolds Fabricated Using the Electrospinning-based Rapid Prototyping Technique
By: Mr. Alex John Denoga Abundo III
Supervisor: Dr. Pisut Koomsap

Indoor Localization System Using Ultra-Wide Band Device
By: Mr. Zw Yint Aung
Supervisor: Dr. Mongkol Ekpanyapong

Development of a Vendor Managed Inventory Model for a Single Vendor - Multiple Retailers System
By: Mr. Mohamed Mufeeth Al Musni
Supervisor: Dr. Huynh Trung Luong

Improving the Mathematical Model of Customer-Oriented FMEA with a Complete Unique Risk Priority Numbers
By: Mr. Randula Lakshan Hettiarachchi
Supervisor: Dr. Pisut Koomsap

Development of a Robust 4Es-Based Customer Experience Classification
By: Ms. Dilesha Niliya Kumari Herath
Supervisor: Dr. Pisut Koomsap

Examining the Influence of Familiarity and Product Conditions on the Ease of Use of a Product
By: Mr. Aththanayake Chandima Gayan Perera
Supervisor: Dr. Pisut Koomsap

Improving Classification of Quality Attributes in the Kano Model
By: Ms. Balasooriya Rallage Yasara Dharmerathne
Supervisor: Dr. Pisut Koomsap

Development of Gap Control in Product Flow-Based Custom Mosaic Assembly of Multiple-Size Tiles
By: Mr. Chalana Lakshitha Waga Arachchi
Supervisor: Dr. Pisut Koomsap

Haptic Based Wearable Obstacle Detection System for Visual Impaired People
By: Mr. Aung Thura
Supervisor: Dr. A.M. Harsha S. Abeykoon

Analyzing the Effect of Supply Disruption on Supply Contract Arrangement
By: Ms. Supanan Konsue
Supervisor: Dr. Huynh Trung Luong

Customer Journey Clue-based Service Failure Prevention
By: Ms. Ruth April Amoguis Labajan
Supervisor: Dr. Pisut Koomsap

Improving the Mathematical Model of Customer-Oriented FMEA with a Complete Unique Risk Priority Numbers
By: Mr. Randula Lakshan Hettiarachchi
Supervisor: Dr. Pisut Koomsap
1. Introduction

Nanotechnology

Nanotechnology is an interdisciplinary field and hence this programme is addressed to both engineering and science background students. The master of engineering program in nanotechnology focusing on advanced materials and nano-materials. It aims to prepare students to play an active role in shaping their career in the application of appropriate nanomaterials engineering at AIT provides international level engineering program. Partnership in learning and research with the corporate world is been one of the hall marks of the program.

The programme in Nanotechnology at AIT is designed to address the knowledge-based industries of the 21st century that will require continuous development of their workforce. Postgraduate nanotechnology masters and Ph. D. courses are a well-recognized means of gaining experience in state-of-the-art techniques and applications. The program at AIT is addressed to the needs of engineers and science background students for entering into this burgeoning technology area. Nanotechnology with a focus on laboratory facilities

2. Research Facilities and Laboratories

Laboratory Facilities

The Nanotechnology Laboratory consists of a chemistry lab, instrumentation lab, and biology lab and electronics laboratory. The chemistry laboratory is equipped with standard chemical tables and hood for carrying out wet-chemical processing and several furnaces and humidity control chamber. The instrumentation room consists of equipment such as optical spectrophotometer, contact-angle measurement system, solar simulator, photocatalysis bench, gas-sensor test bench, CVD system, methanol reforming reactor, nanowire factory etc. The electronics lab is equipped with digital oscilloscopes, signal generators, power supplies, standard voltage and current meters as well as stocked with discrete devices for testing and research. Thin film deposition systems (dip-coating units) and custom ink-jet printing equipment is also available. The newly
set up biolab consists of autoclave, centrifuge, incubation chamber, laminar airflow, incubator shaker, microscope etc. These facilities are used for teaching and research proposes at AIT.

Our research encompasses working in "Poor-man's nanotechnology". The unifying concept in the laboratory is to make use of inexpensive wet-chemical methods to fabricate innovative materials and futuristic device components. The education is supported by a state-of-the-art research center focused on applications of nanoparticles in Energy, Food & Agriculture and the environment. Current research activities focus on dye-sensitized solar cells, piezotronic devices, gas sensors, bio-diagnostic tools, environmental mitigation through visible light photocatalysis, self-organization of nanoparticles, and layer-by-layer growth from colloidal particles, amongst others.

Center of Excellence in Nanotechnology (CoEN)

The Center of Excellence in Nanotechnology addresses the creation of knowledge in areas relevant to industries. Activities include joint research with other local and international universities and institutes, education and training personnel in the field of nanotechnology, technology transfer and promotion of public and industrial awareness of nanotechnology. This center provides international platform for academicians and researchers from the region, AIT and our partnered universities worldwide to work together with the industries. Current research activities at the CoEN is based on a unifying concept of using inexpensive wet chemical methods and self-organization processes to fabricate innovative materials, develop diagnostic tools, and apply nanoparticles to environmental issues amongst others. Activities of the CoE at AIT include, but not exclusively, research and development focused on the application of nanoparticles, nanomaterials, devices and sensors. The CoE will support innovative research suited to the region, education and training of highly qualified personnel and in increasing public and industrial awareness of nanotechnology, amongst other activities like arranging conferences, workshops etc. Members of the Center of Excellence in Nanotechnology have published over 80 journal papers, articles and book chapters since its inception in 2006. Wide ranging collaboration with multinationals and smaller companies in the region includes Donaldson Inc. (USA), Rak Investment Co. (UAE), SVI Company Ltd. and Western Digital (Thailand), Advance Nanotec (India) and NanoThread Inc. (USA). The Center of Excellence in Nanotechnology has extensive research collaborations with State University of New York, Buffalo and Colorado School of Mines (USA), Swiss Federal Institute of Technology-Lausanne (Switzerland), Uppsala University and Royal Institute of Technology (Sweden), Agharkar Research Institute and S. N. Bose Center for Basic Sciences (India), Chulalongkorn University, Prince of Songkhla University, Naresuan University, NANO-TEC/NSTDA (all in Thailand), amongst others.
The Center of Excellence in Nanotechnology, AIT released a portfolio of 16 nanotechnology products and processes to mark the AIT 52nd Anniversary celebrations last September 5, 2011 at Renaissance Hotel, Bangkok. The portfolio release is a culmination of five (5) years of extensive research in the center, one of the 8 centers in Thailand supported by National Nanotechnology Center (NANOTEC). Four patents for these products have been applied and others in the process.

### 3. Faculty and Research Staff

#### Full-time Faculty

JOYDEEP DUTTA, BSc (Hons), St Edmund’s College; MSc (Physics), North Eastern Hill Univ; Ph.D., IACS, Calcutta University, India.

**Professor**, [Functional materials, nano-materials, Nanoparticles, nanorods, self organisation, Biomimetic organisation, Polyelectrolyte deposition, photocatalysis, Gas sensors, Biosensors, solar cells, water treatment, desalination]

GABOR LOUIS HORNAYAK, Ph.D. (1997), Colorado State University. Instructor (Introduction to Nanoscience) and Research Professor, Department of Metallurgical & Materials Engineering, Colorado School of Mines in Golden, Colorado

**Professor**, [Carbon nanotube synthesis & thermodynamics, nano metal composite materials fabrication and optical properties, template synthesis of gold-55 quantum dot cluster synthesis& optical characterization]

SIVANAPPAN KUMAR, Ph.D. Institut National Polytechnique de Toulouse, France

**Professor**, Energy Field of Study, SERD, AIT (Renewable energy resource and technologies, Climate change and greenhouse gas mitigation, Solar Energy, Cleaner production, Energy and sustainable development)


**Professor**, Environmental Engineering and Management Field of Study, SERD, AIT (Cleaner production, Industrial Environment Management, Membrane Technology, Solid/Liquid Separation, Water and Wastewater Treatment)

OLEG V. SHIPIN, PhD, Inst. of Biochemistry and Physiology of Microorganisms, Moscow, Russia.

**Associate Professor**, Environmental Engineering & Management Field of Study (Anaerobic and Aerobic Wastewater Treatment; Environmental Impact Assessment; Microbial biotechnology (production of commercially important metabolites); Natural systems (ponds and wetlands) as Wastewater treatment systems; Microbial of Environmental Engineering; Molecular Microbiology, Health and Ecological Risk assessment, Ecological Engineering)

THAMMARAT KOOTTATEP, D.Eng. Water and Wastewater Engineering, Asian Institute of Technology, Thailand

**Associate Professor**, Environmental Engineering and Management Field of Study, SERD, AIT (Decentralized Waste and Wastewater Treatment Systems, Eco-engineering Technology for Waste and Wastewater Treatment and Management, Environmental Health and Sanitation)

ANIL KUMAR ANAL, DVM., University of Agriculture, Pakistan; MSc. and PhD., AIT, Thailand

**Assistant Professor**, Food Engineering & Bioprocess Technology Field of Study (Animal Biotechnology, Food and Pharmaceutical Biotechnology, Dairy and Meat Process Technology, Food Colloids and Biopolymer, Functional Foods, Micro-/Nanencapsulation, Bionanotechnology)

PRABHAT KUMAR, Dr.-Rer.Hort., Uni Hannover, Germany; M.Sc. (Ag. Systems), AIT, Thailand; B.Sc. (Ag.) & Hons. RAU, Pusa, India

**Affiliated Faculty & Senior Research Specialist**, Agricultural Systems & Engineering Field of Study (Integrated Pest Management, Farming Systems, Climate change adaptation, Tropical Plant Production and Protection, Smallholder production, Applied research, Nanotechnology and agriculture)

**Visiting Faculty**


**Visiting Faculty** (Intellectual property rights, Innovation management, heat transfer).

**Adjunct Faculty**

Adjunct Faculty (Transmission Electron Microscopy, Materials Characterization, Semiconductor Physics, III-V Compound Semiconductors)

WALEED S. MOHAMMED, Ph. D. (2004), University of Central Florida (USA), M. Eng (1999) Cairo University, Egypt; Bangkok University (Rangsit Campus), Bangkok, Thailand

Adjunct Faculty (Optical wireless, Micro/nano optics, Fiber optics, Grating design, Bio-Photonics)

Research Staff

TANUJJAL BORA, M.Eng Microelectronics, AIT, Thailand; Ph.D. (2012) Nanotechnology, AIT, Thailand

Research Associate (quantum dot, solar cell, photocatalysis, water purification, metal-semiconductor nanostructures)

MAYUR BABANRAO CHAUDHARI, B.E. Electronics, Vishwakarma Institute of Technology, India: M.Eng (2011) Nanotechnology, AIT, Thailand

Research Associate (Optical properties of metal nanoparticles, size and shape effects, simulation)

HTET HTET KYAW, B.E Electronic Communication, Mandalay Technological University, Myanmar; M.Eng (2012) Nanotechnology, AIT, Thailand

Research Associate (Heavy Metal ion sensor by electric field assisted surface plasmon resonance approach)

MAYUREE JAISAI, B.Sc. Biotechnology, Mae Fah Luang University, Thailand

Research Assistant (Hydrothermal growth to produce antimicrobial paper and properties)

Administrative Staff

ARGIE D. GONZALES, B.Sc. Business Administration, MSU-Iligan Institute of Technology, Philippines

4. On-going Grants and Sponsored Research

Development of Robust Coatings for IDEAL Fastener Industry Applications

Duration: 20-Sep-16 to 31-Jul-2019

Project Investigator(s): Dr G Louis Hornyak

Sponsor: IDEAL Fastener Asia Ltd

Total Contracted Amount (THB): 10.899.020.00

5. Publications

Papers in Refereed Journal

Khalid, M., Bora, T., Ghaithi, A.A., Thukral, S., Dutta, J., Raman spectroscopy detects changes in bone mineral quality and collagen cross-linkage in staphylococcus infected human bone, Scientific Reports


Aneeqa Sabah, Gabour Loius Hornyak, Nanofibers and nanowires, Nanobotany pp 67-82.

Muhammad Javia Afzal, Shahzadi Tayyaba, Fazal-e-Aleem, Muhammad Waseem Ashraf, M. Khalid Hossain, Fluidic simulation and analysis of spiral, U-shape and curvilinear nano channels for biomedical application, 2017 IEEE International Conference on Manipulation, Manufacturing and Measurement on the Nanoscale (3M-NANO)

Khaled Al-Muhanna, Khaled Habib, Monitoring the growth of marine bio-films of different metallic alloys in seawater by electrochemical impedance spectroscopy, Conference-CORROSION 2018, 15-19 April, Phoenix, Arizona, USA.


Haziezol Helmi Mohd Yusof; Sulaiman Wadi Harun; Kaharudin Dimyati; Tanujjal Bora; Karel Sterckx, Low-Cost Integrated Zinc Oxide Nanorods Based Humidity Sensors for Arduino Platform, IEEE Sensors Journal Volume 19, Issue 7

Pavel Loiko, Tanujjal Bora, Josep Maria Serres, Haohai Yu, Magdalena Aguiló,

6. Masters Students’ Theses and Research Studies

Carbon Nanoparticles Enhanced Performance of Engine Oil
By: Mr. Ejajul Islam Ahmed
Supervisor: Dr. Gabriel Louis Hornyak

Plasmonic Papers as Surface-Enhanced Raman Scattering (SERS) Substrates for Anticancer Drug Detection
By: Ms. Kanyawan Ponlamuangdee
Supervisor: Dr. Gabriel Louis Hornyak

Fabrication of Ag-Au Alloyed Nanostructures for the Surface-Enhanced Raman Scattering (SERS) Effect
By: Ms. Kunwara Techasaksakul
Supervisor: Dr. Gabriel Louis Hornyak

ZnO Nanorods as Light Scattering Elements and its Application to Humidity Sensing
By: Mr. Mahesh Kumar Amda
Supervisor: Dr. Gabriel Louis Hornyak

Anti-Corrosion Properties of Nanocellulose-Modified Polymer Coatings
By: Mr. Sunku Nikhil
Supervisor: Dr. Gabriel Louis Hornyak

Development of Supported Zinc Oxide Nanorods Modified with Reduced Graphene Oxide and Silver Nanoparticles for Improved Visible Light Driven Plasmonic Photocatalysis
By: Mr. Lingoju Vivek Chaitanya
Supervisor: Dr. Gabriel Louis Hornyak

Photothermal Response of Carbon Nanomaterials for Sensing Applications
By: Mr. Khardekar Parth Satish
Supervisor: Dr. Gabriel Louis Hornyak
3.3: SET – INFORMATION AND COMMUNICATION GROUP

Information and communications enable access; connections and sharing in turn enable knowledge creation and economic opportunity.

The fields in the Information and Communications group are:
1) Computer Science (CS)
2) Information Management (IM)
3) Remote Sensing and Geographic Information Systems (RS-GIS)
4) Telecommunications (TC)
5) Information and Communications Technologies (ICT)

3.3.1: SET – COMPUTER SCIENCE and INFORMATION MANAGEMENT FIELDS OF STUDY

1. Introduction

Computer Science Field of Study

The Computer Science (CS) field of study aims to meet the growing international demand for highly-skilled computer specialists by:

- Providing a curriculum that enables students to acquire the breadth required to function in the modern-day computer industry;
- Providing a state-of-the-art research environment;
- Encouraging students to specialize beyond the basic curriculum by initiating an individual research program;
- Fostering close relationships with both local industry and international Organizations

This field of study focuses on world-class teaching and research into the foundations and applications of computing systems. The curriculum covers a broad range of topics in computer systems, theory, software engineering, information science, and applications. The faculties are particularly active in artificial intelligence, security, computer graphics, machine learning and data mining, robotics, computer vision and image processing, software engineering, networking, simulation, and information systems.

The courses and research topics span the range from theory to practice. Students are encouraged to take courses and conduct research in areas related to computer science such as Information Management, Telecommunications, Information and Communication Technologies, Remote Sensing and Geographic Information Systems, Mechatronics, Microelectronics and Embedded Systems, Industrial Engineering, and other fields of study at the Institute.

Software Engineering Area of Study

In addition to the traditional Masters program in computer science, the Computer Science field of study also offers a Masters degree in computer science with specialization in software
engineering. The Software Engineering Area of Specialization is specially designed to fill the Asia-Pacific region’s need for highly-trained specialists in software development and the management of software development projects. Students in the program will:

- Receive in-depth training in the latest software development tools, techniques and trends;
- Learn the industry’s best practices for management of large software projects;
- Get experience on real problems in collaboration with public and private sector partners during internships.
- The software engineering program is particularly aimed at students already having work experience in the software industry.

**Information Management Field of Study**

The Information Management (IM) field of study is designed to prepare students to respond to four basic challenges confronting business, government and non-profit organizations today:

- Planning the effective use of information and communication technologies
- Developing corporate and government policies to maximize the benefits resulting from the widespread use of these technologies;
- Improving the strategic management of information resources
- Increasing the productivity and creativity

The Information Management field of study at AIT aims to fulfill the growing need for information management skills in government and private organizations. It was the first program of its kind in Asia.

The field focuses on planning the effective use of information and communication technologies within organizations, developing corporate and government policies to maximize the benefits resulting from the widespread use of these technologies, improving the strategic management of information resources in business, government, and non-profit organizations, and increasing the productivity and creativity of managers and executives who work with information resources.

**Laboratory Facilities**

The laboratories for IM are shared with the Computer Science field of study. The labs offer a complete selection of dedicated servers and desktop PCs running Windows and Unix. A variety of management software is available to support student coursework and research. The laboratories are also sponsored by IBM, who, through its Academic Initiative, provides all students with free use of its Rational and WebSphere software products.

**2. Research Facilities and Laboratories**

CSIM Laboratories are well-equipped for teaching and research. The program maintains its own file, Web, email, and database servers for experimental and daily use. The teaching lab is kept up to date with modern desktop systems and can seat up to 60 students for practical sessions. Specialized equipment includes a 20-core Xeon grid computing cluster, a heterogeneous compute cloud, and experimental broadband satellite links to Japan and other countries in the region, video and image processing equipment, and augmented/virtual reality equipment. Full wireless coverage in the building allows students to conveniently work with their personal notebook computers.

**3. Faculty and Research Staff**

**Full-time Faculty**

KANCHANA KANCHANASUT, PhD, MSc, Computer Science, University of Melbourne, Australia; Graduate Diploma, Computer Science, BSc Mathematics, University of Queensland, Australia.

Chair Professor, Thai Network Information Center (THNIC) and IntErLab Director (Networking and Distributed Computing, Algorithms, Programming Languages)

PHAN MINH DUNG, MSc, PhD, University of Technology, Dresden, Germany.

Professor (Computer and Network Security, Autonomous Computing, Logic Programming, Artificial Intelligence)

SUMANTA GUHA, MS, PhD, University of Michigan, Ann Arbor, USA; PhD, Indian Statistical Institute, Calcutta, India; BSc, MSc, University of Calcutta, India.

Professor (Algorithms, Computer Graphics, Computational Geometry, Robotics)

MATTHEW N. DAILEY, BSc, MSc, North Carolina State University, PhD, University of California, San Diego.

Professor (Machine Vision & Learning, Robotics, Software Engineering and Open-source Software Development)

VATCHARAPORN ESICHAIKUL, BAcc, Chulalongkorn University, Thailand; MBA, Oklahoma State University; PhD,
Kent State University, USA.

Associate Professor (Electronic Commerce/ Electronic Business, Web-based Information Systems, Hypermedia, Electronic Government)

Visiting and Adjunct Faculty

PAUL JANECZEK, BSEE, US Military Academy; MSc, University of London, UK; PhD, Swiss Federal Institute of Technology, Switzerland.

Visiting Faculty (Human-Computer Interaction; Analysis and Design of Information Visualization Systems, Semantic Fisheye Views, Software Engineering and Open-source Software Development, and Information System Development)

RAPHAEL DUBOZ, MA, University of Marseille, France; MA, University of Paris 6, France; PhD, University of Littoral Cote d’Opale, France.

Visiting Assistant Professor and Researcher in Centre de Cooperation Internationale en Rechercher Agronomique Pour Le Development (CIRAD) (Computing Modeling and Simulation, with Applications in the Environmental Sciences)

CHUTIPORN ANUTARIYA, BSc, First Class Honors, Chulalongkorn University, Thailand; MSc, D.Tech.Sc., Asian Institute of Technology.

Adjunct Faculty (Database Systems, XML and Web Technologies, Knowledge Representation, Intelligent Systems, Semantic and Linked Data Technologies)

SURADET JITPRAPAIKULSARN, BS, Chulalongkorn University, Thailand; PhD, Case Western Reserve University, USA.

Adjunct Faculty (System Engineering, Software Engineering, System & Software Development in managerial role, Advanced knowledge of software architecture, software product line and software process improvement)

Research Staff

RAMESH MARIKHU, BEng, Kathmandu University, Nepal; MEng, Information & Communication Technologies, Asian Institute of Technology, Thailand.

JEDNIPAT MOONRINTA, BEng, Computer Engineering, Second-Class Honors, Chiang Mai University, Thailand; MEng, Computer Science, Asian Institute of Technology, Thailand.

M.P. HIRANYA N. KUMARA, BEng, University of Ruhuna, Sri Lanka, MEng, Computer Science, Asian Institute of Technology, Thailand.

HITES NIDHI SHARMA, BEng, Computer Engineering, Tribhuvan University, Nepal, MEng, Information Management, Asian Institute of Technology, Thailand.

PHAN MINH THANG, BEng, Kaldol Kalman College, Hungary; MEng, Computer Science, Asian Institute of Technology, Thailand.

4. On-going Grants and Sponsored Research


Duration: 16-May-2018 to 31-Dec-2019

Project Investigators: Dr. Chutiporn Anutariya

Total Contracted Amount: (THB): 5,50,000.00

5. Publications

Papers in Refereed Journal

Phan Minh Dung, Phan Minh Thang, Fundamental properties of attack relations in structured argumentation with priorities, Artificial Intelligence Volume 255, February 2018, Pages 1-42

Attipa Julpisit, Vatcharaporn Esichaikul, A collaborative system to improve knowledge sharing in scientific research projects, Information Development - May 20, 2018

Papers in Conference Proceedings

Nabil Tahmidul Karim; Sanjana Jain; Jednipat Moonrinta; Matthew N. Dailey; Mongkol Ekpanyapong, Customer and target individual face analysis for retail analytics, 2018 International Workshop on Advanced Image Technology (IWAIT), Advanced Image Technology (IWAIT), Publisher: IEEE Institute of Electrical and Electronics Engineers

K C Dharma Raj; Aphinya Chairat; Vasan Timtong; Matthew N. Dailey; Mongkol Ekpanyapong, Helmet violation processing using deep learning, 2018 International Workshop on Advanced Image Technology (IWAIT), Advanced Image Technology (IWAIT), Publisher: IEEE.


Dung, Phan Minha; Thang, Phan Minh, Representing the semantics of abstract dialectical frameworks based on arguments and attacks, Argument &
6. Doctoral Students’ Dissertation

**Computer Science**

Effects of Motion Parallax from Head Movement on User Experience in Fish Tank Virtual Reality
By: Mr. Sirisilp Kongsilp
Supervisor: Dr. Matthew N. Dailey

Multirotor-Based Automated Tree Maturity Determination in the Field Using Monocular SLAM
By: Mr. Teera Kritpranam
Supervisor: Dr. Matthew N. Dailey

Predicting Customer Behavior Using Indexed Data from Video Analytics: Machine Learning Application with Stochastic Gradient-Boosted Trees
By: Mr. Alfian Alfian
Supervisor: Dr. Matthew N. Dailey

Using Video Analytics to Solve the Cold Start Problem in Recommendation Systems
By: Mr. Subigya Jyoti Panta
Supervisor: Dr. Matthew N. Dailey

Flexible Platform for Embedded Computer Vision Applications Using Deep Learning and GPUs
By: Mr. Rajapaksha Mudiyanselage Tharaka Theekshana Wickramatilake
Supervisor: Dr. Matthew N. Dailey

Application of NLU in Intelligent Personal Assistant
By: Mr. Chuu Htet Naing
Supervisor: Prof. Phan Minh Dung

A Framework for Developing Taxonomy and Ontology-based Knowledge Applications for E-Government Services
By: Mr. Werapat Threerawipark
Supervisor: Dr. Chutiporn Anutariya

**Information Management**

Performance Measurement of Government E-Procurement: An Internal Stakeholder Focus
By: Mr. Suvil Chomchaiya
Supervisor: Dr. Vatcharaporn Esichaikul

A Framework to Identify Factors Affecting the Performance of Third-Party B2B E-Marketplaces: A Seller’s Perspective
By: Ms. Wiyada Thitimajshima
Supervisor: Dr. Vatcharaporn Esichaikul

Hybrid Multi-Criteria Evolutionary Algorithms for Optimization Problems in Sustainable Land-Use Planning
By: Mr. Rahmadya Trias Handayanto
Supervisor: Prof. Nitin Kumar Tripathi

**7. Masters Students’ Theses and Research Studies**

**Computer Science**

Real-Time Visual-Inertial Simultaneous Localization and Mapping (SLAM) for Multirotors
By: Ms. Vilasinee Rasmeehirun
Supervisor: Dr. Matthew N. Dailey

Low Cost, High Performance Automatic Motorcycle Helmet Violation Detection
By: Ms. Aphinya Chairat
Supervisor: Prof. Matthew N. Dailey

Low-Cost UAV-Based NDVI Imaging for Crop Health Mapping
By: Mr. Kotipalli Shiva Kumar
Supervisor: Dr. Matthew N. Dailey

**Information Management**

User Experience in GPS Tracking Application
By: Mr. Pipat Waitayaworanart
Supervisor: Prof. Phan Minh Dung

Verification of Offline Security: A Case Study of TOEFL Exams
By: Mr. Karri Surya Rao
Supervisor: Prof. Phan Minh Dung

Verification of Offline Security: A Case Study on Scholastic Aptitude Test (SAT)
By: Ms. Parupudi Swathi Ramya
Supervisor: Prof. Phan Minh Dung

**Low-Cost UAV-Based NDVI Imaging for Crop Health Mapping**
By: Mr. Kotipalli Shiva Kumar
Supervisor: Dr. Matthew N. Dailey

A Study and Development of a Role Play Game
By: Ms. Priyanka More
Supervisor: Prof. Sumanta Guha, Dr. Chutiporn Anutariya

*Information Management* User Experience in GPS Tracking Application
By: Mr. Pipat Waitayaworanart
Supervisor: Prof. Phan Minh Dung

Verification of Offline Security: A Case Study of TOEFL Exams
By: Mr. Karri Surya Rao
Supervisor: Prof. Phan Minh Dung

Verification of Offline Security: A Case Study on Scholastic Aptitude Test (SAT)
By: Ms. Parupudi Swathi Ramya
Supervisor: Prof. Phan Minh Dung

A Framework for Developing Taxonomy and Ontology-based Knowledge Applications for E-Government Services
By: Mr. Werapat Threerawipark
Supervisor: Dr. Chutiporn Anutariya

An Intelligent System for Churn Prediction and Customer Retention: The Case of a Telecommunications Company
By: Mr. Parth Sarangi
Supervisor: Dr. Vatcharaporn Esichaikul
Use of Crowdsensing to Create Weak Entanglement for Cultural Heritages
By: Ms. Nerisa Chitrakar
Supervisor: Dr. Matthew N. Dailey

Determining Critical Success Factors (CSFs) and Appropriate Models of Public Private Partnership (PPP) Projects in Bangladesh
By: Mr. Mahinur Raiyan Mortuza
Supervisor: Dr. Matthew N. Dailey

Schema Extraction and Visualization of Linked Open Data
By: Ms. Reshma Dangol
Supervisor: Dr. Chutiporn Anutariya

Design and Development of Chatbot for Recommending Tourist Attractions in Myanmar
By: Mr. Aung Myint Myat Kyaw
Supervisor: Dr. Chutiporn Anutariya

An Integrated Framework for the Visualization and Management of an Ontological Knowledge-Based System
By: Ms. Benya Rungsrisutthiwong
Supervisor: Dr. Chutiporn Anutariya

Development of Expert System for Diabetes Diagnosis
By: Mr. Hazrat Ali Agha
Supervisor: Dr. Vatcharaporn Esichaikul

Expert System for Testing the Autism Spectrum Disorder
By: Mr. Noor Ahmad
Supervisor: Dr. Vatcharaporn Esichaikul

Integration of Fine-Grained Sentiment Analysis and Deep Neural Network to Analyze Financial News
By Ms. Chawisa Phumdonteet
Supervisor: Dr. Vatcharaporn Esichaikul

A Book Recommendation System for the Users of Academic Libraries
By: Mr. Kudurupaka Bharadwaja
Supervisor: Dr. Chutiporn Anutariya

A Quality Assessment Framework for SWAYAM (Indian MOOCs)
By: Ms. Pitchika Manasa
Supervisor: Dr. Chutiporn Anutariya

Two Case Studies of Classification in Data Mining
By: Ms. Pulumati Sruthika
Supervisor: Prof. Sumanta Guha, Dr. Chutiporn Anutariya

Visualization of Major Crop Production in Telangna, India
By: Ms. Sarikonda Lakshmi Harika
Supervisor: Prof. Sumanta Guha, Dr. Chutiporn Anutariya

A GPA Prediction System: A Case Study of AIT
By: Mr. Paida Arpith
Supervisor: Dr. Chutiporn Anutariya

Applying Interactive Data Visualization Techniques: A Case Study of Indian Climate Data
By: Mr. Peddi Reddy Arvind Reddy
Supervisor: Dr. Chutiporn Anutariya

Visualization of Major Crop Production in Telangna, India
By: Ms. Sarikonda Lakshmi Harika
Supervisor: Prof. Sumanta Guha, Dr. Chutiporn Anutariya

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By: Mr. Paida Arpith
Supervisor: Dr. Chutiporn Anutariya

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A GPA Prediction System: A Case Study of AIT
By: Mr. Paida Arpith
Supervisor: Dr. Chutiporn Anutariya

Applying Interactive Data Visualization Techniques: A Case Study of Indian Climate Data
By: Mr. Peddi Reddy Arvind Reddy
Supervisor: Dr. Chutiporn Anutariya
3.3.2: SET – REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS

FIELD OF STUDY

1. Introduction

Geoinformatics comprising Remote Sensing (RS), Geographic Information Systems (GIS) and Global Positioning System (GPS) provides extremely useful tools for environmental and natural resources management. They are widely recognized as supporting tools for the planning, monitoring, and management of the appropriate utilization of resources at the country, regional and global levels.

While they represent multidisciplinary backgrounds, students in RS & GIS share a common interest, that is, to use remote sensing, GIS, GPS and other space technologies as tools in pursuing their academic work as well as in developing new technologies that are applicable to the region. Because of the complexity of the technologies together with the heavy dependence on advanced computer skills, application specialists need to have a sound knowledge of the theoretical aspects and practical approaches to integrate many resources of information that address different applications.

Furthermore, scientists, planners or engineers interested in these technologies should be familiar with past, present and future satellite systems, their appropriate usage, data acquisition and handling and integration with other data sources.

The curriculum well covers the theoretical aspects and application of space technology, especially in Remote Sensing and GIS. It provides students ample time to gain application know-how through laboratory sessions. Students are free to use satellite data received by the NOAA, AVHRR and MODIS Satellite Receiving Stations for their theses or research studies. Recently such as open source Geoinformatics climate change Monitoring using courses Geoinformatics, Advanced Application Development Advance Analysis Methods and Microwave Remote Sensing are added.

The demand for RS & GIS graduates is very high as there is lack of professionals in these disciplines, particularly those with a vast knowledge of the practical utilization of these technologies. Employment opportunities are available in a wide range of areas, including agriculture, forestry, coastal development and management, urban planning and development, medical technology, mapping and planning, disaster mitigation and environmental management.

Major areas covered in the coursework are fundamentals of remote sensing and GIS, earth energy interaction, atmospheric correction, application potential in various disciplines, GIS data sources, map projection, geostatistics, spatial modeling, automated mapping, digital terrain model, GPS data acquisition, and integration of GIS, remote sensing and GPS.
2. Research Facilities and Laboratories

RS & GIS provides excellent laboratory facilities for teaching and research projects, including:

- Digital Image Processing for Remote Sensing
- GIS Laboratory
- Asian e-Learning Project Experimental Laboratory
- Geoinformatics Center Laboratory
- Digital Photogrammetry
- Facilities for Sensor Web GIS
- Facilities for RFID & Internet GIS

RS & GIS maintains and extensive computing infrastructure for its students, including network file servers for shared access to data and publicly accessible Web servers for scientific communication.

The field of study also maintains a very good archive of over 600 scenes of SPOT, Landsat-TM, NOAA, ADEOS, ERS-SAR and JERS-SAR satellite imagery to serve students in their research and thesis studies. Other data such as regional topographic, land use, soil and geology maps, as well as aerial photographs, are also available. The RS & GIS library provides students with specific books, journals, computer manuals and open source software.

The RS & GIS field of study provides excellent facilities for learning, research and projects which consists of the Digital Image Processing laboratory, Institute-wide GIS laboratory, Asia e-learning project experiment room, meeting rooms, and the Geo informatics Center laboratory topographic, landuse, soil, geology maps of Thailand and some aerial photographs, ALOS data, are also available. Some equipment in its laboratory available for academic activities include: Arc GIS, ERDAS, Arc View 3.3, ENVI; Total Station; Trimble geoeexplorer; Garmin GPS Series III and V; digital camera; wireless hub/switch; wireless USB; network switch; network hub; black/white and color laser printers; A4 and A0 scanners; RFID reader/writer, Sensors and Wi-Fi Network, Spectrophotometer, Laser Range Finder, Echo Sounder, Sensor Web GIS; table and personal stereoscopes, SCINDA GPS Base Station, TOPCON Photogrammetry Station and others.

3. Faculty and Research Staff

Full-time Faculty

NITIN KUMAR TRIPATHI, BTech, National Institute of Technology, Warangal, India; MTech, PhD, IIT, Kanpur, India.

Professor (GIS, Remote Sensing, RFID and Vehicle Tracking, Indoor Positioning Systems, Environment, Disaster, Agriculture, Health, Applications)

SARAWUT NINSAWAT, BSc, Silpakorn University; MSc, Asian Institute of Technology, Thailand; Doctor of Creative Cities, Osaka City University, Japan

Lecturer (WebGIS, OGC Web Services & Specifications, SensorWeb. LBS, Mobile GIS Application)

Visiting Faculty

KIYOSHI HONDA, BAg, DEng, University of Tokyo, Japan

Visiting Professor (Image Processing, Erosion control, Terrain modeling, Sensor Web GIS).

MARC SOURIS, PhD, Université de La Rochelle, France

Visiting Professor (Computational geometry and algorithms, GIS development, Spatial analysis, GIS and Remote Sensing for Epidemiology)

RYOSUKE SHIBASAKI, BEng, MEng, University of Tokyo; Deng

Visiting Professor (integration of data and models based on GIS to reconstruct spatiotemporal dynamics of objects, micro-simulation modeling, 3D mapping of urban areas, and their applications)

MASAHIKO NAGAI, BS, St. Cloud State University, USA; MS, Asian Institute of Technology, Thailand; Deng, The University of Tokyo, Japan

Visiting Faculty (Spatial Information Engineering, Remote Sensing, GIS, Image Processing, Mobile Mapping Ontology, Data Interoperability, Environmental Information Science)

Adjunct Faculty

SURAT LERTLUM, BS, Norwich University; MS, The George Washington University, USA; DTechSc Computer Science, Asian Institute of Technology, Thailand

Adjunct Faculty (GIS, RS, Digital Image Processing, Surveying, Mapping)

Affiliated Faculty and Research Staff

TARAVUDH TIPDECHO, BSc, MSc, Chiangmai Univ, Thailand; DTechSc, Remote Sensing & GIS, Asian Institute of Technology, Thailand
Research Specialist I (Advanced Mapping, Terrestrial Scanning)

VIVARAD PHONEKEO, Bsc, Volgograd State Pedagogical University, Russia, MSc, DTech Sc, Asian Institute of Technology, Thailand

Senior Research Associate (Remote Sensing and GIS, NOAA AVHRR & Terra/Aqua MODIS receiving and processing system, Digital Image Processing, Computer Graphics, Spatial Data Visualization, MODIS Active Fire Monitoring System, Global Environment and Disaster Monitoring using MODIS)

4. Grants and Sponsored Research Completed in 2018

UGI EDUCATION CAMP 2017 UGI Group of Institutions, India
Duration: 15-Jun-2017 to 31-Mar-2018
Project Investigators: Prof. Nitin Kumar Tripathi
Total Contracted Amount: (THB) 8,67,244.75

Asian Summer School for Geoinformatics & issues on Sustainable Development in Asia 2018
Duration: 01-Jun-2018 to 31-Dec-2018
Project Investigators: Dr. Sarawut Ninsawat
Total Contracted Amount: (THB) 2,91,523.82

Asia GIS Dataset Development with Ontology Data
Duration: 01-Apr-2016 to 31-Dec-2018
Project Investigators: Dr Masahiko Nagai, Dr Apichon Witayangkurn
Total Contracted Amount: (THB) 2,294,014.00

Developing new methods to monitor forest carbon in Asian Tropical forests
Duration: 01-Jun-2016 to 30-Jun-2018
Project Investigators: Prof Nitin Kumar Tripathi
Total Contracted Amount: (THB) 1,350,000.00

Education Workshop and Study tour
Duration: 15-Jun-2016 to 30-Dec-2018
Project Investigators: Prof Nitin Kumar Tripathi
Total Contracted Amount: (THB) 965,000.00

JIS Education Camp and Study Tour 2017
Duration: 1-Feb-2017 to 30-Jun-2019
Project Investigators: Prof Nitin Kumar Tripathi
Total Contracted Amount: (THB) 910,988.78

Installation of tools to prevent and detect the natural disasters of the State Railway of Thailand
Duration: 01-Feb-2017 to 31-Dec-2018
Project Investigators: Dr. Sarawut Ninsawat
Total Contracted Amount: (THB) 2,976,320

Scan Tree
Duration: 01-April-2015 to 31-May-2018
Project Investigators: Dr. Salvatore G.P. Virdis
Total Contracted Amount: (THB) 50,000

Development of UAV Data Transmission and Smart Survey System
Duration: 01-May-2017 to 30-April-2019
Project Investigators: Dr. Sanit Arunplod & Dr. Apichon Witayangkurn
Total Contracted Amount: (THB): 2,481,433

5. On-going Grants and Sponsored Research

Design of a data processing & management system for automated residence mapping from satellite
Duration: 01-Oct-2017 to 31-Jan-2020
Project Investigators: Dr. Hiroyuki Miyazaki, Dr. Apichon Witayangkurn
Total Contracted Amount: (THB):3,00,000.00

Survey for International Cooperation in Mapping & Surveying Sector in ASEAN Countries
Duration: 01-Jun-2017 to 31-Jan-2020
Project Investigators: Dr. Hiroyuki Miyazaki, Dr. Apichon Witayangkurn
Total Contracted Amount: (THB):2,00,000.00

Study on Disaster Management using Space Technologies in Asia & Pacific
Duration: 01-Mar-2018 to 28-Feb-2020
Project Investigators: Dr. Sanit Arunplod, Dr. Hiroyuki Miyazaki
Total Contracted Amount: (THB):2,72,887.50

Education Camp
Duration: 17-Jun-2018 to 30-Jun-2019
Project Investigators: Prof Nitin Kumar Tripathi
Total Contracted Amount: (THB):6,30,000.00

Erasmus+Innovation on Remote Sensing Education & Learning
change in ancient lakes, Limnology and Oceanography.


Tripathi, N.K., GeoS4S module GIS for health, International Journal of Geoinformatics.


G Sivavaraprasad, Yuichi Otsuka, Nitin Kumar Tripathi, V Rajesh Chowdhary, D Venkata Ratnam, Mohammed Afzal Khan, Spatial and temporal characteristics of ionospheric total electron content over Indian equatorial and low-latitude GNSS stations, 2018 International Conference on Conference on Signal Processing and Communication Engineering Systems (SPACES)

Worawej Onnom, Nitin Kumar Tripathi, Vilas Nitivattananon, Sarawut Ninsawat, development of a liveable city index (Ici) using multi criteria geospatial modelling for medium class cities in developing countries, Sustainability 10 (2):520. February 2018.


Haoran Zhang, Nitin Kumar Tripathi, Geospatial hot spot analysis of lung cancer patients correlated to fine particulate matter (PM2.5) and industrial wind in Eastern Thailand, Journal of Cleaner Production Volume 170, 1 January 2018, Pages 407-424.


7. Doctoral Students’ Dissertation

Development of a Liveable City Index (LCI) Using Geoinformatics to Assess the Urban Quality of Life
By: Mr. Worawej Onnom
Supervisor: Prof. Nitin Kumar Tripathi

Geospatial Hotspot Analysis of Lung Cancer Cases Related to Fine Particulate Matter (PM2.5), Wind and Related Factors in a Coastal Industrial Ecosystem
By: Mr. Haoran Zhang
Supervisor: Prof. Nitin Kumar Tripathi

Application of Moderate-Resolution Satellite Imagery and the AquaCrop Model to Forecast Transplanted Rice Yield at the Farm Scale: A Case Study of a Rice Seed Production Community in Saraburi Province, Thailand
By: Ms. Kulapromote Prathumchai
Supervisor: Dr. Masahiko Nagai

Person Trip Monitoring and LC/LU Changes for Extracting Local Interactions under Rapid Socio-Economic Changes: A Case Study of Dawei, Myanmar
By: Ms. Satomi Kimijima
Supervisor: Dr. Masahiko Nagai, Prof. Nitin Kumar Tripathi

Mapping of Shorea robusta Forest Using Time Series MODIS Data - Implications for Sub-National Forest Carbon Monitoring in Nepal
By: Mr. Bhoj Raj Ghimire
Supervisor: Dr. Masahiko Nagai, Dr. Nophea Sasaki

Geostatistical Modelling of Chronic Respiratory Diseases and Causative Factors in Kandy District, Sri Lanka
By: Ms. Rajapaksha Mudiyanselage Kumuduni Kumarihamy

Inter-Basin Water Transfer Under Climate Change Conditions: A Case Study of Bheri-Babai River Basins, Nepal
By: Mr. Yogendra Mishra
Supervisor: Dr. Tai Nakamura, Prof. Mukand S. Babel

8. Masters Students’ Theses

Comparison of Measurement by SAR and GPS for Displacement Positioning on the Kumamoto Earthquake in Japan
By: Mr. Palaparti Taraka Venkata Satya Sai Kumar
Supervisor: Dr. Tai Nakamura

Spatial Analysis of Tuberculosis Occurrence and its Socio-Economic Determinants in Si Sa Ket Province, Thailand
By: Ms. Siriwon Hassarangsee
Supervisor: Prof. Nitin Kumar Tripathi

Utilization of Sensor Things API in Development of Sensor Networking Systems
By: Mr. Ammula Niranjan
Supervisor: Dr. Apichon Witayangkurn

Utilization of Sensor Things API in Development of Sensor Networking Systems
By: Mr. Ammula Niranjan
Supervisor: Dr. Masahiko Nagai

Development of a Mobile Online Solar Powered Smart Weather and Air Quality Station
By: Mr. Nandanavanam VBS Sudarsan Karthikeya
Supervisor: Prof. Nitin Kumar Tripathi

Estimation of Origin-Destination Trips by Purpose using Call Detail Records: A Case Study of Greater Dhaka, Bangladesh
By: Mr. Dinesh Mani Bhandari
Supervisor: Dr. Apichon Witayangkurn

Machine Learning for Flood Forecasting: A Case Study of Yom River Sub-basin, Thailand
By: Mr. Wahaj Habib
Supervisor: Dr. Sarawut Ninsawat

Improving the Accuracy of Aboveground Biomass and Carbon Estimation using LiDAR Metrics: A Case Study of Mo Singto in Khao Yai National Park, Thailand
By: Ms. Netnapa Udom
Supervisor: Prof. Nitin Kumar Tripathi

Real Time Human Detection Using UAV and Visualization on GIS Platform
By: Mr. Nemi Bhattarai
Supervisor: Dr. Tai Nakamura

Spatial-Driven Approach to Sustainable Delopment of EV Charge Stations
By: Ms. Nananchon Khambai
Supervisor: Dr. Apichon Witayangkurn

Development of Software as a Service (SaaS) on Amazon Cloud for Rice Crop Monitoring
By Mr. Pratyush Kumar Das
Supervisor: Dr. Sarawut Ninsawat

Estimation of Aboveground Biomass and Carbon in Mangrove Forest by using L-band SAR Data: The Case Study of Kung Krabaen Bay Royal Development Study Center in Chanthaburi Province, Thailand
By: Ms. Poradee Eakchayangkoon
Supervisor: Dr. Tai Nakamura
Application of GIS for Urban Solid Waste Management: A Case Study of Karteh Solih in Bamyan, Afghanistan
By: Mr. Mohammad Jawed Nabizada
Supervisor: Dr. Tai Nakamura

Landslide Investigation Using Remote Sensing and GIS Techniques: A Case Study of Bamyan Province, Afghanistan
By: Mr. Ali Nikzad
Supervisor: Dr. Hiroyuki Miyazaki

Accuracy Assessment of Bluetooth Signals of Blumo Devices
By: Ms. Sirinya Sirikanjanaanan
Supervisor: Dr. Hiroyuki Miyazaki

Semi-Automated Landslide Detection Model: A Case Study of Landslides Induced by the 2015 Nepal Earthquake
By: Mr. Sarthak Shrestha
Supervisor: Prof. Nitin Kumar Tripathi

Identification of the Health-Affected Areas by Pesticide Leaching from Highland Agriculture in Nan Province, Thailand
By: Mr. Detrit Sittibal
Supervisor: Dr. Sarawut Ninsawat

Adaptive User Profile from Mobile Phone Based Positioning Using Data Mining Technique
By: Mr. Nattawut Yangkruea
Supervisor: Dr. Apichon Witayangkurn

Emergency Alerting System Using API, Integrated with Middleware Server
By: Mr. Seethamraju Sree Ananth Kumar

Feasibility Study of Collecting Environmental Data Using FPGA on UAV
By: Mr. Vijay Krishna Pydikondala
Supervisor: Dr. Tai Nakamura

Tactical Analysis of Crime in Chicago City Using Data Mining Techniques
By: Mr. Anvesh Thanugula
Supervisor: Prof. Nitin Kumar Tripathi

Geospatial Modeling of Future Land Use and Land Cover Songkhla Lake Basin, Thailand for Sustainable Agriculture and Forest Cover
By: Ms. Borra Himasri
Supervisor: Prof. Nitin Kumar Tripathi

Analysis of Eutrophication Levels in the Mediterranean Lagoons (Cabras and Santa Giusta) of Italy Through Chlorophyll Using Multi-Resolution Images and Temporal Observation
By: Mr. K Ashish
Supervisor: Dr. Salvatore G.P. Virdis

Automated Approach for Classifying Point Cloud Data Using DBSCAN and OPTICS Algorithms in R
By: Mr. Rambhatla Sai Satya Aditya Bharadwaz
Supervisor: Dr. Salvatore G.P. Virdis

Ground Deformation Measuring of the Orbetello Coastal Plain (Central Italy) using Time Series InSAR
By: Mr. Pattela Taraka Venkatadripathi
Supervisor: Prof. Nitin Kumar Tripathi

Ionosphere Impact on GPS Assisted Positional Errors
By: Mr. Basava Harish
Supervisor: Prof. Nitin Kumar Tripathi

Subsidence Mapping Using InSAR and PSInSAR Techniques for Bangkok Metropolitan City
By: Mr. Y Vishnuvardhan Reddy
Supervisor: Dr. Salvatore G.P. Virdis

Evaluation of Heat Index-Based Agricultural Drought Indicators for Crop Insurance in India
By: Mr. Gone Sai Kiran
Supervisor: Prof. Nitin Kumar Tripathi

Spatio-Temporal Pattern Analysis of Typhoid and Diarrhea Cases with Rainfall in Andhra Pradesh, India
By: Mr. Ganni Satya Venkata Sai Aditya Bharadwaz
Supervisor: Dr. Sarawut Ninsawat

Urban Flood Infrastructure Vulnerability Assessment using Geospatial Analysis: A Case Study of Ko-Rain Sub-District in Thailand
By: Mr. Musunuru Aahlaad
Supervisor: Prof. Nitin Kumar Tripathi

Multi-Sensor Satellite Time Series of Chlorophyll-a Concentration in the Western Mediterranean Coastal Lagoon
By: Ms. Burra Tejaswi
Supervisor Dr. Salvatore G.P. Virdis
3.3.3: SET – TELECOMMUNICATIONS FIELD OF STUDY

1. Introduction

A lack of efficient telecommunications networks and the disparity between rural and metropolitan areas in telecommunications capacity are some of the most serious impediments to sustainable development and growth in the Asia-Pacific region. The Telecommunications (TC) field of study aims to foster national development and enhance economic productivity by educating students in the design, implementation and deployment of telecommunications networks and related applications.

Graduates from the master’s program form the nucleus for effective high-level technical planning and management operations at their employer organizations. Some of the graduates are engaged in planning, development, and service activities leading to the installation, commissioning, management, design, etc. of value-added systems. Given the important role of our graduates in the development of the telecommunications sector, the learning is of significant benefit to the users of telecommunications services within the region. Graduates of the doctoral program play key roles in enhancing the level of education and research in the national universities of the region, and promote and strengthen the R&D potential of emerging regional manufacturing industries.

Dual Degree Program

In addition to the standard program, TC offers dual degree programs in cooperation with two European universities. Students in a dual degree program receive two master’s or doctoral degrees, one from AIT and one from the partner university.

Master Degrees:
- Telecom SudParis, France
- Nice University, France

Doctoral Degrees:
- Centre for Wireless Communications, University of Oulu, Finland

Professional Masters:
- This was launched in 2007 for industry professionals to upgrade their knowledge. 1st batch was sponsored by EVN, Vietnam.

Partnerships

Students in Telecommunications have many opportunities to collaborate with specialists from industry, non-governmental organizations and other universities.

1. TSF - Telecoms Sans Frontieres is a United Nations non-governmental organization which provides emergency telecommunication services during disaster response efforts. Students in Telecommunications may volunteer to work with TSF in real disaster situations.

2. Telecommunications hosts a certified training center for Nokia Symbian OS Mobile Application Development. Telecommunications also maintains active research and student exchange collaborations.
with a number of universities around the world:
- Center for Personal Communication (CPK), Aalborg University, Denmark
- Helsinki University of Technology (HUT), Finland
- Brunel University, UK
- University of Alberta, Canada
- University of Tokyo, Japan
- University of Saskatchewan, Canada
- University of Texas-Dallas, USA
- Mie University, Japan
- National Institute of Information and Communications (NICT), Japan
- Yokosuka Research Park (YRP), Japan
- Tohoku University, Japan

2. Research Facilities and Laboratories

Today's fast-booming world of Telecommunications and Computer networking plays a significant leadership role. To support this achievement the Telecommunications field of study puts the effort to continue the development of telecommunications technologies and systems. It covers a wide variety of research in telecommunications ranging from modeling, analysis wire line and wireless systems to application and protocol development. Its research subjects are in coherent optical communications; congestion control, ATM, and B-ISDN networks; error correction and detection methods; mobile and Internet traffic studies; multiple access strategies for cellular mobile, satellite systems, and cabled networks; network performance analysis, planning and design; and speech processing. Its research specializations are in broadband networks; network planning; Switching systems; telecommunications management in collaboration with the School of Management; telematics; and transmission systems.

Transmission and Switching Lab (TSL)

The Transmission and Switching lab is equipped with Nokia Digital Switching Exchange DX200 (DX220, DX210) that supports PSTN and ISDN. There are also several telephone switches, traffic simulators, protocol analyzer, PDH/SDH (STM1 & STM4) transmission systems, fiber optic line equipment, transmission line analyzer, error rate meter which are available for experiment in switching, transmission and internetworking. The switching and transmission systems are integrated as real telecommunications network. Among the applications whose study has been made possible by these systems are Operation and Maintenance, performance measurements of real narrowband and broadband telecommunication networks, as well as new services.

Network Planning Lab (NPL)

High performance computer aided network planning tools are supported by several workstations at the Network Planning lab. This lab provides hands-on experience design and optimization in radio network, fixed network and fiber optical network.

Wireless Lab (WL)

The main purpose of the Wireless laboratory is for measurement and performance analysis. It is equipped with Modulation and Error rate measurement meters, Simulation software like SATSIM, which was developed by the students, is a simulation package to calculate the sub-satellite points of a LEO/MEO/GEO and its orbital parameters. It also displays graphically on a two-dimensional earth map the instantaneous position and path traced by the satellite (Multi orbit and Multi satellite). Another is NMS/X, is a measurement system for GSM, DCS and NMT networks tracing, capable of measuring up to four networks simultaneously. The results are used for benchmarking service quality of operational cellular networks. These results can be analyzed and can be used for tuning the network parameters in NPS/X.

Communications Labs (CL)

The Communications lab is used to perform experiments courses under Signal and Systems, Communications Electronics, Digital Transmission Technology and Digital Signal Processing. Test bench equipment includes analog and digital oscilloscopes, function generators, analog and digital Spectrum analyzers, Digital sampling oscilloscopes and DSP cards and workstations which have simulation applications like MATLAB.

Computer Laboratory (PCL)

There are two Computer Laboratories in Telecommunications Program. One is for Senior students and one is for Junior Students. All computers are latest powerful computers.

TC Library

In Telecommunications Program, there is a small library, from where students can borrow telecommunication related journals, manuals and reference books.
3. Faculty and Research Staff

Full-time Faculty

TEERAPAT SANGUANKOTCHAKORN, BEng, Chulalongkorn Univ, Thailand; MEng, DEng, Tokyo Institute of Technology, Japan.

Associate Professor (Data Communications; Broadband Integrated Services Digital Networks; Multimedia Communications and Systems; Network Quality of Service)

Visiting and Adjunct Faculty

R. M. A. P. RAJATHEVA, B.Sc. Hons. (Eng), Moratuwa Univ, Sri Lanka; M.Sc., Ph.D. (Electrical and Computer Eng), Univ of Manitoba, Canada.

Associate Professor (Digital and Mobile Communications, Cooperative Diversity, Relay Systems, OFDMA Resource Allocation, Cognitive Radio: Detection /Estimation Techniques, Space Time Processing-MIMO Systems, Distributed Video Coding (DVC)

POOMPAT SAENGUDOMLERT, BSE, Princeton Univ; MS, PhD, Massachusetts Inst of Tech, USA

Assistant Professor [Communication theory, optical networks, resource allocation problems, and array processing; Recent research activities have focused on optical network designs based on existing infrastructure networks and communications for disaster management]

ATTAPHONGSE TAPARUGSSANAGORN, B.Eng, Chulalongkorn University, Thailand, M.Sc., Technische Universität Kaiserslautern, Germany, D.Tech., University of Oulu, Finland.

[Sense energy grids: optimal energy scheduling, smart grid communications using cognitive radio based, spectrum sensing for cognitive radio systems, MIMO-OFDMA cooperative relay systems, cognitive radio based wide coverage rural broadband on TV white spaces, Resource allocation for MIMO-OFDMA systems, Digital image processing.]

4. Publications

Papers in Refereed Journal


Papers in Conference Proceedings


5. Masters Students’ Theses and Research Studies

Improved Wi-Fi-Based Indoor Localization and Pedestrian Dead Reckoning Using Low-Cost IMU with Filtering Technique
By: Mr. Ye Naung Htun
Supervisor: Dr. Attaphongse Taparugssanagorn

Throughput Analysis for Local Area Network Using Hybrid Radio Fibers with Improved MAC Protocol
By: Mr. P Chaitanya Tilak
Supervisor: Dr. Teerapat Sanguankotchakorn

Optimised Link State Routing in VANETs by Selecting MPRs Based on the Position of Nodes in the Network
By: Ms. Mallu Pranavi
Supervisor: Dr. Teerapat Sanguankotchakorn

Finding Similar Users Using Multiple Categories
By: Ms. Tanvira Parveen
Supervisor: Dr. Teerapat Sanguankotchakorn

Power Line Communication: Visible Light Communication (PLC-VLC) Integration of Phase Shift Keying (PSK) and Color Shift Keying (CSK) Techniques
By: Ms. Su Thinzar Oo
Supervisor: Dr. Attaphongse Taparugssanagorn

Uplink Grant-Free SCMA Transmissions with Active User Detection and Channel Estimation
By: Ms. Su Pyae Sone
Supervisor: Dr. Attaphongse Taparugssanagorn, Dr. Poompat Saengudomlert

Automatic Dependent Surveillance-Broadcast (ADS-B) for the
Surveillance of an Unmanned Aircraft System: A Case Study of Air Traffic Control Tower, Yangon International Airport, Myanmar
By: Ms. Tun Htet Htet Aye
Supervisor: Dr. Attaphongse Taparugssanagorn

Comparison Between Two Pilot Patterns on OFDM and MOMO-OFDM Systems Using Least Square Channel Estimation
By: Mr. Nonthakit Sivaratanatamrong
Supervisor: Dr. Teerapat Sanguankotchakorn

Network Coding in Delay-Tolerant Networks Using Drone for Emergency Ad Hoc Networks
By: Mr. Raju Dhakal
Supervisor: Dr. Attaphongse Taparugssanagorn, Prof. Kanchana Kanchanasut

Implementation of IPSEC VPN Tunnel with SIP Softphones Using GNS3
By: Ms. Amirisetti Sushma
Supervisor: Dr. Teerapat Sanguankotchakorn

Mitigation of Blackhole in DYMO and OLSR through IDS using Ad Hoc Wireless Networks
By: Mr. Manchikatla Uday Kumar
Supervisor: Dr. Teerapat Sanguankotchakorn

Comparison between Single-Carrier and Multicarrier Transmissions for Multiuser MIMO VLC with Block Diagonalization Precoding
By: Ms. Su Yee Hlaing
Supervisor: Dr. Teerapat Sanguankotchakorn, Dr. Poompat Saengudomlert
3.3.4: SET – INFORMATION AND COMMUNICATIONS TECHNOLOGIES FIELD OF STUDY

1. Introduction

Information and Communications Technologies field is a newly established area of study in response to the needs for the offering of a curriculum selectively drawn from the curricula of Telecommunications (TC), Computer Science, and Information Management (CSIM). With strong emphasis on communications aspects rather than on the aggregation of hardware, software, networks, equipment and related industries - ICT recognizes the important role of information services and applications in the creation of a complete ICT infrastructure.

The Information and Communications Technologies (ICT) interdisciplinary program provides students with the opportunity to master a breadth of knowledge in a wide range of technologies, including:

- Information infrastructure (telecommunication networks, transmission technologies, switching and routing);
- Information technology (operating systems, programming languages, information storage and retrieval);
- Applications (e-services, knowledge creation and knowledge dissemination);
- Integration of communications, information services and applications with a national ICT infrastructure.

By educating students in this broad array of technologies, the ICT program promotes the emergence of effective national ICT infrastructures for accelerated social and economic development. ICT graduates at AIT are prepared to serve the varied needs of the higher-education, public and private sectors, as well as to play a leading role in the sustainable development of the region and its integration into the global economy.

2. Research Facilities and Laboratories

There is a rapidly growing and constantly evolving interest in ICT throughout the academia and society. To support this, the evolution and the benefits of ICT in our lives, the ICT field of study at AIT continues to research and develop of ICT. The field of study covers a wide variety of research supported by the body of faculty consisting of a multi-professional team of international experts in telecommunication, computer science, educational technology and related fields.

The faculty has a strong academic background ranging from wireless and optical networks, through hardware and software, to web education and other e-services.

Research subjects include those on ICT applications (e-services such as e-learning, e-health, e-governance, rural development, knowledge creation and knowledge dissemination); on the information
technologies (e.g. operating systems, programming languages, information storage and retrieval); on the communication infrastructure (e.g. networks, transmission technologies, switching and routing). Research specializations are in adaptive technologies; computer-supported collaboration; Home networking; ICT security; online communities; and voice over IP. The ICT area of study shares the research facilities and laboratories of the Telecommunications field of study.

3. Faculty and Research Staff

The ICT Field of Study draws from the faculty and research staff of the Computer Science, Information Management, Remote Sensing & Geographic Information Systems, and Telecommunications Fields of Study.

Adjoint Faculty

TEERAWAT ISSARIYAKUL, B.Eng. Thammasart University, Thailand; M.Eng. Asian Institute of Technology, Thailand; Ph.D. University of Manitoba, Canada.

Assistant Professor [Markov-based modeling and Analysis; Markov Decision Process, protocol optimization, Cross-layer analysis in cognitive radio networks, scheduling algorithms centralized wireless networks, medium access control protocols in single-hop and multi-hop distributed wireless networks, model analysis using stochastic domination and supermodularity properties]

From Telecommunications Field of Study

TEERAPAT SANGUANKOTCHAKORN, Associate Professor

R M A P RAJATHEVA, Visiting Faculty
POOMPAT SAENGUDOMLERT, Adjunct Faculty
From Computer Science and Information Management Fields of Study
KANCHANA KANCHANASUT, Professor
PHAN MINH DUNG, Professor
SUMANT GUHA, Professor
MATTHEW N. DAILEY, Associate Professor
VATCHARAPORN ESICHAIKUL, Associate Professor
PAUL JANECEK, Visiting Faculty
From Remote Sensing and Geographic Information Systems Field of Study
NITIN KUMAR TRIPATHI, Professor
KIYOSHI HONDA, Associate Professor
SARAWUT NINSAWAT, Lecturer

4. Publications

Papers in Refereed Journal


6. Masters Students’ Theses and Research Studies

Evaluation of Solar Energy Potential and Site Suitability for PV Farms by Using Multi Criteria Decision Support System
By: Mr. Sharang Dev Sharma
Supervisor: Prof. Nitin Kumar Tripathi

A User Interest-Aware Server Selection in Hybrid CDN-P2P Mesh-Based Architecture for Video-On-Demand Streaming
By Mr. Arnon Saengarunwong
Supervisor: Dr. Teerapat Sanguankotchakorn

Enhancing the Performance of AODV MANET using the Factor Based Neighbor Selection Method
By Ms. Abinaya Lakshmi Sakthi Subramanian
Supervisor: Dr. Teerapat Sanguankotchakorn

Assessment and Development of Afghanistan’s Open Government Data Portal
By: Mr. Abdul Ghafoor Talash
Supervisor: Dr. Chutiporn Anutariya

ICT Based Land Suitability Modeling for Urban Development Using Remote Sensing and Geographical Information System: A Case Study of Kabul City, Afghanistan
By: Mr. Hazrat Mohammad Wahdaty
Supervisor: Dr. Salvatore G.P. Virdis

Performance Comparison of Heuristic Task Scheduling Algorithms and Allocation Policies in Infrastructure as a Service (IaaS)
By: Mr. Abdullah Azizi
Supervisor: Dr. Teerapat Sanguankotchakorn

GIS-Based EGD Estimation at Subnational Level: A Case Study Khost, Afghanistan
By: Mr. Abdul Rahim Ahmadi
Supervisor: Dr. Hiroyuki Miyazaki

E-Learning Adoption and Architecture Design for Selected Afghan Universities
By: Mr. Nasim Jan Taniwall
Supervisor: Dr. Attaphongse Taparugssanagorn

Evaluation of Solar Energy Power Potential Along the Canal Using Geospatial Analysis
By: Mr. Varun Singh
Supervisor: Prof. Nitin Kumar Tripathi

Real-time Twitter Data Analytics using Stream Analytics in Microsoft Azure
By: Ms. Kavya Avula
Supervisor: Prof. Sumanta Guha, Dr. Teerapat Sanguankotchakorn

Hybrid Controller for Securing Software Defined Networks from Switch DDoS and ARP Poisoning Attacks
By: Mr. Arugonda Shiva Kumar
Supervisor: Dr. Teerapat Sanguankotchakorn

Uber Supply-Demand Gap
By: Mr. Harish Ankala
Supervisor: Dr. Teerapat Sanguankotchakorn, Prof. Sumanta Guha

Dynamic Allocation of Frequency Using GADIA for D2D Communications to Mitigate Interference in a Multicell Environment
By: Mr. Hari Krishna Adda
Supervisor: Dr. Teerapat Sanguankotchakorn

5. Doctoral Students’ Dissertation

Data Dissemination on MANET by Using Content Delivery Network (CDN) Technique
By: Ms. Nattiya Khaitiyakun
Supervisor: Dr. Teerapat Sanguankotchakorn

GIS-Based Optimization Framework for WLAN Access Point Placement Using Multi-Objective Genetic Algorithm
By: Mr. Augustinus Bayu Primawan
Supervisor: Prof. Nitin Kumar Tripathi

Performance Comparison of Heuristic Task Scheduling Algorithms and Allocation Policies in Infrastructure as a Service (IaaS)
By: Mr. Abdullah Azizi
Supervisor: Dr. Teerapat Sanguankotchakorn
Ambient Intelligent Wireless Sensor Network for Environmental Monitoring and Indoor Localization Using an Extended Kalman Filter
By: Mr. Karthik Muthineni
Supervisor: Dr. Attaphongse Taparugssanagorn

Visualization of Wine Reviews Data
By: Ms. Patkari Hima Bindhu
Supervisor: Prof. Sumanta Guha, Dr. Teerapat Sanguankotchakorn

Reducing the Computational Complexity of Multiple-Antenna Systems Using Precoding Techniques
By: Ms. Ganti V Sowmya
Supervisor: Dr. Teerapat Sanguankotchakorn

Fingerprint Recognition System Using Minutiae Extraction and Alignment-Based Matching Algorithm
By: Ms. B. Lavanya
Supervisor: Dr. Teerapat Sanguankotchakorn

Optimizing Power by Combining Small Cells with a Multiple-Antenna System for Maximum Energy Efficiency
By: Mr. Chintala Aravind Kumar
Supervisor: Dr. Teerapat Sanguankotchakorn

Vehicular Re-Routing Approach Using VANET
By: Mr. Pokuri Venkata Naga Sai Teja
Supervisor: Dr. Teerapat Sanguankotchakorn
1. Mission, Vision, and Core Values

SERD Mission
The School of Environment, Resources and Development is committed to excellence in graduate education as well as research and outreach activities. Through its academic programs and outreach units, SERD has been working towards capacity building and human resource development in the areas of resource management, development studies, and energy and environmental management.

SERD responds to regional needs by mobilizing and enhancing capacities for socially, economically and environmentally sound development in partnerships with public and private sectors. The School’s interdisciplinary approach integrates technological, natural and social sciences.

SERD Vision
SERD will continue its leadership role in offering excellent academic programs relevant to regional needs.

SERD research will be concentrated toward focal areas and are to be conducted by core teams.

SERD outreach will be community service oriented.

SERD Programs will be consolidated and financially viable. The School activities including the students, staff, faculty and curricula, will be subject to quality assessment.

SERD Core Values
- Interdisciplinarity
- Innovativeness
- Excellence
- Responsiveness

2. Thematic Groups, Fields of Study and Multi-disciplinary Programs

Through a rich and varied curriculum, students have many opportunities for intellectual growth. The School of Environment, Resource and Development and Technology offers degree and non-degree programs in three thematic groups:

**Department of Food, Agriculture and Bioresources**
- Agri Business Management
- Agricultural Systems and Engineering
- Aquaculture and Aquatic Resources Management
- Food Engineering and Bioprocess Technology

**Department of Energy, Environment and Climate Change**
- Climate Change and Sustainable Development
- Energy
- Environmental Engineering and Management
- MBA in Energy Business (SERD and SOM)
- Urban Water Engineering and Management (SERD and SET)

**Department of Development and Sustainability**
- Disaster Preparedness, Mitigation and Management (SERD and SET)
- Gender and Development Studies
- Natural Resources Management
- Pulp and Paper Technology
Regional and Rural Development Planning
Urban Environmental Management

Professional Master Programs (1 Year)
- Environmental Engineering and Management (in Vietnam)
- Energy Business Management (SERD and SOM)
- Urban Management (with HCMUARC)

3. Research Facilities and Laboratories

SERD provides laboratory, computer and information technology (IT) facilities for education and learning for graduate students, and research activities of graduate students, faculty, and sponsored and contracted projects.

SERD has six research laboratories in Agricultural Systems and Engineering, Aquaculture and Aquatic Resources Management, Food Engineering and Bioprocess Technology, Environmental Engineering and Management, Energy, and Pulp and Paper Technology, and each laboratory is unique with modern equipment, excellent guidance and assistance, and provides safe working facilities and environments to carry out experimental studies and research.

IT facilities are provided for everyone to attend their academic and research related activities. There are three computer centers maintained by the SERD at the SERD Main building (two computer laboratories), Agriculture and Food Engineering building and Energy Building which provides convenient working environment, with all the necessary facilities. These are open twenty four hours a day for use by students, staff and faculty. Full internet access is available to these PCs through a high speed network backbone which connects all academic buildings including the residence halls. A large number of PC software packages for applications such as word-processing, spreadsheets, network communications, and multimedia and file transfer utilities are available. High quality laser printers, scanning and CD writing facilities are available for students’ uses.

Furthermore, laboratories also have computer facilities, which enhance the productivity of the teaching and research activities of the school.

4. School Governance

Dean of School
RAJENDRA PRASAD SHRESTHA, BSc, Haryana Agri. Univ, India; MSc, DTechSc, AIT, Thailand.

Professor (Sustainable Land Management; Natural Resources Degradation and Environmental indicators; Landuse-climate, Geoinformatics)
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.

Department of Food, Agriculture and Bioresources are:

1) Agribusiness Management (ABM)
2) Agricultural Systems and Engineering (ASE)
3) Aquaculture and Aquatic Resources Management (AARM)
4) Food Engineering and Bioprocess Technology (FEBT)
1. Introduction

Agriculture plays a vital role in the economic growth of many country especially developing countries like of Asia including Thailand, China, India, Vietnam, Malaysia etc. Due the growing industrialization the importance of agri-products has increased several folds. The food and food-products import-export policies play important role in the overall development of any country and the world as a whole.

In developing countries, since last 25 years, majority of the young people educated, came from agriculture community or from the similar background. But, due to many reasons they have not been able to compete for available jobs, which demand specialized skills and knowledge. Even in their attempts to set up small entrepreneurial activities in non-farm sector they face many problems generally not encountered by such youths in urban areas. All these rural youths can now be supported for new opportunities of entrepreneurship in business activities related to Agriculture. They have the basic understanding of agriculture, which can be utilized for promotion of business enterprises revolve around agricultural activities.

Rationale

As the nature of rural economy of many developing countries of Asia-Pacific region shifts from subsistence farming to commercial food enterprises, a new breed of agribusiness professionals is needed to manage this transformation. The proposed program will cater the unique needs of agribusiness professionals, which comprise of knowledge and skills in elements of agriculture sector policy issues, technology, marketing and finance. Agribusiness professionals are needed in several sectors, including in multinational companies involved in corporate farming, food processing, packaging and marketing, agricultural finance institutions, agricultural cooperatives, animal feed industry, biotechnology industry, fertilizer and pesticide industry, irrigation and mechanical equipment manufacturing, medicinal plants/herbs, and government-initiated rural/ agricultural development schemes.

The agri-business management program builds on long standing strengths and experience in research, and internal and external postgraduate teaching in the fields of agricultural production, preservation, processing, agro- and food-industry management and marketing, and in agricultural development.

The program focuses on the potential for and contribution of the agribusiness industry in developing economies. It is aimed at enhancing small business entrepreneurship among primary producers of agri-food products, and traders and other market intermediaries in the value chain. The course is appropriate for entrepreneurs themselves and also for people working in the public sector and non-governmental organizations. Entrepreneurs and others will be enabled to take advantage of opportunities within the agri-food and related sectors, and increase the contribution of these sectors within public and national objectives.

Objectives

Specific objectives of the Masters Program in Agribusiness Management are:

- To train students, academics, researchers and professionals, to develop skills and practices in the area of good agricultural production, appropriate value addition, systematic marketing, food-chain supply and global trade.
• To enhance the sustainability and capability of agricultural enterprises by providing trained students with knowledge of international standards on food safety and traceability in agricultural production, local and global trade policies etc.

2. Faculty and Professional Staff

Faculty

GANESH. P. SHIVAKOTI

Professor, Agricultural Systems & Engineering and Natural Resources Management Fields of Study.
(Agricultural Development and Policy Analysis; Resource Development; Farming Systems; Natural Resources Management)

ANIL KUMAR ANAL

Assistant Professor, Food Engineering & Bioprocess Technology Field of Study.
(Agriculture and Food Biotechnology; Bionanotechnology; Functional Properties of Proteins and Polysaccharides; Food Colloids and Biopolymers; Encapsulation and Targeted Delivery of Biomolecules)

PEEYUSH SONI

Assistant Professor and ABM Coordinator, Agricultural Systems & Engineering Field of Study.
(Terramechanics; Agricultural Instrumentation; Controlled Environment Agriculture; Agricultural Systems Analysis; Analytical Techniques)

Visiting, Adjunct Faculty/Affiliated Faculty

CHAIYAPHOL KAEPRAKAISAENGKUL; PhD

Adjunct Faculty (Agricultural Machinery Design & Testing; Instrumentation & Measurement; Quality Control & Assurance)

Professional Staff

IMRAN AHMAD

Laboratory Supervisor, Food Engineering & Bioprocess Technology Field of Study. (Food Enterprises Productivity; Food Process Operations; Food Supply Chain)

3. Grants and Sponsored Research Completed in 2018

Distributional Effects of Disasters and Climate Change on Food Security (Phase I)
Duration: 01-Apr-2017 to 31-Mar-2018
Investigator(s): Dr John K.M. Kuwornu
Total Contracted Amount (THB): 160,600.00

Training Program on Food Industry Management
Duration: 12-Feb-2018 to 31-Mar-2018
Investigator(s): Dr John K.M. Kuwornu
Total Contracted Amount (THB): 4,20,658.40

4. Doctoral Students' Dissertation

The Effects of Land Tenure Systems on Smallholder Farmers’ Livelihood Management in the Context of Flood and Government Policy in Thailand
By: Ms. Thitiya Panichvejsunti
Supervisor: Dr. Clemens Grunbuhel

Assessment of the Role of Cooperatives and Networks in Food Supply Chains in Thailand
By: Ms. Jedsadaporn Sathapatyamon
Supervisor: Dr. John K.M. Kuwornu

Assessment of the Role of Cooperatives and Networks in Food Supply Chains in Thailand
By: Ms. Jedsadaporn Sathapatyamon
Supervisor: Dr. Peeyush Soni

Consumer Behavior and Purchase Intention Towards Organic Rice in Bangkok, Thailand
By: Ms. Hatairat Sakolwitayanon
Supervisor: Dr. Peeyush Soni

5. Masters Students’ Theses and Research Studies

Analysis of Consumer Preference for Locally-Produced Rice in Jakarta Province, Indonesia
By: Mr. Apri Wahyudi
Supervisor: Dr. John K.M. Kuwornu

Assessment of Factors Influencing the Export of Coconut Products from the Philippines: Johansen Cointegration Analysis
By: Ms. Marife Luardo Moreno
Supervisor: Dr. John K. M. Kuwornu

The Effects of Land Tenure Systems on Smallholder Farmers’ Livelihood Management in the Context of Flood and Government Policy in Thailand
By: Ms. Thitiya Panichvejsunti
Supervisor: Dr. John K.M. Kuwornu

The Effects of Land Tenure Systems on Smallholder Farmers’ Livelihood Management in the Context of Flood and Government Policy in Thailand
By: Ms. Thitiya Panichvejsunti
Supervisor: Dr. John K.M. Kuwornu
1. Introduction

This field of study emphasizes on sustainable agricultural and related technologies development through holistic approach for efficient food production for small holder agriculture.

2. Research Facilities and Laboratories

Agricultural Systems and Engineering (ASE) Laboratory caters to researchers, which address sustainability in agricultural production. The facilities are capable for implementing excellent agronomic and engineering researches on soils, water and plant, such as, plant growth and development, soil fertility and management, integrated pest management, plant water requirement, etc. Facilities to conduct researches on terramechanics, ergonomics and tillage are also available. The engineering aspects of agricultural production are dealt with through innovations and development of machines and equipment to enhance productivity and reduce human drudgery. These innovations are constructed at the ASE workshop.

Major laboratory equipment include a Spectra UV-VIS double PC double beam (scanning) flame photo meter; Digestion block; Trinocular Microscope MBL 2100; Stereo zoom microscope Model MSZ 5400; Porometer type AP4 Light meter WP4 Dewpoint Potential Meter; Mini-disk Infiltrometer Soil hydraulic conductivity; Tensio- Meter; Soil bin carriage system; Sony CXC-390 1/3” 3 CCD Camera; Spider 8 data logger; National Instrument DAQ; NI Vision Module; Dynamic strain amplifier; and an SC-900 Soil compaction meter.

The SERD Computer Lab III in the Agricultural and Food Engineering Building has various kinds of software packages for system analysis and simulation, including DSSAT (Decision Support System for Agrotechnology Transfer), Arc View etc. A Computer-Aided Design (CAD) workstation is also available for training the design of agricultural equipment. There is a machine workshop with facilities for fabricating various types of laboratory and experimental apparatus and models. Consultation and fabrication of different types of transducers can be provided. About 20 high-end PCs connected to the campus-wide Ethernet and ATM network and a high quality laser printer, scanning and CD writing facilities are available for students' uses.

3. Faculty and Professional Staff

Full-time Faculty
GANESH P. SHIVAKOTI; BS, MS, (Udaipur Univ., India); PhD, Michigan State Univ., USA.

Professor
(Agricultural Development and Policy Analysis; Resource Development; Farming Systems; Natural Resources Management)

PEEYUSH SONI; BEng (MPUAT, India); MS, DEng (AIT, Thailand)
Assistant Professor  
(Instrumentation and Measurement Techniques; Design & Testing of Agricultural Machinery; Precision Agriculture; Agricultural Systems Analysis; Analytical Techniques & Decision Tools for Agribusiness)

AVISHEK DATTA; B.Sc., M.Sc. (B.C. State Agri. Univ., India); PhD, University of New England, Australia

Assistant Professor (Agricultural Environments, Crop Productivity Management, Crop Eco-physiology and Modeling, Advanced Agricultural Experimentation)

ALEXANDER KEEN; PhD

Adjunct Faculty (Agricultural Soil Mechanics; Tillage and Traction; Machine Design)

CHAIYAPHOL KAEWPRAKAISAENGKUL; PhD

Adjunct Faculty (Agricultural Machinery Design & Testing; Instrumentation & Measurement; Quality Control & Assurance)

ANUCHIT CHAMSING; PhD

Adjunct Faculty (Agricultural Machinery Design & Testing; Agricultural Power & Machinery Management; Agricultural Systems Engineering)

Professional Staff

WATTANAPORN MESKUNTAVON, DTechSc

Senior Laboratory Supervisor (Crop Modeling; Farm Management; Laboratory Analyses of Soil and Plants)

4. Grants and Sponsored Research Completed in 2018

Nitrogen-use-efficiencies under precision agriculture management  
Duration: 4 Oct. 2017 - 31 Dec. 2018  
Project Investigator(s): Dr. Peeyush Soni  
Total Contracted Amount (THB): 1,501,500

Project Planning and Implementation-II  
Duration: 12 Jan 17 - 11 Jan 18  
Project Investigator(s): Dr. Avishek Datta  
Amount (THB): 370,000

Field evaluation of input-use-efficiencies under precision agriculture management  
Duration: 20 Apr. 2017 - 31 Oct. 2018  
Project Investigator(s): Dr. Peeyush Soni  
Total Contracted Amount (THB): 1,176,500

5. On-going Grants and Sponsored Research

Innovative Water Conservation Technologies for Enhancing Agriculture/Horticulture Productivity  
Project Investigators: Dr. Avishek Datta  
Total Contracted Amount (THB): 1,50,000.00

6. Publications

Papers in Refereed Journal


Shahab E. Saqib, John K. M. Kuwornu, Sanaullah Panzea Ubaid Ali, Factors determining subsistence farmers’ access to agricultural credit in flood-prone areas of Pakistan, Kasetsart Journal of Social Sciences


Bayu Taruna Widjaja Putra & Peeyush Soni, Enhanced broadband greenness in assessing Chlorophyll a and b, Carotenoid, and Nitrogen in Robusta coffee plantations using a digital camera, An International Journal on Advances in Precision Agriculture

Bayu T. Widjaja Putra, Peeyush Soni, Eiji Morimoto, Pujiyanto Pujiyanto, Estimating biophysical properties of coffee (Coffea canephora) plants with above-canopy field measurements, using CropSpec, International Agrophysics


Arif Surahman, Peeyush Soni, Ganesh P. Shivakoti, Reducing CO2 emissions and supporting food security in Central Kalimantan, Indonesia, with improved peatland management, Land Use Policy Volume 72, March 2018, Pages 325-332


Ravivan Suwansin, John K.M. Kuwornu, Avishek Datta, Damien Jourdain, Ganesh P. Shivakoti, Salvaging mortgage loans and land title redemption with revolving funds in Thailand, Agricultural Finance Review


Shahab E. Saqib, John K. M. Kuwornu, Mokbul Morshed Ahmad, Sanaullah Panzea, Subsistence farmers’ access to agricultural credit and its adequacy some empirical evidences from Pakistan, International Journal of Social Economics.


Meutia Zahara, Avishek Datta, Patchareeyaa Boonkorkaew, Abba Mishra, Effect of plant growth regulators on the growth and direct shoot formation from leaf explants of the hybrid Phalaenopsis 'Pink', Acta Agriculturae Slovenica


Conference

7. Doctoral Students' Dissertation

Determinants of Farming Households’ Access to Agricultural Credit in the Central Region of Thailand with Special Reference to Land Titles
By: Ms. Soontaree Sakprachawut
Supervisor: Prof. Rajendra Prasad Shrestha

Determinants of Farming Households’ Access to Agricultural Credit in the Central Region of Thailand with Special Reference to Land Titles
By: Ms. Soontaree Sakprachawut
Supervisor: Dr. John K. M. Kuwornu

By: Mr. Hayat Ullah
Supervisor: Dr. Avishek Datta

8. Masters Students’ Theses

Effect of Nitrogen Application Timings on Growth, Yield and Nitrogen Uptake of Rice under Different Cultivation Methods Subjected to Alternate Wetting and Drying Irrigation
By: Mr. Buyung Al Fanshuri
Supervisor: Dr. Avishek Datta

Effect of Nitrogen Application Rate and Cultivation Method on Growth, Yield and Nitrogen Use Efficiency of Rice under Alternate Wetting and Drying Irrigation
By: Mr. Sholih Nugroho Hadi
Supervisor: Dr. Avishek Datta

Effect of Illuminants on Growth, Energy and Ecological Efficiencies and Nutritional Quality of Lettuce in NFT Hydroponics
By: Ms. Pragya Priya
Supervisor: Dr. Peeyush Soni

Grain Yield and Water Productivity of Lowland Rice under Different Cultivation Methods and Alternate Wetting and Drying Moisture Regimes
By: Ms. Suman Giri
Supervisor: Dr. Avishek Datta

Development of a Smart Farm for Automated Irrigation and Fertilization
By: Mr. Natthakit Buato
Supervisor: Dr. Peeyush Soni

Development of a Smart Farm for Automated Planting and Weed Control
By: Mr. Todsaporn Chaowiset
Supervisor: Dr. Peeyush Soni
1. Introduction

AARM promotes research and development through sustainable aquaculture and fisheries. The Aquaculture Program has a wide spectrum of activities enabling it to address the constraints facing sustainable management and utilization of aquatic resources. The central theme is capacity building and innovation for sustainable Asian aquaculture: the advancement of individuals and institutions creating indigenous capacity in education, research and development.

2. Research Facilities and Laboratories

Aquaculture Laboratory serves the academic and research programs of AARM Program. It has modern equipment to analyze soil and water quality, nutrients in aquafeed and feedstuffs, diagnose diseases, and apply molecular biological tools for genetic stock improvement. Some of its major laboratory equipment includes a Distillation Unit; Extraction Unit; Incubator; UV/Vis Spectrophotometer; Soxtec, Fibertec and Kjeltec system, Real-time Polymerase Chain Reaction (PCR) machine, Geldocumentation system, Biosafety cabinets, centrifuges, ovens and incubators, microscopes with camera, multiparameter apparatus, digital balances, etc. The field facilities include a semi-commercial fish and prawn hatchery, outdoor tanks and earthen ponds for field research.

The AARM Fish Production Unit (FPU) comprises of a Hatchery with egg incubation and hatching unit, fry rearing unit, and a nursery system with tanks and ponds to produce sex-reversed fingerlings of Nile tilapia Chitralada strain. A freshwater prawn hatchery is also set up for production of giant prawn postlarvae for research and supply to farmers. A full-fledged farm at the AIT campus with earthen ponds for holding broodstock and rearing of table-sized fish is engaged in producing tilapia and other economically important fish for student research and sales.

3. Faculty and Research Staff

Emeritus Professor

PETER EDWARDS, BSc, University of Liverpool, UK; PhD, University of Texas, USA.

(General aquaculture with emphasis on recycling organic wastes; small-scale aquaculture/integrated farming; aquaculture for poverty alleviation; and systems approaches to education.

Full-time Faculty

KRISHNA R. SALIN, B.F.Sc and M.F.Sc, Kerala Agricultural University, India; PhD, Central Institute of Fisheries Education (Deemed University), Mumbai, India.

Associate Professor

( Innovative Aquaculture Systems, Ecosystem-based Aquaculture, Applied Genetics for Improved Aquatic Stocks, Breeding and Hatchery Management, Climate Change adaptation in Aquaculture)
RAM C. BHUJEL, BSc, Institute of Agriculture and Animal Sciences, IAAS, Chitwan, Nepal; MSc and PhD, AIT, Thailand;

Research Associate Professor
(Biostatistics and Research Design, Curriculum Development, Women in Aquaculture, Broodstock Nutrition/Management and Fry Production, Technology Transfer/Extension)

Visiting and Adjunct Faculty

AMARARATNE YAKUPITIYAGE, BSc, Univ of Kelaniya, Sri Lanka; MSc, AIT, Thailand; PhD, Univ of Stirling, Scotland.

Adjunct Faculty
(Aquaculture, Bioenergetics, Fish Nutrition, Statistics, Database Systems Development)

TAKASHI MATSUISHI, BA, MSc, PhD, University of Tokyo, Japan

Visiting Faculty
(Stock assessment, Fisheries management, Cetology)

PIKUL JIRAVANICHPAISAL, BSc, Mahidol University, Thailand; MSc, Kasetsart, University, Thailand; PhD, Mie University Graduate School and Faculty of Bioresources, Japan; PhD, Uppsala University, Sweden

Visiting Faculty
(Intestinal immunity in crustaceans, Shrimp and fish pathogenesis, Disease prevention in shrimp and other shellfish)

4. Grants and Sponsored Research Completed in 2018

Integrated Multitrophic Aquaculture (IMTA) as a sustainable farming system for Asia
Duration: 01- Dec- 2017 to 31-Dec-2018
Project Investigator: Dr. K. R. Salin
Total Contracted Amount (THB): 596,000.00

Assessment of technical and business skills for East African Aquaculture
Duration: 01-Nov-2017 to 31-Dec-2018
Project Investigator: Dr. K. R. Salin
Total Contracted Amount (THB): 615,808.00

Trainers’ Training on Integrated Coastal Management
Duration: 01-Apr-2018 to 31-Dec-2018
Project Investigator: Dr. K. R. Salin
Total Contracted Amount (THB): 2,012,746.46

5. On-going Grants and Sponsored Research

GeoServices for Sustainability (GeoS4S)
Duration: 01-Jun-2015 to 31-Dec-2019
Project Investigator(s): Nitin Kumar Tripathi, Dr. K. R. Salin
Total Contracted Amount (THB): 1,242,500.00

Gender in Aquaculture and Fisheries (GAF7)
Duration: 01-Sep-2015 to 30-Jun-2019
Project Investigator(s): Dr. Kyoko Kusakabe, Dr. K. R. Salin
Total Contracted Amount (THB): 2,730,000.00

Testing of sponin based feed supplements in in tilapia diet
Duration: 12-Feb-2018 to 12-Feb-2020
Project Investigator: Dr. Ram C. Bhujel
Total Contracted Amount (THB): 507,392.00

Testing of commercial products (feed additives) in tilapia diet to replace fish meal
Duration: 02-Apr-2018 to 01-Apr-2020
Project Investigator: Dr. Ram C. Bhujel
Total Contracted Amount (THB): 1,558,783.00

5. On-going Grants and Sponsored Research

GeoServices for Sustainability (GeoS4S)
Duration: 01-Jun-2015 to 31-Dec-2019
Project Investigator(s): Nitin Kumar Tripathi, Dr. K. R. Salin
Total Contracted Amount (THB): 1,242,500.00

Gender in Aquaculture and Fisheries (GAF7)
Duration: 01-Sep-2015 to 30-Jun-2019
Project Investigator(s): Dr. Kyoko Kusakabe, Dr. K. R. Salin
Total Contracted Amount (THB): 2,730,000.00

Testing of commercial products (feed additives) in tilapia diet to replace fish meal
Duration: 02-Apr-2018 to 01-Apr-2020
Project Investigator: Dr. Ram C. Bhujel
Total Contracted Amount (THB): 1,558,783.00

AIG-EnerGaia Research Partnership
Duration: 01-Nov-2018 to 31-Oct-2023
Project Investigator: Dr. K. R. Salin
Total Contracted Amount (THB): 4,640,000.00

Improve Producer Skills & Knowledge in East African Aquaculture
Duration: 01-Nov-2018 to 31-Dec-2019
Project Investigator: Dr. K. R. Salin
Total Contracted Amount (THB): 1,276,800.00

Curriculum development for Sustainable Seafood & Nutrition Security (SSNS)
Duration: 01-Nov-2017 to 31-Oct-2020
Project Investigator: Dr. Ram C. Bhujel
Total Contracted Amount (THB): 38,781,777.00

Asian Aquaculture 2018
Duration: 01-Sep-2018 to 31-Dec-2019
Project Investigator: Dr. K. R. Salin
Total Contracted Amount (THB): 2,696,796.93

6. Publications

Papers in Refereed Journal


Kerdmusic, C., Fernando T.S.R., Attasart, P., Vanichviriyakit, R.,
7. Doctoral Students' Dissertation

Comparative Evaluation of Growth, Survival and Disease Resistance of Nile and Red Tilapia Strains
By: Mr. Gabriel Arome Ataguba
Supervisor: Dr. K. R. Salin

8. Masters Students' Theses and Research Studies

Effects of Probiotics and Co-Culture of Tilapia and White Shrimp on Their Survival and Growth Performance
By: Ms. Kazi Atiah Taiyebi
Supervisor: Dr. Ram C. Bhujel

The Effect of Feeding Artemia on the Growth Performance of Scleractinian Coral *Pocillopora damicornis* (Linnaeus, 1758) in Captivity
By: Ms. Wiracha Charoendee
Supervisor: Dr. K. R. Salin

Comparative Study of Tilapia (*Oreochromis niloticus*) Farming During and After the Project Support in Timor-Leste
By: Mr. Mateus Salvador
Supervisor: Dr. Ram C. Bhujel

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Samantha D. Farquhar, Nisha Khanal, Madhav Shrestha, Mathew Farthing, Ram C. Bhujel, Socio-economic impacts of the Women in Aquaculture (WiA) project in Nepal, Kasetsart Journal of Social Sciences Available online 17 January 2018
1. Introduction

This field of study focuses on value addition of agricultural commodities by the application of bioconversion in various sectors of industry and agriculture. These include food processing, aquaculture, cosmetics and health care. BPT focuses on the application of microorganism and enzymes to meet the demands of the developing countries of the region. FE focuses on the systems for handling, processing and storage of both durable and perishable food products in developing of small-scale food processing technologies. Emphasis is also placed on the determination of material properties; design and development of new processes and related equipment; and computer modeling and simulation of postharvest and food processing operations.

2. Faculty and Research Staff

Full-time Faculty

ANIL KUMAR ANAL, DVM., University of Agriculture, Faisalabad, Pakistan; MSc. and PhD., AIT, Thailand

Associate Professor (Food and Pharmaceutical Biotechnology, Food safety and Risk Assessment; Dairy and Meat Process Technology, Food Colloids and Biopolymer, Functional Foods, Micro-/Nanoencapsulation, Bionanotechnology; Waste Valorization)

ATHAPOL NOOMHORM, BSc, Kasetsart Univ, Thailand; MEng, Lamar Univ, Texas; PhD, Louisiana State Univ, USA.

Professor and Coordinator (Agro-Industrial Development, Food Process Technology, Post Harvest Technology, Supply Chain; Waste Valorization.)

SUDIP KUMAR RAKSHIT, BSc, Loyola College; BTech, Jaivpur Univ, India; MTech, PhD, Indian Inst of Tech, India

Professor (Biochemical Engineering and Biotechnology; Biopolymers and Lipid Biotechnology; Fermentation and Enzyme Technology; Food Biotechnology; Functional Foods)

Vice President for Research

MUANMAI APINTANAPONG, BSc, KMITL Ladkrabang, Thailand; MSc,
AIT; Doctor of Technical Science, AIT, Thailand.

Adjunct Faculty (Food Process Engineering, physical properties of food materials)

Research & Lab. Supervisor

IMRAN AHMAD, B.Tech. (Hons.)- Agric. (Food Science and Technology) NWFP Agric. University Peshawar, Pakistan; M.Sc (Hons.)- Agric. (Food Science and Technology) NWFP Agric. University Peshawar, Pakistan; M.Sc. Postharvest and Food Process Engineering, AIT Thailand; Ph.D. Logistics and Supply Chain Management (Agri-Food), SIIT, Thammasat University, Thailand (On-going)

Research Staff

KSHITIJ PARAJULI, B.Eng. Civil Engineering, Tribhuvan University, Nepal; M.Eng. Water Engineering and Management, AIT, Thailand

Research Associate (SEA EU NET 2 Project, FEBT, SERD)

MEDHA KHATIWADA, B.Eng. Civil Engineering, Tribhuvan University, Nepal; M.Eng. Water Engineering and Management, AIT, Thailand

Research Associate (SEA EU NET 2 Project, FEBT, SERD)

KISHORE KRISHNA KUMAREE, B.Tech, Amity University, India; M.Eng, AIT, Thailand

Research Associate (Food Eng. & Bio-Process technology), SERD, AIT, Thailand

3. Grants and Sponsored Research Comletes in 2018

Global Science Technology & Innovation Conference series

Duration: 01-Jun 2017 – 31-Aug-2018
Project Investigators: Dr. Anil Kumar Anal
Total Contracted Amount (THB): 38,79,056.25

Training Program on Food Industry Management
Duration: 12-Feb 2018 – 13-Mar-2018
Project Investigators: Dr. John K. M. Kuwornu
Total Contracted Amount (THB): 4,18,000.00

4. On-going Grants and Sponsored Research

Recycling & Value Addition of Fish Skin Waste to Produce Bioactive Peptides
Duration: 28-Feb 2018 – 31-Mar-2019
Project Investigators: Loc Thai Nguyen
Total Contracted Amount (THB): 31,221.00

Evaluation of Food Loss & Waste & Initiatives for their Utilization as High Value & Development of Draft Strategy in Asia
Duration: 01-Feb 2018 – 31-Aug-2019
Project Investigators: Dr. Anil Kumar Anal
Total Contracted Amount (THB): 2,500,000.00

5. Publications

Papers in Refereed Journal


Pradyawong, S., Juneja, A., Bilal Sadiq, M., Noomhorm, A., Singh, V., Comparison of cassava starch with corn as a feedstock for bioethanol production, Energies.

Prospects for food fermentation in Southeast Asia, topics from the tropical fermentation and biotechnology network at the end of the Asifood Erasmus+project, Frontiers in Microbiology.

Jadhav, R., Anal, A.K., Experimental investigation on biochemical, microbial and sensory properties of Nile tilapia (Oreochromis niloticus) treated with moringa (Moringa oleifera) leaves powder, Journal of Food Science and Technology.


Surangna Jain, Anil Kumar Anal, Preparation of eggshell membrane protein hydrolysates and culled banana resistant starch-based emulsions and evaluation of their stability and behavior in simulated gastrointestinal fluids, Food Research International Volume 103, January 2018, Pages 234-242

Nileththi Yasendra Jayanath, Loc Thai Nguyen, Thu Thi Vu and Lam Dai Tran, Development of a portable electrochemical loop mediated isothermal amplification (LAMP) device for detection of hepatitis B virus, RSC Advances.

UTTO, W. NOOMHORM, A. BRONLUND, J. E., Modeling of ethanol vapor controlled release active packaging for fresh peeled shallots, Italian Journal of Food Science.


6. Doctoral Students' Dissertation

Influence of Far-Infrared and Superheated Steam Cooking on Chicken Breast Meat By: Mr. Mano Suwannakam Supervisor: Dr. Anil Kumar Anal

Evaluation and Maintenance of Post-harvest Quality Changes of Fresh Nile Tilapia (Oreochromis niloticus) and Its Fillets by Using Moringa (Moringa oleifera) Extract and Chitosan By: Mr. Rakesh Rahul Jadhav Supervisor: Dr. Anil Kumar Anal

Development of Robust and Low-Cost Biopolymer-Based Surface Plasmon Resonance Nano Immunosensor for the Detection of Ochratoxin A in Coffee By: Ms. Zainia Rehmat Supervisor: Dr. Anil Kumar Anal

7. Masters Students' Theses and Research Studies

Evaluating Drying Kinetics and Physicochemical Properties of Purple Sweet Potato (Ipomoea batatas) Processed by Microwave Vacuum Drying By: Mr. Sigit Uji Marzuki Supervisor: Dr. Loc Thai Nguyen

Isolation and Characterization of Keratinolytic Bacteria from Chicken Farm Bed and Its Application in the Production of Keratin Hydrolysates from Chicken Feather By Mr. Saugat Prajapati Supervisor: Dr. Anil Kumar Anal

Formulation and Physicochemical Characterization of Astaxanthin Loaded Polysaccharide-Protein Based Emulsion and Evaluation of its Bioaccessibility By: Ms. Nuntarat Boonlao Supervisor: Dr. Anil Kumar Anal

Combined Effects of High-Pressure and Enzymatic Treatment on Hydrolysis of Tilapia (Oreochromis niloticus) Waste Proteins and Their Functionalities By: Mr. Ashutosh Kumar Hemker Supervisor: Dr. Loc Thai Nguyen

Detection of 3-monochloropropane-1,2-diol (3-MCPD) Using Molecularly Imprinted Poly (3-aminophenylboronic acid) By: Mr. Samaratunga Don Niroshan Chinthaka Gunawardena Supervisor: Dr. Loc Thai Nguyen

Development of pH-Responsive and Heat Resistance Polysaccharide-Protein Based Hydrogel Beads for Controlled Release of Bioactive Compounds By: Mr. Chaichawin Chavapradit Supervisor: Dr. Anil Kumar Anal

Isolation, Molecular Identification and Microencapsulation of Microorganisms in Biofertilizer to Enhance their Functionality By: Mr. Suwan Panjanapongchai Supervisor: Dr. Anil Kumar Anal

Optimization of Ultrasound Assisted Extraction (UAE) and Evaluation of Physicochemical and Bioactive Properties of Extracts and Resistant Starch from Black Glutinous Rice and its Bran By: Ms. Anjali Maniyam Pariyarath Supervisor: Dr. Anil Kumar Anal

Development and Evaluation of Polysaccharide-Protein Based Encapsulation System to Enhance the Stability of Folic Acid in Food and Beverage By: Ms. Mishenki Rajapakse Supervisor: Dr. Anil Kumar Anal

Assessing Food Safety Knowledge, Attitude and Practices of Catering Services in Long An Province, Vietnam By: Mr. Huynh Hoang Giang Supervisor: Dr. Loc Thai Nguyen
Development and Characterization of Cinnamon Oil-Based Emulsion as Biopreservative in Raw and Pasteurized Milk
By: Ms. Manimeldura Poshali Nirmani De Zoysa
Supervisor: Dr. Anil Kumar Anal

Value Chain Development and Feasibility Studies for Innovative Product Based on Large Cardamom (Amomum subulatum): A Case Study in Bhutan
By: Mr. Sonam Dorji
Supervisor: Dr. Anil Kumar Anal

Effects of Combined Wax, Gelatin and 1-Methylcyclopropene Coating on the Shelf Life of Bananas (Musa acuminata)
By: Mr. Udayanga Sampath Abeyesinghe
Supervisor: Dr. Loc Thai Nguyen

Ultrasound Assisted Extraction (UAE) of Phycocyanin from Microalgae to Enhance its Stability by Encapsulation
By: Ms. Arpapat Lapinee
Supervisor: Dr. Anil Kumar Anal
4.2: SERD – 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, leapfrogging 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.

Department of Energy, Environment and Climate Change are:

1. Energy
2. Environmental Engineering and Management
3. Climate Change and Sustainable Development
4. MBA in Energy Business (SERD and SOM)

4.2.1: SERD – ENERGY FIELD OF STUDY

1. Introduction

Energy related academic program at AIT was established in 1979. So far, over 1,134 students have graduated in the Energy studies. As of September 2012, about one hundred students are enrolled in Energy Field of Study. About thirty percent of the current students are at doctoral level. Apart from teaching and student research, faculty at Energy FoS is involved in a number of research projects. Some of the current research focuses of Energy FoS are Energy, environment and climate change, Energy for sustainable development, Renewable Energy and Energy efficiency, Electric power system management, and Energy economics and planning.

Student admitted to Energy Field of Study can specialize in one of the three areas.

• Electric Power System Management (EPSM)
• Energy Technology (ET)
• Energy Economics and Planning (EEP)
Details regarding Energy field of study activities are available at www.serd.ait.ac.th/energy

2. Research Facilities and Laboratories

Energy Laboratory serves as a facility for conducting experimental studies for courses, carrying out students and sponsored research, and testing of energy equipment as well as providing hands-on training. Laboratory functions are focused mainly on solar thermal energy, photovoltaics, biomass energy, energy management, thermodynamics and heat transfer, and electrical measurement and analysis. The laboratory includes two indoor laboratories, an energy park and a meteorological station. The indoor laboratories are equipped with experiment setups, testing apparatus and measuring equipment for thermal and electrical management studies, thermodynamics, fluid mechanics and heat transfer, and electrical power supply management. Energy Park covers 3980-m² outdoor research and demonstration laboratory equipped with photovoltaic systems, solar thermal (air and water) systems, biomass research and daylighting setups. The meteorological station records solar radiation and other meteorological data. Energy laboratory continues to carry out testing services such as fuel quality tests, gas composition tests, tests for heating value of fuels, solar thermal collector performance tests, solar water heater system performance tests and stove efficiency tests.

Among its major equipment include a Gas Analyzer; Campbell data logger; Ultrasonic flow-meter; Bomb colorimeter; and a Gas chromatography.

The SERD Computer Lab IV in the Energy Building has a large number of computers modeling software for energy planning and policy analysis. These include Model for Analysis of Energy Demand and Environmental Impacts (MAED, MEDEE-ENV, LEAP), Electricity System Planning (WASP-III Plus, ENPEP, DECPAC), Energy-Environmental Flow Optimization Model (EFOM-ENV), Wood Energy Planning Models, Energy-Environmental Models for estimation of impacts of energy externalities, air pollution emission and dispersion and climate change (CO2 DB, RAINS, TEMIC, ECOSENS, ISC) and Energy-Environmental Database Management Software (DBAVOID). An energy-environment database for Asia is maintained in this computer lab.

3. Faculty and Research Staff

Full-time Faculty

SIVANAPPAN KUMAR, BEng, Univ of Madras, India; MEng, AIT, Thailand; PhD, Inst. Natl. Polytechnique, Toulouse, France.

Professor [Renewable energy resources and technologies: Climate change and greenhouse gas mitigation: energy and sustainable development]

WEERAKORN ONGSAKUL, BEng, Chulalongkorn Univ, Thailand; MS, PhD, Texas A & M Univ, USA.

Associate Professor (Artificial Intelligence Applications to Power Systems; Parallel Processing Applications; Power System Operation & Control; Power System Deregulation & Restructuring)

ABDUL SALAM PAKKEERTHAMBY, BSc.Eng (Hons.) University of Peradeniya, Sri Lanka; M.Eng., D.Eng., AIT

Associate Professor (Bioenergy, Renewable energy; Energy conservation and efficiency; climate change mitigation)

JAI GOVIND SINGH, BEng., Motilal Nehru Natl. Inst. of Technology, India; MTech., Ph.D., Indian Institute of Technology, Kanpur, India

Associate Professor (Power system planning; Operation and control; FACTS controllers; Re-structuring of Electric Industry, Demand side management; Grid integration of renewable energy resources; Power distribution systems)

SHOBHAKAR DHAKAL, BEng., Natl Inst. of Technology, India; MEng., AIT, PhD., The University of Tokyo, Japan

Associate Professor (Modeling of Energy and carbon Emission, Scenarios Policy Analyses)

Visiting Faculty

BRAHMANAND MOHANTY, BSc, SAICE, India; MSc, AIT, Thailand; PhD, Institut National Polytechnique of Toulouse, France

Visiting Faculty [Demand-side management, Energy auditing and management, Energy Efficiency policies; and Rational use of technology]

CHARLES O. P. MARPAUNG, MSc, Statistics, Bogor Agricultural University, Indonesia; D. Eng, AIT

Visiting Faculty [Generation expansion planning; Energy economics and environmental modeling]

Research Staff

Ms. Neriza Cabahug, Research Assistant GNESD

Ms. Watcharathorn Chantinmathorn, Secretary (GMSARN Project)

Ms. Maria Kathrina Gratuito, Research Associate (RERIC)

Ms. Parichart Kammeerak, Secretary (RERIC)
4. Grants and Sponsored Research Completed in 2018

Foundations for climate resilient & sustainable growing settlements (URse)
Duration: 01-Mar-2017 - 30 Aug. 2018
Project Investigators: Dr. Sobhakar Dhakal
Contracted Amount (THB): 4,36,406.07

Global Science Technology and Innovation Conference series
Duration: 01-May 2017- 30-Sep-2018
Project Investigators: Dr. Sobhakar Dhakal
Contracted Amount (THB): 383,400

Retscreen Expert-Trainer
Duration: 01-Mar 2018- 01-Dec-2018
Project Investigators: Prof. S. Kumar
Contracted Amount (THB): 1,20,000.00

5. On-going Grants and Sponsored Research

PEA - AIT Scholarship Program
Duration: 15-Feb-2016 to 14-Feb-2020
Project Investigators: Dr. Weerakorn Ongsakul
Total Contracted Amount (THB):20,212,000.00

Bangchak Initiative and Innovation Center at AIT
Project Investigators: Dr. Weerakorn Ongsakul, Prof. Rajendra P. Shrestha, Dr. Jai G. Singh, Dr. P. Abdul Salama, Dr. Anil K. Anal, Dr. Thammarat Koottatap
Total Contracted Amount (THB): 50,000,000

Energy Publications Project 2018
Duration: 01-Jan 2018- 31-Dec-2020
Project Investigators: Dr. Weerakorn Ongsakul, Prof. S. Kumar
Contracted Amount (THB): 1,914,400

6. Doctoral Students' Dissertation

Technical and Financial Analysis of an Optimally Placed Wind Farm Project using a Binary PSO Program
By: Mr. Sittichoke Pookpunt
Supervisor: Prof. Weerakorn Ongsakul

Sustainable Municipal Solid Waste Management Systems for Small and Medium Sized Cities in Thailand
By: Ms. Rotchana Intharathirat
Supervisor: Dr. P. Abdul Salam

7. Masters Students' Theses and Research Studies

Analysis of a Hybrid Renewable Microgrid System for Nainativu Island, Sri Lanka
By: Mr. Masingha Kavinda Randima Wijayawardena
Supervisor: Prof. Weerakorn Ongsakul

Assessing and Promoting Sustainability on AIT Campus
By: Mr. Ravi Anand
Supervisor: Prof. Sivanappan Kumar

Municipal Solid Waste to Energy Opportunities in Kakinada City, India
By: Mr. Indana Venkata Appala Mani Kumar
Supervisor: Dr. P. Abdul Salam

A Study on Biogas Production from Food Waste in Hosur, India
By: Mr. Naveen Venkatesh Vinod Pampana
Supervisor: Dr. P. Abdul Salam

By: Mr. Mardione Albert Compoc Mozo
Supervisor: Prof. Sivanappan Kumar

Success Determinants for Off-Grid Rural Electrification Program
By: Ms. Jyotsna
Supervisor: Prof. Sivanappan Kumar

Implications of Introducing Alternative Fuel Vehicles to Public Van Services in Chonburi Province
By: Ms. Boonyawee Worapipat
Supervisor: Dr. P. Abdul Salam

Implications of Electric Mobility for Kathmandu Valley on Energy Demand, Greenhouse Gas Emissions and Analysis of Barriers
By: Mr. Bhavin Pradhan
Supervisor: Dr. Shobhakar Dhakal

Greenhouse Gas (GHG) Emissions and Implications of Policies for the Metropolitan City of Colombo, Sri Lanka
By: Ms. Samidhi Amodhya Wickremesinghe
Supervisor: Dr. Shobhakar Dhakal

Estimation of CO2 Emissions from Passenger Road Transport in India: A Vehicle Stock Modelling and Scenario Analysis Based Approach
By: Mr. Rohith C Unni
Supervisor Dr. Shobhakar Dhakal

Design and Evaluation of a Microalgae Cultivation System
By: Mr. Nilay Kumar Sarker
Supervisor: Dr. P. Abdul Salam

Irregular Power Consumption Identification by Using Support Vector Machine and Neural Network Classification
By: Mr. Pradya Panyainkaew
Supervisor: Prof. Weerakorn Ongsakul

Harmonic Analysis of High Penetration of Solar Rooftop Systems in an Unbalanced EV Loading Distribution Network
By: Mr. Phuriphat Samphanthasit
Supervisor: Prof. Weerakorn Ongsakul

Optimal Procurement of Energy and Ancillary Services in Smart Grid
By: Mr. Do Quang Viet
Supervisor: Dr. Jai Govind Singh

Multi-Objective Optimization for Enhancing System Coordination Restoration by Placement of Fault Current Limiters on an Active Distribution System with System Reliability Considerations
By: Ms. Rachawadee Puangskura
Supervisor: Dr. Jai Govind Singh

Biogas Digestate as a Cooking Fuel
By: Mr. Kondamuri V. V. Satyanarayana Swamy
Supervisor: Dr. P. Abdul Salam

A Study of Pyrolysis of Rice Residues in Andhra Pradesh, India
By: Mr. Peparthi Murali
Supervisor: Dr. P. Abdul Salam

Short-term Solar Forecasting Using Deep Long Short-Term Memory Recurrent Network Program
By: Mr. Tanawat Laopaiboon
Supervisor: Prof. Weerakorn Ongsakul

Development of an Online Monitoring and Control System for Decentralized Anaerobic Digesters
By: Mr. Kadupitige Naleen Dhananjaya Silva
Supervisor: Dr. P. Abdul Salam

Frequency Stability Analysis of Virtual Power Plants in a Microgrid Using Load Droop Control Method
By: Mr. Sukit Ingrasert
Supervisor: Dr. Jai Govind Singh

Assessment of Cold Densified Pellets Derived from Rice Residues as Cooking Fuel
By: Mr. Balla Goutham Chandra
Supervisor: Dr. P. Abdul Salam

Analysis of Opportunities for Waste to Energy in Cassava Sago Industry
By: Mr. Vankayala Venkata Sandeep
Supervisor: Dr. P. Abdul Salam

Estimation of Process and Energy CO2 Emissions of the Indian Cement Industry
By: Mr. Shaik Madar Saheb
Supervisor: Dr. Shobhakar Dhakal

Carbon Foot Print of the Cement Industry: A Case Study in India
By: Mr. Shafiqh Mohd
Supervisor: Dr. P. Abdul Salam

Cross-border Electricity Trade: Opportunities and Challenges for Bangladesh
By: Mr. H.M. Enamul Haque
Supervisor: Dr. Shobhakar Dhakal

Analysis of a Three Phase Electric Spring in Solar PV Connected Power Networks
By: Mr. Swejan Rangishetti
Supervisor: Dr. Jai Govind Singh

Energy and Environmental Implications of a Passenger Transport in Hyderabad, India
By: Mr. Ragi Sai Kiran Reddy
Supervisor: Dr. Shobhakar Dhakal

A Study on Energy Use in an Educational Institution Using RETScreen
By: Mr. Kolluru Venkata Surya Vinay Krishna
Supervisor: Prof. Sivanappan Kumar
Load Profile Management by Using Energy Storage and Solar PV in Power Distribution Systems
By: Mr. Kean Pagna
Supervisor: Dr. Jai Govind Singh

Implications of the Large Scale Introduction of Electric Vehicles (EVs) on Energy and the Environment in Thailand
By: Mr. Patipop Amornpanthang
Supervisor: Dr. Shobhakar Dhakal

Optimal and Stochastic Aggregation of Electric Vehicles in Smart Distribution System Considering Dynamic TOU Pricing
By: Mr. Pantakan Tangeuab
Supervisor: Prof. Weerakorn Ongsakul

By: Mr. Natakornpong Veerachayapornkul
Supervisor: Prof. Weerakorn Ongsakul

Smoothening the Load Profile by Using a Fuzzy Control Strategy of Plug-in Electric Vehicles (PEVs) in Smart Grids
By: Mr. Vemuri Hruday
Supervisor: Dr. Jai Govind Singh
1. Introduction

Environmental Engineering at AIT began in 1964 with the need for sanitary engineering to address the problems of providing adequate water supplies and sanitation facilities. This pioneering environmental engineering program has grown into a range of fields needed to tackle the environmental issues facing Asia today.

Environmental Engineering and Management Field of Study is part of the School of Environment, Resources and Development. The overall program looks for solutions to environmental problems, water supply and sanitation, wastewater treatment and disposal systems, air pollution, solid and hazardous wastes, waste minimization, and life cycle assessment, environmental impact assessment and management and environmental toxicology. The three major focal areas are Environmental Technology and Management, Environmental Toxicology, Technology and Management, and Water and Wastewater Engineering.

2. Research Facilities and Laboratories

The Environmental Engineering (EE) Laboratory is housed with facilities to handle a wide range of knowledge and skills in problem solving for industrial needs and analytical works for physical, chemical, microbiological, and environmental parameters such as water and wastewater quality, air pollutants and noise level, and solid waste. For teaching, training and research purposes, the EE laboratory is categorized into three sub-laboratories namely, research, ambient, and environmental research station. For lab and pilot scale testing purposes, the ambient laboratory has furnished with facility to conduct experiments for treating sludge, sewage, air toxics and industrial wastes. It is also housed with advanced water and wastewater treatment units such different membrane bioreactors, and high rate anaerobic treatment processes with methane gas recovery. The Environmental Research Station consists of pilot scale aerobic and anaerobic biological wastewater treatment units, constructed wetlands, waste stabilization ponds, a lysimeters for solid waste treatment, a hazardous wastewater treatment plant and ambient air monitoring station.

Among its major equipment include Gas Chromatograph; High Performance Liquid Chromatograph; Atomic Absorption Spectrometer; Total Organic Carbon Analyzer; Ion Chromatograph, Induced Couple Plasma, UV Spectrophotometer; Supercritical Fluid Extractor; Microwave Digestion System; Primus Thermal Cyclers; Universal Mutation Detection System; Microscope; Microbalance; Microcentrifuge.

3. Faculty and Research Staff

Full-time Faculty

AJIT P. ANNACHHATRE, BTech, PhD, Indian Inst of Tech, Kanpur, India.

Professor (Anaerobic Wastewater Treatment; Biofilm Processes; Environmental Biotechnology; Environmental Impact Assessment; Mathematical Modeling)

CHETTIYAPPAN VISVANATHAN, BTech, IIT, Madras, India; MEng, AIT
Annual Report on Research 2018

Thailand; PhD, Inst Natl Polytech, Toulouse, France.

**Professor** (Cleaner Production; Industrial Environment Management; Membrane Technology for Water and Wastewater Treatment and, Solid Waste Management)

NGUYEN OANH THI KIM, Dip Eng, Odessa Hydrometeorology Inst, Ukraine; MEng, DEng, AIT, Thailand.

**Professor** (Air Pollution Engineering and Management: Modeling, Monitoring, Exposure Assessment; Climate and Air Quality Interaction: Environment Co-Benefit of SLCP Emission Reduction; Industrial Environment Management: General Environment Management, Advanced Emission Control Techniques)

OLEG SHIPIN, MSc., Univ. of Saratov; DSc., Inst of Biochemistry and Physiology of Microorganisms, Moscow, Russia.

**Associate Professor** (Ecological Engineering for climate change adaptation; Environmental Impact Assessment; Microbial biotechnology and nanotechnology; Natural systems (ponds and wetlands) as Wastewater treatment systems; Microbial aspects of Environmental Engineering; Health and Ecological Risk assessment)

THAMMARAT KOOTATEP, BEng, Chiangmai Univ; MEng, DEng, AIT, Thailand.

**Associate Professor** (Decentralized Waste and Wastewater Treatment Systems; Sustainable Sanitation; Eco-engineering Technology for Waste and Wastewater Treatment and Management; Environmental Health and Sanitation)

**Visiting and Adjunct Faculty**

CHONGRAK POLPRASERT, BEng, Chulalongkorn Univ, Thailand; MEng, AIT, Thailand; PhD, Univ of Washington, USA.

**Adjunct Faculty** (Hazardous Waste Engineering; Resources Recovery; Sanitation)

DOULAYE KONÉ, MSc, Univ of Cocody, Côte d'Ivoire; MSc & M Advance Studies, Université de Liège, Belgium; PhD, Swiss Federal Institute of Technology Lausanne, Switzerland.

**Adjunct Faculty** (Water and Sanitation)

HUNG NGUYEN-VIET, BSc, Hanoi Univ of Education, Vietnam; MSc, PhD, Univ of Franche-Comté, France.

**Adjunct Faculty** (Life and Environmental Sciences)

KARE HELGE KARSTENSEN, BS, MS, Univ of Oslo; MBA, Heriot Watt Univ, UK; MLaw, Univ of Oslo; DrSc, Norwegian Univ of Science and Technology, Trondheim, Norway.

**Visiting Faculty** (Sustainable Management of Industrial and Hazardous Wastes; Management of Hazardous Chemicals, POPs and Obsolete Pesticides; Sustainable Production of Cement and Co-Processing of Alternative Fuel and Raw Materials and Hazardous Wastes; Control and Minimization of Unintentionally Produced POPs (dioxins, furans, PCBs and HCB) and Application of Best Available Technologies & Best Environmental Practices (BAT/BEP)

KIMBERLY NEIL IRVINE, BSc, Toronto Univ, Canada; MSc, PhD, McMaster Univ, Canada.

**Adjunct Professor** (Hydrology and Water Resource Management, with specific emphasis on evaluating water quality in urban-impacted water bodies)

PREEDA PARKPIAN, BSc, Kasetsart Univ, Thailand; MSc, Mississippi State Univ; PhD, Texas A&M Univ, USA.

**Adjunct Faculty** (Ecotoxicology; POPs; Heavy Metals; Micronutrient Chemistry; Remediation of Polluted Soil and Water)

SHINICHI OKAMOTO, BEng, MEng, DEng, Waseda Univ, Japan.

**Visiting Professor** (Statistics and Environmental Management Systems)

SIDDHARTH K. JABADE, BE and ME, Univ of Pune, India; PhD, IIT Bombay, India.

**Adjunct Professor** (Intellectual Property Specialist)

**Affiliated Faculty**

JUTAMAAD SATAYAVIVAD, PhD, Mahidol Univ, Thailand.

**Affiliated Faculty** (Pharmacology)

KHUNYING MATHUROS RUCHIRAWAT, PhD, Massachusetts Institute of Technology, USA.

**Affiliated Faculty** (Nutrition Biochemistry and Metabolism)

SKORN MONGKOLSUK, PhD, Univ of Maryland, USA.

**Affiliated Professor** (Biological Science)

AIRADA POMPANWONG, BSc

**Research Assistant** (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

ARAYA WICHEANSAN, BSc

**Research Assistant** (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

AROSHA S. KUMARAGE, BA

**Research Assistant** (Financial management and assist the team in regular research project and training activities) Manages research projects,
prepares technical reports and presentations)

ATITAYA PANUVATVANICH, DEng
Research Specialist (Manages research projects; assists in project coordination, prepares project reports, prepares project budgets and manages project finances; assist team leader in training activities)

CHACHSAKHOL THANADILOK, BSc
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

CHAIYAPORN IMSAPSANGWORN, MSc
Laboratory Supervisor (Supervises instrumentation and data acquisition, calibration and maintenance of analytical instruments, assistant to senior laboratory supervisor for such as teaching, lab management)

CHALOEMCHAI SAENTIP, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

CHANYA LEENASEN, BSc
Secretary (Provide administrative support to faculty, staff and students through conducting and organizing administrative duties and activities)

CHAWALIT CHAIWONG, BSc
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

CHUTHATHIP SIRIPONG, MEng
Research Associate (Manages research projects, prepares technical reports and presentations)

ILADA PHUAKMOOL, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

JARUWAT WATANATANACHART, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

JIRAPAN DATHONG, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

KANOKWAN WANGCHINA, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

KIM WON KWON, MEng
Research Associate (Manages research projects, prepares technical reports and presentations)

MINGKWAN WANITCHOW, BSc
Research Associate (Manages research projects, prepares technical reports and presentations)

NAN KHAM SYNE, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

NATTHAPONG PROYSURIN, MEng
Research Associate (Manages research projects, prepares technical reports and presentations)

NAWATCH SURINKUL, DEng
Research Associate (Manages research projects; assists in project coordination, prepares project reports, prepares project budgets and manages project finances; assist team leader in training activities)

NGUYEN PHAN DONG, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

NGUYEN THANH HANG, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

NIMITR BUNRUANG, BTech (Mech.)
Senior Technician (Responsible for the repair and maintenance of related machines, assists students in laboratory experimental work and experimental set-up, carry out routine maintenance and repair of laboratory equipment and facilities)

NUTNICHA TAJAI, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

ORATHAI KLUBBARKOH, BSc
Senior Technician (Chemistry and environmental analysis for environmental samples as well as prepare for chemical and glassware
PANNAWEE MEKWICHAI, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

PANNITA SUTTISAWAD, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

PANUPONG BOONYANUN, BTech (Mech.)
Senior Technician (Responsible for the repair and maintenance of related machines, assists students in laboratory experimental work and experimental set-up, carry out routine maintenance and repair of laboratory equipment and facilities)

PAUL JACOB, MEng
Research Associate (Manages research projects, prepares technical reports and presentations)

PHANWATT PHUNGSAI, MEng
Research Associate (Manages research projects, prepares technical reports and presentations)

PIYANAD AKSORNPIM, BSc
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

PONGSAKORN CHAICHAI, BSc
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

PRAKRITI KASHYAP, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

QIUSHI XU, MEng
Research Associate (Manages research projects, prepares technical reports and presentations)

RARI CHONTONG, BSc
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SALAYA PHUNSIRI, MSc
Senior Laboratory Supervisor (Administrative for Environmental Engineering Laboratory as well as supervise for experimental and research projects on water, wastewater, air pollution, and solid wastes analysis)

SANIRAT SANGMUANG, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

SAROJ KUMAR CHAPAGAIN, PhD
Senior Research Engineer (Manages research projects, assists in project coordination, prepares project reports, assist team leader in training activities)

SITA CHAIHENG, BSc
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SUPAPORN PIROMSRI, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SOMPOKE KINGKAEW, MSc
Research Associate (Manages research projects, prepares technical reports and presentations)

SUMETH WONGKIEW, MEng
Research Associate (Manages research projects, prepares technical reports and presentations)

T.D.W. RATHNAYAKE, BSc
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

TIPPAWAN SINGHOPON, BEng
Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)
4. Grants and Sponsored Research Completed in 2018

Turning rice straw into cooking fuel for air quality and climate co-benefit in selected GMS countries
Duration: 15-Dec-2014 – 15-Jun-2018
Project Investigator: Prof. Nguyen Thi Kim Oanh
Total Contracted Amount (THB): 19,49,869.17

Community Scale, decentralised Anaerobic Digestion for energy and resource recovery
Duration: 01-May-2016 – 31-Oct-2018
Project Investigator: Prof. C. Visvanathan, Dr.P. Abdul Salam (THB): 64,14,637.37

Reports on drinking water services & technologies in Asian countries Phase III
Duration: 01-Apr-2017 – 30-Sep-2018
Project Investigator: Prof. C. Visvanathan
Total Contracted Amount (THB): 1,58,257.56

Development of a Thermophilic Anaerobic Membrane Bioreactor by Using PTFE Membrane for Wastewater Treatment & Biogas Production
Duration: 01-Oct-2017 to 30-Sep-2018
Project Investigators: Prof C Visvanathan (THB): 213,562.50

Creating wider impacts of rice straw derived fuel use as cooking
Duration: 01-Jul-2017 to 15-Jun-2018
Project Investigator(s): Prof. Nguyen Thi Kim Oanh
Total Contracted Amount (THB): 1,84,821.66

Evaluating the Performance of Mitsubishi Membrane Aerated Biofilm Reactor (MABR) Lab Scale Membrane Modules
Duration: 01-Jun-2017 to 31-May-2018
Project Investigators: Prof C Visvanathan
Total Contracted Amount (THB): 1,45,794.60

Development of 20 year potential climate change mitigation target in Thailand’s domestic wastewater sector
Duration: 27-Nov-2017 to 20-Nov-2018
Project Investigators: Dr. Thammarat Koottatep
Total Contracted Amount (THB): 1,212,000.00

Green 3R Walls/Roofs Development on AIT campus
Duration: 02-Apr-2018 to 02-May-2018
Project Investigators: Dr. Oleg Shipin
Total Contracted Amount (THB): 57,691.00

Exposure Visit for Resource Recovery option of Faecal Sludge

Management (FSM) Value Chain
Duration: 01-May-2018 to 31-Dec-2018
Project Investigators: Dr. Thammarat Koottatep
Total Contracted Amount (THB): 7,87,072.00

5. On-going Grants and Sponsored Research

Innovative Toilet City
Duration: 01-Sep-2016 to 28-Feb-2019
Project Investigators: Dr. Thammarat Koottatep
Total Contracted Amount (THB): 5,044,150.00

AIT - BORDA Collaboration, Regenerative Sanitation Hub
Duration: 1 Jan. 2017 - 30 Dec. 2019
Project Investigators: Dr. Thammarat Koottatep
Total Contracted Amount (THB): 5,550,000

Technical Assistance for Technology Transfer and Commercialization Support of the AIT Toilet Innovations
Duration: 7 Nov. 2017 - 30 Apr. 2019
Project Investigator: Dr. Thammarat Koottatep
Total Contracted Amount (THB): 51,283,398.95

Short Term Actions 2017, BMGF project
Duration: 22-Nov-2017 to 30-Jun-2019
Project Investigator(s): Dr. Thammarat Koottatep
Total Contracted Amount (THB): 9,54,094.00

Assessment of Dioxin Emissions from point sources in Thailand
Duration: 01-Nov-2017 to 31-May-2019
Project Investigator(s): Prof. Nguyen Thi Kim Oanh, Dr. Ekboirding Winijkul
Total Contracted Amount (THB): 8,65,500.00

Biofuel Production from Innovative Algal Bioreactor Treating Domestic

89
Wastewater
Duration: 02-Jan-2018 to 31-Dec-2019
Project Investigator(s): Dr. Thammarat Koottatep
Total Contracted Amount (THB): 2,000,000.00

Faecal Sludge Management Toolbox Optimisation
Duration: 01-Jun-2018 to 31-Jul-2019
Project Investigator(s): Dr. Thammarat Koottatep
Total Contracted Amount (THB): 2,143,384.00

Effects of climate change & variability on community vulnerability & exposure to dengue in South East Asia (DENCLIM)
Duration: 01-Jan-2018 to 31-Dec-2021
Project Investigator(s): Dr. Oleg Shipin
Total Contracted Amount (THB): 3,678,400.00

Reports on drinking water services & technologies in Asian countries - Phase IV
Duration: 01-Apr-2018 to 30-Sep-2019
Project Investigator(s): Dr. C. Visvanathan
Total Contracted Amount (THB): 1,44,000.00

Effective faecal sludge planning to minimize environmental pollution & protect public health
Duration: 01-Aug-2018 to 31-Dec-2019
Project Investigator(s): Prof. Thammarat Koottatep
Total Contracted Amount (THB): 5,267,640.00

“Evaluating the Performance of Mitsubishi Multi-Layer Hollow Fiber Membrane for Membrane Aerated Biofilm Reactor (MABR) Application”
Duration: 01-Jul-2018 to 30-Dec-2019
Project Investigator(s): Prof. C. Visvanathan
Total Contracted Amount (THB): 148,500.00

Reduced Agrochemicals & Local Food Chain GHG Emissions through Organic Farming & Smart Factories in Thailand
Duration: 04-Dec-2018 to 31-Mar-19
Project Investigator(s): Dr. Ekbordin Winijkul
Total Contracted Amount (THB): 300,000.00

Capacity building activity of the Asia Pacific Clean Air Partnership (APCAP)
Duration: 21-Jul-2018 to 31-Mar-2019
Project Investigator(s): Wenchao Xue
Total Contracted Amount (THB): 2,691,100.00

Forward Osmosis for Nutrient Recovery
Duration: 01-Aug-2018 to 30-Apr-2019
Project Investigator(s): Prof. Nguyen Thi Kim Oanh
Total Contracted Amount (THB): 50,000.00

6. Publications
Papers in Refereed Journal
Li, L., Song, K., Visvanathan, C., Performances study of UV/O3 -aMBR recirculation system in treating polluted surface water, Bioresource Technology Bioresource Technology
Changsuphan, A., Kim Oanh N.T., Catalytic oxidation of volatile organic compounds by 13X zeolite coated with nZno in presence of UV and ozone at high bed temperature, Water, Air, & Soil Pollution.
Environmental Technology.

Didin Agustian Permadi, Nguyen Thi Kim Oanh, Robert Vautard, Assessment of emission scenarios for 2030 and impacts of black carbon emission reduction measures on air quality and radiative forcing in Southeast Asia, Atmospheric Chemistry and Physics (ACP)

Didin Agustian Permadi, Nguyen Thi Kim Oanh, Robert Vautard, Integrated emission inventory and modeling to assess distribution of particulate matter mass and black carbon composition in Southeast Asia, Atmospheric Chemistry and Physics (ACP).

Thammarat Koottatep, Saroj Kumar Chapagain, Chongrak Polprasert, Atitaya Panuvatvanich & Kyu-Hong Ahn, Sanitation situations in selected Southeast Asian countries and application of innovative technologies, Environment, Development and Sustainability.

Hamidreza Rudi, Yahya Hamzeh, Esmaeil Rasooly Garmaroody, Seyed Rahman Djafari Petroudy, Mousa M Nazhad, Multilayer assembly of ionic starches on old corrugated container recycled cellulosic fibers, Polymer International.


8. Masters Students’ Theses

Developing an Integrated Solid Waste Management Plan for Kabul City, Afghanistan
By: Mr. Ahmad Rashid Khoshbeen
Supervisor: Prof. Chettiyappan Visvanathan

Development of Temporal Distribution of Traffic Emission Using Google Traffic Application Program Interface
By: Ms. Sunicha Sirisubtawee
Supervisor: Dr. Ekbordin Winijkul

Assessment of Levels and Contributing Sources of Particulate Matter in the Bangkok Metropolitan Region
By: Mr. Tanatat Ratanajaratroj
Supervisor: Prof. Nguyen Thi Kim Oanh

Assessment of Idling Emission at Intersections and Possible Emission Reduction Measures by Traffic Management in Bangkok
By: Ms. Sasitorn Wongtongdee
Supervisor: Dr. Ekbordin Winijkul

Evaluation of Algal-Bacterial Photobioreactor Treating Blackwater
By: Mr. Sittikorn Kamngam
Supervisor: Dr. Thammarat Koottatep

Investigation of the Treatment Performance of Up-Flow Thermophilic Septic Tank for Treatment of Blackwater
By: Ms. Pimchanok Prapasriket
Supervisor: Dr. Thammarat Koottatep

Optimization of Polymer Dosage and Rotating Mesh Screen Operational Conditions for Solids-Liquid Separation of Faecal Sludge from a Vacuum Truck
By: Ms. Kamontip Kongsanit
Supervisor: Dr. Thammarat Koottatep

Remediation of Gypsiferous Mine Soils by Biological Sulfate Reduction Using Sugarcane Residues as Electron Donors
By: Mr. Jakpong Moonkawin
Supervisor: Prof. Ajit P. Annachhatre

Development of a Superhydrophilic Surface Using TiO2 Nanoparticles for Anti-Biofouling Applications in a Freshwater Environment
By: Ms. Nitsuphang Kongsawat
Supervisor: Dr. Oleg Shipin

Assessment of Levels and Contributing Sources of Airborne Polycyclic Aromatic Hydrocarbons in the Bangkok Metropolitan Region
By: Ms. Athicha Uttajat
Supervisor: Prof. Nguyen Thi Kim Oanh

Anaerobic Digestion of Press-Mud with Biological Pretreatment
By: Ms. Piyathida Somkid
Supervisor: Prof. Ajit P. Annachhatre

Assessment of Spatial and Temporal Changes in Heavy Metals Loading in the Chao Phraya River Basin, Thailand
By: Ms. Thanyachanok Onkong
Supervisor: Dr. Thammarat Koottatep

Effect of Constant and Fluctuating Temperature on the Performance and Stability of Solar Septic Tanks
By: Ms. Mayulee Suwannakaew
Supervisor: Dr. Thammarat Koottatep

Effects of Various Configurations of the On-Site Wastewater Treatment Units on Hydraulic Characteristics
By: Ms. Pluem Chuaychoo
Supervisor: Dr. Thammarat Koottatep

Assessment of Dioxins Emission from Point Sources in Thailand
By: Mr. Pachara Keereewong

7. Doctoral Students’ Dissertation

Assessment of Indigenous Mound Burning Practice Using Animal and Human Waste in Myanmar
By: Ms. Mya Hpoo Ngone
Supervisor: Prof. Thammarat Koottatep
Annual Report on Research 2018

Supervisor: Dr. Ekbordin Winijkul

Development of On-road Emission Inventory using Dynamic Vehicle Population Model in Naypyitaw, Myanmar
By: Mr. Kaung Htet Swan
Supervisor: Dr. Ekbordin Winijkul

Development of Green 3R Roof/Walls Bio-Technology for Retrofits Integrating Waste, Food and Energy Aspects
By: Ms. Vishakha Chawla
Supervisor: Dr. Oleg Shipin

Spatial Distribution and Temporal Variations of Non-Road Engine Emission in Thailand
By: Mr. Thammanoon Manorom
Supervisor: Dr. Ekbordin Winijkul

Assessment of Spatial and Temporal Changes in Nitrogen Distribution in the River Sediments of Chao Phraya Basin, Thailand
By: Ms. Thitima Jenkhetkan
Supervisor: Dr. Thammarat Koottatep

Performance Evaluation of Thermophilic Wet Anaerobic Digestion for Food Waste Treatment
By: Mr. Chirawit Leelayouthayotin
Supervisor: Prof. Chettiyappan Visvanathan

Removal of Chromium (VI) from Synthetic Aqueous Solution by Adsorption onto Coal Bottom Ash
By: Ms. Chawanlak Chaimung
Supervisor: Prof. Ajit P. Annachhatre

Assessment of Current Concentration of Particulate Matter in the Indoor Air on AIT Campus
By: Ms. Shahla Sharifi
Supervisor: Dr. Ekbordin Winijkul

Nitrate Removal from Groundwater by Adsorption onto Coconut Husk Granular Activated Carbon
By: Mr. Solomon Kofi Mensah Huno
Supervisor: Dr. Eldon Raj Rene & Prof. Ajit P. Annachhatre

Assessment of Multi-Functions Provided by Green Wetland Infrastructure in the Lower Chao Phraya River Basin
By: Mr. Apimuk Wichasorn
Supervisor: Dr. Oleg Shipin

Assessment of Multi-Functions Provided by Green Wetland Infrastructure in the Lower Chao Phraya River Basin
By: Mr. Apimuk Wichasorn
Supervisor: Dr. Oleg Shipin

Building Green Urban Resilience through Multi-functional Wetlands: The Case of Mandalay City, Myanmar
By: Ms. Hnin Lai Win
Supervisor: Dr. Oleg Shipin

Household Septic Tank Effluent Treatment with Woven Fiber Microfiltration Membrane (WFMF) for Water Reuse
By: Mr. Kawoon Sahak
Supervisor: Prof. Chettiyappan Visvanathan

Performance Investigation of IoT-Based Pilot Scale Anaerobic Digestion of Food Waste
By: Mr. Masihullah Safi
Supervisor: Prof. Chettiyappan Visvanathan

Assessment of Solid Waste Separation Practices: A Case Study of the AIT Campus
By: Ms. Marzia Khalil
Supervisor: Dr. Ekbordin Winijkul

Development of Integrated Wastewater Treatment for a Hardboard Production Factory in Thailand
By: Mr. Phyo Myint Oo
Supervisor: Dr. Oleg Shipin

Assessment of a Faecal Sludge Management Situation in Cambodia Using a Faecal Sludge Management Toolbox
By: Mr. Choum Chomnan
Supervisor: Prof. Chettiyappan Visvanathan

Assessment of Particulate Matter and Surface Ozone Air Quality and Associated Health Burdens in the Bangkok Metropolitan Region Using a Photochemical Grid Model
By: Ms. Nguyen Nhat Ha Chi
Supervisor: Prof. Nguyen Thi Kim Oanh

Developing Green 3R Wall/Roof Retrofitting Framework: A Case Study of Bang Kapi Area in Bangkok
By: Ms. Khwankhao Prasitsorn
Supervisor: Dr. Oleg Shipin

Performance Evaluation of a Thermophilic Anaerobic Membrane Bioreactor (TAnMBR) for Palm Oil Wastewater Treatment
By: Ms. Thet Lei Yee
Supervisor: Prof. Chettiyappan Visvanathan

Developing Minimum Liquid Discharge Strategies for Bangchak Oil Refinery’s RO Plant
By: Mr. Apinun Pipatparnukul
Supervisor: Prof. Chettiyappan Visvanathan

Experimental Investigation of Organics and Nitrogen Removal Using Membrane Aerated Biofilm
1. Introduction

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.

2. 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

3. 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
4. Publications

Papers in Refereed Journal


5. 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
+66 (0)2 524 6431
EECC-HoD@ait.asia
EECC-secretary@ait.asia

6. Masters Students' Theses

An Assessment of Potential Synergies and Conflicts in Climate Mitigation and Adaptation Policies of Nepal
By: Ms. Subina Shrestha
Supervisor: Dr. Shobhakar Dhakal.

Analysis of Drought under Climate Change in the Upper Mun River Basin, Thailand
By: Mr. Lam Tin Yiu Timothy
Supervisor: Prof. Mukand S. Babel
1. Introduction

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.

2. 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.

3. 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.

4. 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

5. Preferred Background for Master’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
+66 (0)2 524 5440,
+66 (0)2 524 5407
+66 (0)2 524 5439
epcoord@ait.asia
EECC-secretary@ait.asia
http://energy.ait.asia

6. Doctoral Students' Dissertation

Vulnerability of Coastal Fishing Communities to Climate Change: A Case Study Laemsing District, Chanthaburi Province, Thailand
By: Mr. Jirawat Panpeng
Supervisor: Dr. Mokbul Morshed Ahmad

7. Masters Students' Theses

Analysis of Factors Facilitating and Impeding Renewable Energy Financing in Nepal
By: Ms. Sarmin Rauf
Supervisor: Dr. Shobhakar Dhakal

Barriers to Upscale EV Charging Station Infrastructure in Thailand
By: Mr. Ms. Suthida Chaiyaratsamee
Supervisor: Dr. Shobhakar Dhakal

Barriers to Biomass Power Plant Business in Thailand
By: Mr. Mr. Prahlad Kishore
Supervisor: Dr. Shobhakar Dhakal

Adaptation Strategies for Drought Risk Reduction in Farmers' Livelihoods: A Case Study of Kabul, Afghanistan
By: Ms. Roya Quraishi
Supervisor: Dr. Avishek Datta
4.3: SERD – 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, economic, 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

Multidisciplinarity 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 preferred candidates, and hence the programs have experienced students and peer learning is also an important part of our learning.

Department of Development and Sustainability are:

1) Gender and Development Studies
2) Natural Resources Management
3) Pulp & Paper Technology Field of Study
4) Regional & Rural Development Planning
5) Urban Environmental Management
6) Disaster Preparedness, Mitigation and Management
1. Introduction

A small project, Women in Development, was initiated in the Human Settlements Development Division at AIT in the late 1980s. This grew into the Gender and Development Studies (GDS) as an academic unit in 1991, with financial support from CIDA, NORAD, the Dutch Development Cooperation and the Japanese Government.

Gender and Development Studies (GDS) is a center for graduate studies, research and outreach in the School of Environment, Resources and Development. Within the overall gender specific framework, GDS highlights both the need for specialized academic degree awarding studies in gender and development, and the integration of gender analysis and a gender relations perspective in AIT’s other fields of study.

2. Faculty and Research Staff

Full-time Faculty

KYOKO KUSAKABE, BA, Sophia University, Tokyo, Japan; MSc, PhD, AIT, Thailand.

Professor and Field Coordinator (Women’s employment in informal economy; Labor migration, Cross-border trade; Gender and development policy and planning; Gender issues in fisheries/aquaculture.)

PHILIPPE DONEYS, B.A., University of Toronto, Canada; MA, University of London, UK; PhD, Institut d’Etudes Politiques de Paris, France.

Visiting Faculty

BERNADETTE RESURRECCION, BSc, Assumption College, Philippines; MA, PhD, Inst of Social Studies, the Hague, the Netherlands.

Associate Professor (New Technologies, Industrialization and Gender HIV/AIDS; Gender Politics, Civil Society and Human Rights; Gender, Migration and Trafficking in Asia)

DONNA L. DOANE, M.A. Anthropology, M.A., M. Phil. Economics, Yale University, and Ph.D. Economics, Yale University

Adjunct Faculty (Economic Development, Gender and Development, Informal economy, home based work, social protection, technology policies, indigenous knowledge and technology blending, analyses of prejudice and discrimination, conflict, ethnicity and gender)

JULAIKHA BENTE HOSSAIN, MSc in University of Dhaka, Bangladesh; MSc. and PhD in Asian Institute of Technology, Thailand

Senior Research Specialist and Affiliated Faculty (Gender and Development with emphasis on the policies and programmes for gender equality and women’s empowerment; Gender, Employment and Organization; Gender and ICT for Development; Gender and Human Rights; Gender, Development and Public Policy; Gender Mainstreaming; Gender and Natural Resource Management)

REINA ICHII, B.A Economics, Tokyo Women’s Christian University, Tokyo, Japan; M.A International Studies, Sophia University Tokyo Japan; Ph.D Economics, University of South Australia, Adelaide, Australia, Ph.D preliminary Studies, Economics Hitotsubashi, University, Tokyo, Japan.

Visiting Faculty (Selected Topic: Gender and Development Economics)
3. Grants and Sponsored Research Completed in 2018

Jobs at the Borders: What policies can promote Gender and Inequality and growth in ASEAN economic zones?
Duration: 01-Jan-2016 to 31-Dec-2018
Project Investigator(s): Prof Kyoko Kusakabe
Total Contracted Amount (THB): 9,779,256.00

Into the Light: Female Youth Migrant Workers in Fishing Industry and their Access to Decent Work, Education and Social Protection
Duration: 1 Nov. 2017 - 30 Apr. 2018
Project Investigator(s): Prof Kyoko Kusakabe
Total Contracted Amount (THB): 933188

4. On-going Grants and Sponsored Research

Organizing expert consultation work-shop on land tenure and disaster and its social and gender impact
Duration: 8-Jul-2013 to 31-Dec-2019
Project Investigator(s): Kyoko Kusakabe/ Rajendra P Shrestha
Total Contracted Amount (THB):1,450,000

Migration and Collectives/Networks as Pathways out of Poverty: Gendered Vulnerabilities and Capabilities of Fishing Communities in Asia
Duration: 01-Mar-2016 to 28-Feb-2019
Project Investigator(s): Prof Kyoko Kusakabe
Total Contracted Amount (THB): 7,118,648.00

Building Policy Research Capacity in Myanmar
Project Investigator(s): Prof. Kyoko Kusakabe, Dr. Philippe Doneys; Dr. Joyee Chatterjee
Total Contracted Amount (THB): 79,50,523.04

Understanding Barriers & Working Pathways to Women’s Political Participation in Myanmar
Duration: 1 Jun. 2018 - 31 Aug. 2021
Project Investigator(s) Dr. Philippe Doneys; Prof. Kyoko Kusakabe; Dr. Joyee Chatterjee
Total Contracted Amount (THB): 17,84,590.00

National Survey on Attitudes towards Sexual Orientation, Gender Identity & Gender Expression (SOGIE) in Thailand
Project Investigator(s): Dr. Joyee Chatterjee, Dr. Philippe Doneys
Total Contracted Amount (THB): 131,000.00

7th Global Symposium on Gender in Aquaculture & Fisheries (GAF7)
Project Investigator(s): Dr. Kyoko Kusakabe, Dr. Salin Krishna
Total Contracted Amount (THB): 1,242,500.00

Capacity Building for increasing economic opportunity through participation of women entrepreneurs in Private Sector
Duration: 1 Aug 2018 - 30 Nov. 2019
Project Investigator(s): Dr. Julaikha B. Hossain
Total Contracted Amount (THB): 400,200.00

Training Workshop Ochanomizu University-2018
Project Investigator(s) Prof. Kyoko Kusakabe
Total Contracted Amount (THB): 230,791.07

5. Masters Students' Theses and Research Studies

Gender and Education: The Case of Pakistani Refugee Children in Thailand
By: Ms. Naveed Khalid
Supervisor: Dr. Philippe Doneys

Situation of Gay Conscripts in the Thai Military
By: Mr. Teerawit Sinturos
Supervisor: Dr. Philippe Doneys
Childcare Arrangement of Migrant Women Workers in the Garment Industry: A Case Study from the Magway Region, Myanmar
By: Ms. Soe Thet Nyo
Supervisor: Prof. Kyoko Kusakabe

The Childcare Arrangement of Migrant Women: A Case of Women Migrant Workers in Phnom Penh Special Economic Zone
By: Ms. Thida Kim
Supervisor: Prof. Kyoko Kusakabe

Gender Differentiated Coping Strategies Among Ethnic Vietnamese Fishers in the Face of a Decrease in Fishing Resources in Chhnok Tru District, Cambodia
By: Ms. Raksa Sok
Supervisor: Prof. Kyoko Kusakabe

ICTs and Women's Socio-economic Empowerment in Rural Areas of Bangladesh: Understanding Transformation in Gender Relation
By: Mr. Shamim Noor
Supervisor: Dr. Philippe Doneys

Vulnerable Masculinities: A Study among Unregistered Rohingya Living at Registered Refugee Camp in Bangladesh
By: Ms. Noorie Safa
Supervisor: Dr. Joyee S. Chatterjee

Gender and Human Security: A Case Study of the Resettlement Rotan Batu "Widows' Village" in Narathiwat Province, Thailand
By: Ms. Pontip Vidyavrapat
Supervisor: Dr. Joyee S. Chatterjee

Gender Roles and Caregiving in Families with Disabled Children in Hanoi, Vietnam
By: Mr. Vu Duc Thao
Supervisor: Dr. Joyee S. Chatterjee
1. Introduction

This field of study emphasizes natural resources, including land, forest and wild animal and environmental conservation concerns. It addresses the problems of deforestation, land and coastal ecosystem degradation, biodiversity depletion, diminishing water supply, and other environmental pressures and threats on local, national, regional and global ecosystems.

2. Faculty and Research Staff

Full-time Faculty

CLEMENS GRUNBUHEL, MA, PhD, University of Vienna, Austria

Assistant Professor (Ecological Anthropology, Resource Use Indicators, Smallholder Agriculture, Integrated Land Use Management)

GANESH P SHIVAKOTI, BS, MS, Udaipur Univ, India; PhD, Michigan State Univ, USA.

Professor (Natural Resources Economics; Common Property Resources; NRM Policy Analysis; and Watershed Management)

RAJENDRA PRASAD SHRESTHA, BSc, Haryana Agri. Univ, India; MSc, DTechSc, AIT, Thailand.

Associate Professor (Sustainable Land Management; Natural Resources Degradation and Environmental indicators; Landuse-climate, Geoinformatics)

Visiting Faculty

SYLVAIN ROGER PERRET, MS and PhD, University of Montpellier III, France; DSc, Ecole Polytechnique de Lorraine, Nance, France.

Visiting Associate Professor (Water management/institutions, governance, economics/sustainability in rural development/dynamic modeling)

DAMIEN JOURDAIN, BEng, MSc, Ecole Nationale Superieure Agronomique de Montpellier, France; PhD, University of Montpellier I, France.

Visiting Assistant Professor (Water Management and Economics, Natural Resources Economics and Valuation, Farm Household Economics)

Adjunct Faculty

DIETRICH SCHMIDT-VOGT, BSc, Freiburg University, Germany; MSc, University of Saskatoon, Canada; PhD, Heidelberg University, Germany.

Adjunct Faculty (Landscape Ecology; Integrated Land Use Systems; Sustainable Forest Management; and Human Impact on Vegetation)

ROLAND COCHARD, BSc (Hons in Environmental Science), James Cook University of North Queensland; DSc, Institute of Geobotany, Swiss Federal Institute of Technology ETH, Switzerland.

Assistant Professor (Savanna ecosystem dynamics, landscape ecology, biodiversity, mangrove, risk management)

Research Staff

Soe Soe Htway, B.Ag.Sc., Soil & Water Management, Yezin Agricultural University; M.Sc., Natural Resources Management, Asian Institute of Technology.

Research Associate (Strengthening institutional capacity, extension services and rural livelihood in the Central Dry Zone and Ayeyarwaddy Delta regions of Myanmar.)
3. Grants and Sponsored Research Completed in 2018

REDD+ Training Series
Project Investigator: Dr. Nophea Sasaki
Total Contracted Amount (THB): 660,000

4. On-going Grants and Sponsored Research

Forest restoration and water availability for smart agriculture: a case study of Cambodia
Duration: 1 Jan. 2017 - 31 Dec. 2020
Project Investigator: Dr. Nophea Sasaki
Total Contracted Amount (THB): 4,955,518.36

5. Doctoral Students' Dissertation

The Role of Indigenous Beliefs in the Management of Wetland Resources in Lower Songkram River Basin, Thailand
By: Ms. Prompassorn Chunhabunyatip
Supervisor: Dr. Nophea Sasaki

Groundwater Resource Management for Efficient Agricultural Production of Wheat and Sugarcane Crops in Central Punjab, Pakistan
By: Ms. Sobia Asghar
Supervisor: Dr. Nophea Sasaki

Factors Affecting the Abundance, Species Richness, and Behavior of Waterbirds in Bung Boraphet Wetland, Central Thailand
By: Mr. Rehan UL Haq
Supervisor: Prof. Rajendra Prasad Shrestha

Coordination and Negotiation between a Mining Corporation, Villagers and Local Government: A Multi-stakeholder Platform in Guizhou Province, China
By: Ms. Xia Huang
Supervisor: Dr. Nicolas Faysse

6. Masters Students’ Theses and Research Studies

An Assessment of Salinity Impacts on Food Security at Household Level of Small-Scale Farmers in South-Western Coastal Regions of Bangladesh
By: Mr. Md. Ashik-Ur-Rahman
Supervisor: Prof. Rajendra Prasad Shrestha

Analysis of Public Participation in the Design of Flood Expansion Areas in Nakhon Sawan Province and Phitsanulok Province, Thailand
By: Ms. Thanaporn Trakuldit
Supervisor: Dr. Nicolas Faysse

Land Use Change and its Impacts on Water Pumping in Bang Pakong River Basin, Thailand
By: Ms. Supaporn Pannon
Supervisor: Dr. Nicolas Faysse

Conservation of Mangrove Forest for Offsetting Carbon Emissions from the Krabi Power Plant in Thailand
By: Ms. Sutida Rumphoei
Supervisor: Dr. Nophea Sasaki

Estimation of Carbon Emissions from Deforestation in Afghanistan: Implication for the Establishment of a Forest Reference Emission Level
By: Ms. Narges Teimoory
Supervisor: Dr. Nophea Sasaki

Assessment of Social-Ecological Vulnerability to Climate Change for Identifying and Prioritizing Ecosystem-Based Adaptation Strategies: A Case Study of Baba Mountain Valleys of Bamyan Province, Afghanistan
By: Mr. Mustafa Hasani
Supervisor: Prof. Rajendra Prasad Shrestha

Local Perception toward Ecotourism Development in Kampong Phluk Community, Tonle Sap Lake in Cambodia
By: Ms. Sokna Kry
Supervisor: Dr. Nophea Sasaki

Estimation of Carbon Storage in Teak Plantation for One Management Cycle: Implications for Carbon-based Incentives
By: Ms. Pinyarat Chayaporn
Supervisor: Dr. Nophea Sasaki

Crop Damage caused by Wildlife around the Bardia National Park of Nepal: A Perception Study of Human-Wildlife Conflict
By: Mr. Shyam Bahadur Bhandari
Supervisor: Prof. Rajendra Prasad Shrestha

Performance of Environmental Audits of Bhutan - Multiple Case Studies with Supreme Audit Institution of Bhutan
By: Mr. Chime Dorji
Supervisor: Prof. Rajendra Prasad Shrestha

Assessing the Use Values of Wetlands in Changing Environments through a Stated Preference Approach: A Case Study of Phewa Wetland in Nepal
By: Mr. Amar Adhikari
Supervisor: Dr. Takujii Tsusaka

Effect of Land Use Change on Runoff in West Seti Watershed, Nepal
By: Mr. Raju Gurung
Supervisor: Prof. Rajendra Prasad Shrestha

Valuation of Recreational Services of the Royal Botanical Park in Lampelri, Bhutan Using Travel Cost and Contingent Valuation Methods
By: Mr. Sanga Rinzin
Supervisor: Dr. Nophea Sasaki
1. Introduction

This field of study strives for finding basic solutions for the immediate technical problems facing the local pulp and paper industry. Research activities in PPT are focused on optimising pulping, bleaching and papermaking processes with emphasis on the reduction of their negative impact on environment. The quality of the product is also emphasized to maintain competitive edge of local pulp and paper industry in the global market. Modification of existing processes to suit local raw material is another challenging area of research. The field of study is also launching a new program with focus on biorefining. Biorefining is a new trend of pulp and paper industry. The industry along with production of pulp pioneers production of transportation fuel, chemicals and medicine from the same raw material (i.e. lignocelluloses).

2. Research Facilities and Laboratories

The Pulp and Paper Laboratory was established to provide the need for research and high level education for this specific field. The laboratory is equipped with all basic facilities for teaching and research purposes in the field of pulp and paper technology. Several sophisticated equipment have been constantly furnished to extend the services for advance research and special studies likewise. The facilities are provided for activities in pulping paper testing, printing and coating, as well as for wood component analysis. The equipment is standardized according to ISO, TAPPI, and Scandinavian Standards. The programmable six-vessel autoclave digester makes cooking study in research level possible in the most convenient setting. Other major equipment in Pulp and Paper Laboratory include the single batch digester, bleaching reactor, sheet formers, fiber length analyzer, formation tester, deinking flotation cell, and spectrophotometer with ERIC option. In addition to provide assistance and research facilities needs for students, faculty, the laboratory also provides professional services for pulp and paper industry internationally. Among its major equipment include a 6-bomb autoclaved digester, CRS Engineering; Bleaching reactor; Buchi extraction system; GC; Zeta potential tester; Charge density tester; PFI mill; Valley beater; Escher Wyss refiner; AMC Medium Consistency disintegrator; VoithSulzer Deinking unit; Fiber length analyzer FS-200, Kajaani; L&W Fiber Tester; Handsheet former set with white water recirculation option; Fiber line ESpectrophotometer with ERIC option; Ambertec beta formation tester and Calender.

3. Faculty and Research Staff

Full-time Faculty

JIRI BASTA, MSc Technical University of Chemistry and Technology, Prague, Czech Republic; PhD. Chalmers University
Adjunct Faculty [Carbohydrate Chemistry, Pulping, TCF / ECF Bleaching, Environmental aspects, Effluent analyses and treatment, Process optimization, Non-wood fibers, Nano-fibers, Dissolving pulp]

MOUSA M MOHAMAD NAZHAD, BSc, Univ of Concordia, Montreal, Canada; MSc, Univ of Concordia, Montreal; PhD, Univ of British Columbia, Vancouver, Canada.

Associate Professor [Recycled fiber, Paper and Paperboard quality, Nanoparticles in papermaking, Specialty papers, Pulp processing and Biorefining]

Adjunct Faculty

HAKAN KOLMODIN, MSc. in Chemical Engineering, Ph.D. Engineering Chemistry, Chalmers University of Technology, Sweden.

Adjunct Faculty [Pulp and Paper Mill, cooking chemistry, bleaching chemistry, paper chemistry, printing technology/ printability]

Visiting Lecturers

Prof. YUJI MATSUMOTO BSc., Department of Forest Products, The University of Tokyo (1978), MSc., Department of Forest Products, The University of Tokyo (1980), PhD., Department of Forest Products, The University of Tokyo (1983),

Visiting Lecturer [Fiber Structure and Chemistry]

Prof. HIROSHI OHI, Graduate in Doctor Course of Graduate School of Agriculture, the University of Tokyo, PhD, Title of Doctor Theses: Study on the Behaviors of Wood Components during Alkaline Sulfite-Anthraquinone Cooking

Visiting Lecturer [Pulp manufacturing]

Technician and Laboratory

Mr. SUCHART JUNTEING, Laboratory Technician II
Mr. KANONG MALAITHONG, Laboratory Technician I
Mr. MANOCH SUANSIRI, Laboratory Technician II

Administrative Staff

Ms. KATESARAPORN NAKDEE, Secretary I

4. Doctoral Students' Dissertation

Development of a Filter Paper for the Production of Safe Drinking Water
By: Miss Solmaz Heydarifard
Supervisor: Dr. Oleg Shipin
4.3.4: SERD – REGIONAL AND RURAL DEVELOPMENT PLANNING
FIELD OF STUDY

1. Introduction

This field of study 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, and 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.

2. Faculty and Research Staff

Full-time Faculty

MOKBUL MORSHEM AHMAD, BSc, MSc, Dhaka University, Bangladesh; MSc, AIT, Thailand; PhD, University of Durham, UK.

Associate Professor (Economic geography; regional and rural development planning; community development; Non-Governmental Organizations (NGOs); civil society; and globalization; etc)

SOPARTH PONGQUAN, BSc, Chiang Mai University; MSc, AIT, Thailand; DSc, University of Wageningen, The Netherlands.

Associate Professor (Capacity Building; Community Development and Monitoring and Evaluation of Development Projects; Decentralized Local Government; People’s and Community Participation; Rural Development)

JAYANT K ROUTRAY, BSc (Hons), Ravenshaw College; MSc, PhD, Utkal University; MRP, Indian Institute of Technology, Kharagpur, India.

GOPAL BAHADUR THAPA, BSc, Tribhuvan University, Nepal; MSc, DTechSc, AIT, Thailand.

Professor (Natural Resources Management; Sustainable Agricultural Development and Planning; and Watershed Management)

Professional Staff

VITOON NIL-UBOL, MSc, AIT, Thailand

Field Lab Supervisor, Regional and Rural Development Planning

3. Research Completed in 2018

Bid development meetings for GCRF/UK call
Duration: 15-Mar-2018 to 15-May-2018
Project Investigator: Dr. Sylvia Szabo, Dr. Indrajit Pal (THB): 1,23,823.54

Bid development meetings for GCRF/UK call
Duration: 15-Mar-2018 to 15-May-2018
Project Investigator: Dr. Sylvia
Szabo, Dr. Indrajit Pal (THB): 1,77,980.00

ETMR Conference 2018
Duration: 01-Oct-2018 to 30-Nov-2018
Project Investigator: Dr. Mokbul Morshed Ahmed (THB): 66,140.00

4. On-going Grants and Sponsored Research

Farming systems & role of institutions in transition towards sustainable management in Prachinburi Province, Thailand
Duration: 01-Jul-2018 to 31-Aug-2019
Project Investigator: Dr. Thi Phuoc Lai Nguyen, Sylvia Szabo (THB): 4,12,604.00

GCRF networking grant
Duration: 01-Jan-2019 to 31-Dec-2019
Project Investigator: Dr. Abdul Salam, Dr. Sylvia Szabo (THB): 1,050,000.00

Adaptation techniques, coping strategies & evolving consumption patterns in climate change-affected peri-urban areas in the north-east of Thailand
Duration: 01-May-2018 to 30-Dec-2018
Project Investigator: Dr. Sylvia Szabo (THB): 53,400.00

5. Publications

Papers in Refereed Journal
Srinieng, S., Thapa, G.B., Consumers’ Perception of Environmental and Health Benefits, and Consumption of Organic Vegetables in Bangkok, Agricultural and Food Economics.
Pathak, S., Ahmad, M.M., Role of government in flood disaster recovery for SMEs in Pathumthani province, Thailand, Natural Hazards Safety and Security
Saqib, S.E., Ahmad, M.M., Amezca-Prieto, C., Economic burden of tuberculosis and its coping mechanism at the household level in Pakistan, Social Science Journal.
Rana, I.A., Routray, J.K., Multidimensional model for vulnerability assessment of urban flooding: an empirical study in Pakistan, International Journal of Disaster Risk Science
Baloch, M.A., Thapa, G.B., The effect of agricultural extension services: Date farmers’ case in Balochistan, Pakistan, Journal of the Saudi Society of Agricultural Sciences
Sylvia Szab, Sate Ahmad W. Neil Adger, Population dynamics in the south-west of Bangladesh, Ecosystem Services for Well-Being in Deltas, Integrated Assessment for Policy Analysis (Article)
J.M. Abdullah, Mokbul Morshed Ahmad & Shahab E. Saqib, Understanding accessibility to healthcare for elderly people in Bangladesh, Journal Development in Practice Volume 28, 2018 - Issue 4
Farhad Zulfiqar, Gopal B. Thapa, Determinants and intensity of adoption of “better cotton” as an innovative cleaner production alternative, Journal of Cleaner Production

6. Doctoral Students’ Dissertation
Information Access, Use and its Effect on Production and the Income of Cotton Farmers in Punjab, Pakistan
By: Mr. Muhammad Yaseen
Supervisor: Dr. Mokbul Morshed Ahmad
Information Access, Use and its Effect on Production and the Income of Cotton Farmers in Punjab, Pakistan
By: Mr. Muhammad Yaseen
Supervisor: Dr. Peeyush Soni

Consumption of Organic Vegetables in Bangkok, Thailand
By: Mr. Sansern Srinien
Supervisor: Dr. Mokbul Morshed Ahmad & Prof. Jayant Kumar Routray

ICT and Rural Community Development in Korea
By: Mr. Geum Hwan Ko
Supervisor: Dr. Mokbul Morshed Ahmad & Prof. Jayant Kumar Routray

7. Masters Students’ Theses and Research Studies
Analyzing Successful Community-Based Tourism Villages in Northern Thailand
By: Mr. Supa-at Asarath
Supervisor: Mr. Supa-at Asarath
People’s Participation in Village Water Supply System Project: A...
Case Study in Dan Chum Pol Sub District, Trat Province Thailand  
By: Ms. Suttasinee Waiyaput  
Supervisor: Dr. Mokbul Morshed Ahmad

STEM Education in Thailand: An Assessment of its Impacts on Students’ Perception, Perceived Skills and Future Career Interests  
By: Mr. Jessada Engkapatrangkul  
Supervisor: Dr. Thi Phuoc Lai Nguyen

Socio-Economic Barriers to Adaptation against Floods for Dalit and Non-Dalit Households: A Case Study of Hadiya VDC, Nepal  
By: Ms. Pratibha Raut  
Supervisor: Dr. Mokbul Morshed Ahmad

The Elderly Schools in Rural Thailand: A Case Study in Nakhon Ratchasima Province  
By: Ms. Thanyarat Kittiwannaruk  
Supervisor: Dr. Mokbul Morshed Ahmad

Livelihoods of Communities in Conflict-Affected Areas in Thailand: A Case Study of Kaluwonuea Sub-District, Narathiwat Province  
By: Mr. Chanon Nunbhakdi  
Supervisor: Dr. Mokbul Morshed Ahmad

Farmers’ Perceptions of the Large Agriculture Pilot Scheme in Thailand: A Case Study of Rice Farmers in Chainat Province  
By: Ms. Issaree Chachenrum  
Supervisor: Dr. Thi Phuoc Lai Nguyen

Climate Variability and Rural-Urban Migration: A Case Study of Paddy Farmers in Vihear Thum Sub-District, Kampong Cham Province, Cambodia  
By: Mr. Sean Chanmony  
Supervisor: Dr. Thi Phuoc Lai Nguyen

Analysis of Local Farmers and Agricultural Extensioners Attitude toward Effective Implementation of Bio-Industry Program: Case Study in Central Bangka District Bangka Belitung Province, Indonesia  
By: Mr. Akhmad Ansyor  
Supervisor: Dr. Thi Phuoc Lai Nguyen

Enhanced Entry of Young Generation into Agriculture: A Case Study in Prachinburi, Thailand  
By: Ms. Marta Ruiz Salvago  
Supervisor: Dr. Thi Phuoc Lai Nguyen

Decision Making on Agricultural Mechanization among Rice Farmers: A Case Study of Central Kalimantan, Indonesia  
By: Mr. Astri Anto  
Supervisor: Dr. Mokbul Morshed Ahmad

Home Based Women Workers: A Case Study on OTOP Processed Food Products in Nong Suea, Pathum Thani Province  
By: Ms. Amparat Sudngam  
Supervisor: Dr. Mokbul Morshed Ahmad
1. Introduction

Urban Environmental Management (UEM) is an area of academic discourse and professional practice in which urban planning and urban management issues are studied and practiced from an environmental management perspective.

As an academic program, UEM provides opportunities of graduate level education and research at master (M.Sc.) and doctoral (PhD) level. It also provides certificate and diploma programs, as well as post-doctoral research opportunities. It 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. It enables students to identify problems; apply appropriate analytic methodologies; design, plan and implement programs and projects; and monitor impacts and challenges within the context of sustainable development in developing societies.

The Field of Study prepares students for professional careers in the public and private sectors as well as international development agencies and civil society organizations engaged in urban development and environmental management.

2. Research Facilities and Laboratories

In this Field of Study, any researcher gets modern computer lab and other facilities for communication. There is also a workshop room for students which can accommodate about 24 students in four clusters at a time. The workshop room also has audio-visual facilities for presentation. A new Regional Urban Resource Center (R-URC) has been established for compiling and disseminating knowledge related to urban development and environmental management issues.

3. Faculty and Research Staff

Full-time Faculty

VILAS NITIVATTANANON, BEng, Chulalongkorn Univ; MA, Thammasat University; Meng, AIT, Thailand

Associate Professor (Management of Infrastructure and Services, Waste Recycling and Systems Management, Urban Environmental Management, Water Engineering and Management, Economic and Environmental Assessment, Climate Change Risk Assessment and Adaptation)

SAEED ZAKIAHMED, PhD, Asian Institute of Technology, Thailand.

( Urban Environmental and Planning and Design)

LE THI THU HUONG, PhD, Asian Institute of Technology, Thailand.

( Urban Housing and Living Environment)

BHARAT DAHIYA, PhD, University of Cambridge, UK.

Visiting Faculty

L. A. S. RANJITH PERERA, BSc, MSc, University of Moratuwa, Sri Lanka; MSc, PhD, AIT, Thailand.

( Urban Architecture and Environmental Design; Urban Planning and Housing; Urban Environmental Management, Results-based Project Management and Evaluation)

EDSEL SAJOR, BSc, University of the Philippines; MA, PhD, ISS, The Hague, The Netherlands.

(Conflict Management; Governance; Land Development in Peri-Urban; Policy Process and Scientific Discourse; Politics of Environmental Policy; State-Society Relations in UEM; Urban Land Management)

SAEED ZAKIAHMED, PhD, Asian Institute of Technology, Thailand.

( Urban Environmental and Planning and Design)

LE THI THU HUONG, PhD, Asian Institute of Technology, Thailand.

( Urban Housing and Living Environment)
Coastal areas governance in the context of rapid tourism urbanization and climate change in Southeast Asia
Duration: 01-May-2016 to 31-Dec-2018
Project Investigator: Dr Vilas Nitivattananon
Total Contracted Amount (THB): 1,350,000.00

An Assessment of Used Beverage Cartons (UBCs) in Recycling Streams
Duration: 1 Apr. 2017 - 31 Mar. 2018
Project Investigator: Dr Vilas Nitivattananon
Total Contracted Amount (THB): 858,400

Comparative Risk Assessment of Hydrologic Hazards and Adaptation Policy in Jiulong River and Chao Phraya River Basins
Duration: 1 May 2017 - 30 Nov. 2018
Project Investigator: Dr Vilas Nitivattananon
Total Contracted Amount (THB): 1,532,000

Community Based Slum Upgrading Training Program (Phase II)
Duration: 1 Dec. 2017 - 31 Mar. 2018
Project Investigator: Dr Vilas Nitivattananon
Total Contracted Amount (THB): 151,720

Creating shared value through shared risks for enterprises in an era of climate variability: A case of Tropical Monsoon Region of Asia
Duration: 1 Jan. 2018 - 30 Jun. 2018
Project Investigator: Dr. Sohee M. Kim
Total Contracted Amount (THB): 2,19,000.00
Adaptation of Hydrological and Anthropogenic Risks in Peri-Urban Region: Case Study of Flooding in Pathum Thani Province, Thailand
By: Mr. Dechatorn Wongpaisanlak
Supervisor: Dr. Vilas Nitivattananon

Assessing the Sustainability of Low Income Housing Projects in Bangkok, Thailand
By: Ms. Shreya Jayakumar
Supervisor: Dr. Vilas Nitivattananon

Assessment of Sanitation Services and Management for Improving Living Conditions in Kandahar City, Afghanistan
By: Mr. Mohammad Rafi Hayat
Supervisor: Dr. Vilas Nitivattananon

Roles of the Private Sector to Enhance Integrated Sustainable Waste Management in Fruits and Vegetables Wholesale Markets of Yangon, Myanmar
By: Ms. Thu Zar Naing Lin
Supervisor: Dr. Vilas Nitivattananon

A Study on Urban Green Space Management and Residents' Benefits: A Case Study of Kandawgyi Park, Yangon City, Myanmar
By: Mr. Aung Thant Ko
Supervisor: Dr. Sohee Minsun Kim

Determination of Land Use Effects on Flood Risk: A Case Study of Mueang Nakhon Si Thammarat, Thailand
By: Mr. Pongpon Plodpai
Supervisor: Dr. Sohee Minsun Kim

Spatial-Explicit Analysis on Flood Risk Sensitive Area: A Case Study of Ladkrabang District, Bangkok Metropolitan Region, Thailand
By: Mr. Worawit Jitsukka
Supervisor: Dr. Sohee Minsun Kim
1. Introduction

The world in the recent past has witnessed over 35 major conflicts and some 2,500 disasters. Approximately, it impacted two billion people, and millions have lost their lives. That is not all; the most destructive disasters that could occur are still to happen yet. Rapid escalation and intensity in the incidence of severe disaster events have become a huge threat to the global community.

Asia-Pacific, on the other hand, with 85% of all the people affected by disaster in the world, is in the center stage of all disasters. The highest amount of displacement in the world in 2011 owing to disaster also happened in this region. Due to rapid rate of population growth, urbanization, poverty, climate change and geographical location, most of the Asian countries have become highly susceptible to natural disasters; some of them, per se: flood, cyclone, drought, earthquake, landslide, extreme temperature, heavy rain, epidemics, etc. It has been felt that there is limited capacity at global, regional and national levels in terms of knowledge base, skills training, long-term planning, emergency preparedness and policy development to respond to such severe disaster events. Consequently, to address these issues in innovative ways, it gave way to a program on Disaster Preparedness, Mitigation and Management (DPMM) at Asian Institute of Technology (AIT) in August 2008. AIT being located at the center of this region provides a strategic insight into the happenings in the world of disasters and development.

DPMM program uses interdisciplinary capacities (engineering, medicine, natural and social science, as well as management) to manage and minimize the effects of disasters in people on the front lines of disaster response and preparedness. It provides professional education and short term training for the capacity building of the Asia-Pacific as well as neighboring regions.

The courses at DPMM are designed and developed by AIT Faculties and experts from partner institutions having more than a decade of experience in this particular field. The program is being successfully run with students from Bangladesh, Canada, China, France, India, Indonesia, Iran, Maldives, Myanmar, Pakistan, Philippines, Singapore, South Africa, Sudan, Thailand, Tibet and Vietnam. DPMM has recruited 58 students till date out of which 34 students have already graduated. DPMM works closely with its partners for sharing knowledge and expertise. DPMM Faculties, Staff and Students get special invitation to attend workshops, seminars, symposiums, conferences, etc. They also get involved with the partners as volunteers, interns and consultants.

Currently, DPMM is working closely with the following partners.

- Asian Disaster Preparedness Center (ADPC)
- Department of Disaster Prevention and Mitigation (DDPM), Thailand
- HelpAge International
- Integrated Research on Disaster Risk (IRDR)
- International Federation of Red Cross and Red Crescent Societies (IFRC)
- Télécoms Sans Frontières (TSF)
• The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)
• UN Regional Agencies based in Thailand such as, UN International Strategy for Disaster Reduction for Asia & the Pacific (UNISDR-AP); UN World Food Programme (WFP), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP); United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)
• World Society for the Protection of Animals (WSPA)

DPMM is now planning to work further at the national, regional and global level along with its future partners that may include:

• Action Aid
• Agreement on Disaster Management and Emergency Response (AADMER)
• ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Center)
• Asia Foundation
• AusAid
• CARE
• Oxfam
• Plan
• Save The Children
• USAID
• World Vision

Networks

Asia Pacific Initiative on Disaster Management and Humanitarian Assistance (API: DMHA)

It is a hybrid online disaster training course via video conferencing and content on an e-course management system. This course is offered through a multiple site video teleconference system that connects all participating educational institutions with students on their respective campuses. More than ten institutions around the globe continue to collaborate and share resources in the planning, organizing and delivering of the course. It has been offered at AIT since the inception of DPMM in August 2008.

The partners and participating institutions are:

1. Asian Institute of Technology (AIT), Thailand
2. Bangladesh University of Engineering and Technology (BUET)
3. Gadjah Mada University, Indonesia
4. Keio University, Japan
5. National Institute of Social Work and Social Sciences (NISWASS), India
6. Okayama University, Japan
7. School of the Internet (SOI – ITB), Japan
8. The Energy and Resources Institute (TERI), India
9. The National University of Samoa, IA IO Samoa
10. United Nations University, Japan
11. University of Hawaii, Manoa
12. University of Ryukyus, Japan

Asian University Network of Environment and Disaster Management (AUEDM)

To enhance the objectives of the HFA, and to contribute to higher education and research process, Kyoto University in partnership with 19 other universities and organizations from 13 Asian countries has agreed to form the Asian University Network for Environment and Disaster Management (AUEDM) in a meeting in July 2008 in Kyoto, Japan.

The objectives of the network are:

• To share and work together (bilaterally or multilaterally) in promoting environment and disaster management in higher education (focusing on, but not restricted to, post-graduate education)
• To seek possibilities of mutual collaboration on field-based action research
• To broaden the scope of education and learning in the environment and disaster management field through collaboration with other stakeholders like NGOs and local governments.

Disaster Risk Certificate (DRC) Program

The Consortium of International Human Resource Development for Construction of Disaster Resilient Countries – an initiative of Kyoto University and ASEAN Alliance Universities. This program is for 5 Years starting from 2012 to 2017.

➢ Asian Institute of Technology (AIT), Thailand
➢ Chulalongkorn University, Thailand
➢ Kasetsart University, Thailand
➢ Institut Teknologi Bandung, Indonesia
➢ University of Malaya, Malaysia
➢ Vietnam National University, Vietnam

Details regarding DPMM program are available at http://dpmm.ait.ac.th

2. Faculty and Research Staff

Coordinating faculty members

School of Environment, Resources & Development (SERD)

Field of Study

Regional and Rural Development Planning (RRDP)
JAYANT K ROUTRAY, B.Sc. (Hons), M.Sc., PhD, Utkal University; MRP, Indian Institute of Technology, India.

Professor [Regional and Rural Development Planning, Rural-Urban Relations, Regional Planning Methods and Techniques, Disaster Risk Reduction and Management, Climate Change Induced Adaptation, and GIS Applications]

School of Engineering & Technology (SET)

Field of Study

Structural Engineering (STE)

PENNUNG WARNITCHAI, B.Eng. (Hon), Chulalongkorn University, Thailand; D.Eng., M.Eng., University of Tokyo, Japan.

Associate Professor [Earthquake Engineering]

Contributing faculty members

School of Engineering & Technology (SET)

Field of Study

Remote Sensing and Geographic Information Systems (RS & GIS)

KIYOSHI HONDA, B.Agr., D.Eng., University of Tokyo, Japan.

Professor [Real-time Mapping and Simulation of Geological Processes]

NITIN KUMAR TRIPATHI, B.Tech., National Institute of Technology, Warangal, India; M.Tech., IIT; PhD, IIT, Kanpur, India.

Professor [Remote Sensing and GIS for Disaster Mitigation]

Water Engineering and Management (WEM)

MUKAND S BABEL, B.Eng., Rajasthan Agricultural University, India; M.Eng., D.Eng., AIT, Thailand.

Professor [Drought Forecasting and Management]

ROBERTO CLEMENTE, BSAE, University of the Philippines at Los Banos; M.Eng., AIT, Thailand; PhD, McGill University, Canada.

Professor [Floods and Droughts]

Geotechnical and Geoenvironmental Engineering (GTE)

NOPPADOL PHIEN-WEJ, B.Eng., Chulalongkorn University, Thailand; M.S., PhD, Illinois at Urbana-Champaign, USA.

Associate Professor [Geological Hazards]

School of Environment, Resources & Development (SERD)

Field of Study

Environmental Engineering and Management (EEM)

AJIT P ANNACHHATRE, B.Tech., IIT, Madras, India; M.Eng., AIT, Thailand; PhD, Indian Institute of Technology, Kanpur, India.

Professor [Health and Ecological Risk Management]

CHETTIYAPPAN VISVANATHAN, B.Tech., IIT, Madras, India; M.Eng., AIT, Thailand; PhD, InstNatlPolytech, Toulouse, France.

Professor [Environmental Hazards Mitigation]

OLEG V SHIPIN, PhD, Institute of Biochemistry and Physiology of Microorganisms, Moscow, Russia.

Associate Professor [EIA & Disaster Management]

Gender and Development Studies (GDS)

KYOKO KUSAKABE, B.A., Sophia University, Tokyo, Japan; M.Sc., PhD, AIT, Thailand.

Associate Professor [CBDRM & Gender Issues]

Regional and Rural Development Planning (RRDP)

MOKBUL MORSHED AHMAD, B.Sc., M.Sc., Dhaka University, Bangladesh; M.Sc., AIT, Thailand; PhD, University of Durham, UK.

Associate Professor [NGO Management, Community and Rural Development]

Energy

SIVANAPPAN KUMAR, B.E., University of Madras, India; M.Eng., AIT, Thailand; PhD, Inst Natl Polytechnique, Toulouse, France.

Professor [Climate Change Mitigation]

Urban Environmental Management (UEM)

VILAS NITIVATTANANON, B.Eng., Chulalongkorn University; M.A., Thammasat University; M.Eng., AIT, Thailand; PhD, University of Pittsburgh, USA.

Assistant Professor [Disaster Management in Urban Infrastructure Planning]

Adjunct Faculty

JAYARAMAN K V POTTY, B.Sc. University of Kerala, India; M.Sc., Cochin University of Science and Technology, India; PhD, Indian Institute of Technology, New Delhi, India.

Chief Scientist, Regional Integrated Multi Hazard Early Warning
3. Grants and Sponsored Research Completed in 2018

Disaster Resilience Education Capacity Building in South-East Asia
Duration: 01-Mar-2016 to 31-Oct-2018
Project Investigators: Dr. Indrajit Pal
Total Contracted Amount: (THB): 2,97,452.21

Critical Factors for Post-Disaster Educational Continuity in Urban Flood Impacts in South and Southeast Asia
Duration: 01-Aug-2017 to 30-Sep-2018
Project Investigators: Dr. Indrajit Pal
Total Contracted Amount: (THB) 333,361

SRMU Educational camp and study tour 2016 for Sri Ram memorial university, India
Duration: 01-Mar-2016 to 31-Jan-2018
Project Investigators: Dr Indrajit Pal
Total Contracted Amount: (THB) 149,110.00

Disaster Resilience & Business Continuity Planning-Advocating Safety of Public & Private Hospitals, Schools, & other Critical Structures for PSBA (11-13 June, 2018)
Duration: 01-Jun-2018 to 31-Jan-2018
Project Investigators: Dr Indrajit Pal
Total Contracted Amount: (THB): 2,38,046.95

4. On-going Grants and Sponsored Research

Evidenced Based analysis of Flood Risk Management & Social Vulnerability-A System Approach in Sakon Nakhon Province, Thailand
Duration: 01-Feb-2018 to 30-Sep-2019
Project Investigators: Dr. Indrajit Pal
Total Contracted Amount: (THB): 4,89,629.00

Disaster Resilience & Sustainable Development Education Network in Asia
Duration: 15-Mar-2018 to 30-Jun-2019
Project Investigators: Dr. Indrajit Pal, Dr. Sangam Shrestha
Total Contracted Amount: (THB): 5,67,708.00

Training Program on Disaster Risk Management & Governance for Kenya officials
Duration: 07-Dec-2018 to 06-Dec-2019
Project Investigators: Dr. Indrajit Pal
Total Contracted Amount: (THB): 1,360,795.20

5. Doctoral Students’ Dissertation

Flood Disaster Recovery Strategies for Small and Medium Business Enterprises in Thailand: A Case Study of Pathumthani Province
By: Mr. Shubham Pathak
6. Masters Students' Theses and Research Studies

Physical and Social Impacts, Risk Perception and Household Preparedness after the 2014 Mae Lao Earthquake, Thailand
By: Ms. Jidapa Khoonsinsub
Supervisor: Prof. Pennung Warnitchai

Integration of a Multi-Hazard Approach in Land Use Planning and Development: A Case of Madang Province, Papua New Guinea
By: Ms. Ashrika Sharma
Supervisor: Prof. Pennung Warnitchai

Developing Thunderstorm Hazard Map under Changing Climate in Bangkok and Neighbouring Area
By: Mr. Thananchai Thotsaphonphaiboone
Supervisor: Dr. Indrajit Pal

Disaster Insurance for Farmers in the Philippines: An Assessment of Selected Municipalities in Nueva Ecija
By: Ms. Jacqueline Pangilinan Dayao
Supervisor: Dr. Mokbul Morshed Ahmad

Dynamic Flood Risk Forecasting for Ba Province in Fiji Islands
By: Mr. Mitieli Koroiwqna Ratinaisiwa
Supervisor: Prof. Pennung Warnitchai

Development of Flood Forecast Using a Smart System: The Case Study of Lomaviti Province in Fiji Islands
By: Mr. Seresio Sauduadua Naikasau
Supervisor: Prof. Pennung Warnitchai
1. Introduction

AIT School of Management (SOM) was established in October 1987 to meet the growing needs in Asia for graduate management education. In line with AIT’s mission, SOM’s objective is to make a difference in the quality of management education and practices in the Asia-Pacific region leading to sustainable development, technological leadership, entrepreneurial spirit, wealth creation and pride. SOM believes in the development of corporate leaders not just for the present but also for the future to face the challenges posed by the dramatic social, economic, political and technological changes in Asia. The programs at SOM offer a unique competitive advantage to managers and future leaders in the region. 

Currently, SOM has students from over 40 countries and various academic backgrounds enrolled in its programs. In every case study, group work and assignment the students work in groups with students from 3 or more different nations. The bonds formed by the students during their stay in SOM have proved as important as the knowledge and skills they gain. At SOM, we stress on ethics and moral values as much as the need to produce managers who can drive their organizations to profitability and prosperity.

2. Mission & Vision

Mission

To develop socially responsible global leaders who will enhance organizational performance for the growth and sustainable development of economies “and societies in Asia in particular and the world in general.

Vision

“To become the leading creator and disseminator of Asian management knowledge, practices and values”

3. School Governance

Dean of School

DONYAPRUETH KRAIRIT, BSc, Thammasat Univ, Thailand; MSc, Univ of Colorado at Boulder; PhD, Massachusetts Inst of Tech, Cambridge, USA.

Associate Professor (Technology, Management, Management of Telecommunications Technologies and Public Policy)

4. Management Development and Research

The School of Management is involved in training and extension activities through the Management Development Programs (MDP). MDP was established as an integral part of the School of Management (SOM). It is the research, consultancy, and executive development arm of the School. It is SOM’s non-degree academic activities and
programs, which complement SOM’s degree programs and other related activities of SOM. It facilitates the linkage between SOM, AIT and the business community and public sector in Asia.

The objectives of MDP:

- To establish closer links between the business community/public sector and SOM through executive education programs and consulting in the areas of Management of Technology, International Business, Service Marketing and Technology, and International Public Management.

- To facilitate the development of research projects which are both of high practical value to the business community/public sector and academically rigorous.

MDP activities include:

1. Corporate relationship management
2. Executive development programs
3. Organizing executive forums, workshops, seminars, and conferences
4. Other activities contributing to SOM’s objectives

5. SOM Research Focus

SOM primary area of research focuses, but not limited to,

“THE BUSINESS AND INNOVATION MODELS FOR A GREEN ECONOMY”.

Under this thematic area, there are five sub-thematic areas, including:

1. Sustainability and Corporate Social Responsibility in Business
2. Climate Change Policy and Corporate Compliance
3. Social responsibility, Behavioral Change and Social Impact
4. Innovation in Green Products and Services
5. Technology needs assessment and transfer

6. Research Facilities and Laboratories

The School of Management has 5 state-of-the-art multimedia classrooms including a large amphitheater for academic use. Each classroom is equipped with a multimedia podium that consists of LCD projectors, audio cassette recorder, VHS player/recorder, slide projectors, built-in desktop PC, laptop and wireless internet connection.

The School of Management provides the students with an extensive range of online journals and database. The students can access the journal and database to read articles from reputed international journals. Computer Lab consultants are available during office hours to assist with computer related problems. The consultants will provide help by answering general questions relating to the lab e.g., how to obtain a computer account, questions related to the PC Proficiency about software applications, email, printing etc.

7. Faculty and Research Staff

Full-time Faculty

YUOSRE F. BADIR, BSc., University of Garyounis, Libya; M.Sc., University of Putra Malaysia; M.Sc., Ph.D (MOT), EPFL Lausanne, Switzerland

Associate Professor (Technology, International Strategic Alliance, Organization Theory and Design)

BARBARA IGEL, BA, MA, Technical Univ, Berlin; PhD, Freie Univ, Berlin, Germany.

Associate Professor (High-tech Entrepreneurship; Industrial Economics; Knowledge Management; Management of Innovation)

SUPASITH CHONGLERTTHAM, B. Eng., Chulalongkorn Univ, Thailand; MBA Finance, Tulane Univ, USA; PhD, Univ of Hawaii, Manoa, USA

Senior Instructor (Corporate Finance, Derivatives, Corporate Governance, Financial Accounting)

JUTHATHIP JONGWANICH, BA, MA, Thammasat Univ, Thailand; PhD, The Australian National University, Australia

Assistant Professor (International Economics, Multinational Enterprises, Managerial Economics and Business environment)

DONYAPRUETH KRAIRIT, BSc., Thammasat Univ, Thailand; MSc., Univ of Colorado at Boulder; PhD, Massachusetts Inst of Tech, Cambridge, USA.

Associate Professor (Technology, Policy and Management)

SUNUNTA SIENGTHAI, BA, Chulalongkorn Univ, Thailand; MA, PhD, Univ of Illinois at Urbana-Champaign, USA.

Associate Professor (Labor & Industrial Relations, HRM, Wages & Productivity)
VATCHARAPOL SUKHOTU, BEng, Kasetsart Univ, Thailand; MEng, Univ of Houston, Texas, USA; PhD, Texas A&M Univ, College Station, Texas, USA

Assistant Professor (Operation Management and Supply Chain Management)

WINAI WONGSURA WAT, B.A.S (Econ & Math., Comp. Sc.) Stanford University, USA; PhD. (Managerial Econ and Strategy), Kellogg School of Management, Northwestern University, USA

Assistant Professor (Strategic Management)

Visiting and Adjunct Faculty


Adjunct Faculty (Cross-Cultural Management, Organization Behavior, Management of Change)

Prof. HITENDRA BARGAL, MBE, LLM, PhD Indore University, India,

Visiting Professor (Marketing & Entrepreneurship)

URS BUMBACHER, M.A, Ph.D (Economics & Business Admin.), Univ. of Basel, Switzerland.

Adjunct Professor (International Business)

Dr. GAUTAM KMAR DUTTA, B.E, MBA, Ph.D – IIT, India

Visiting Associate Professor (International Marketing, Marketing Management, Technology Innovation Management, Entrepreneurship and Small Business Development)

Prof. GEETIKA GOEL, Ph.D University of Allahabad- India

Visiting Professor (Technology & Development, High Tech Entrepreneurship)

RUDOLF GRUENIG, Ph.D (BA), University of Bern, Switzerland.

Adjunct Faculty (Strategic Management)

ROLAND AMOUSSOU-GUENOU, LL.B in Business Law, National Univ. of Benin. LL.M in International Business Law, Univ. of Toulouse. Ph.D. in International Law, Univ of Paris, France.

Adjunct Faculty (Policy and Legal Issues)

NAZRUL ISLAM, BScEng, BUET, Bangladesh; MEng, DEng, AIT, Thailand.

Visiting Professor (Management of Technology; Technology and Development; Technology Policy; Technology Transfer)

LALIT M JOHRI, BSc (Hons), MSc, MBA, PhD, Univ of Delhi, India.

Adjunct Faculty (International Business)

IELKA KAURANEN, MS Engg, Lic T ech, DTech, Helsinki University of Technology, Finland.

Adjunct Professor (Development and Management in Industry)

ROBERT S. KIETEL, BA, Univ. of Colorado; Ph.D, De La Salle University, The Philippines.

Adjunct Faculty (HRM, Leadership)

TRITOS LAOSIRIHONGTHONG, Ph.D., (Management of Technology) School of Management, AIT, Thailand

Adjunct Faculty (Manufacturing Strategy and Supply Chain Management)

Prof. KALPANA MATHUR, PhD in Human Resource Management, Jai Narain Vyas University (JNVU) - India

Visiting Professor (Human Resource Management)

PETER MOSER Ph.D., M. Econ., University of St. Gallen, Switzerland

Visiting Faculty (European Integration and International Trade Policy)

LOGAN MULLER, Ph.D (Sustainability), Kennedy Western University, USA.

Adjunct Faculty (International Business)

INDRA M PANDEY, MComm, PhD, Univ of Delhi, India.

Adjunct Professor (Corporate Finance, Emerging Capital Markets)


Adjunct Faculty (Sales and Marketing)

RAGNAR THOR GRUNDTVIG SEGAARD, Ph.D, London School of Foreign Trade, England, Master of Business Administration, University of Gothenburg, Sweden

Adjunct Faculty (Finance)

FREDRIC W SWIERCZEK, BA, Temple Univ, USA; MA, PhD, Univ of Pittsburgh, Pennsylvania, USA.
Visiting Associate Professor (Behavioral Science; Organizational Development)

GERARD TOCQUER, Ph.D., University of Nice-Sophia Antipolis, France, M.A (Marketing), University of Sherbrooke, Canada, C.P.D., Cornell University, Ithaca, USA

Adjunct Faculty (Service Innovation, Service Culture and Branding)

ALLAN WILLIAM, B.Ed., Univ. of Tasmania; MSc., Ph.D (Organization Development) MITASH Univ., USA.

Adjunct Faculty (Organization Behavior, Leadership & Business Performance)

WILLI ZIMMERMANN, Ph.D. (Political Science) University of Munich, Germany, Post-Doc. Diploma, Swiss Federal Institute of Technology Switzerland

Adjunct Faculty (Public Sector Management, Environmental Management)

8. Grants and Sponsored Research Completed 2018

International Executive MBA-Vietnam for HCMC #10
Duration: 01-08-2013 to 31-12-2018
Project Investigators:
Dr. Donyaprueth Kairrit
Total Contracted Amount (THB): 8,820,000.00

International Executive MBA-Vietnam for Hanoi 16
Duration: 01-10-2015 to 31-12-2020
Project Investigators: Prof Nazrul Islam
Total Contracted Amount (THB): 9,520,000.00

International Executive MBA-Vietnam for Hanoi #14th
Duration: 01-08-2013 to 31-05-2018
Project Investigators:
Dr. Donyaprueth Kairrit
Total Contracted Amount (THB): 8,820,000.00

International Executive MBA-Vietnam for Tau #6th Group
Duration: 26-10-2013 to 31-12-2018
Project Investigators:
Dr. Donyaprueth Kairrit
Total Contracted Amount (THB): 10,822,650.00

9. On-going Grants and Sponsored Research

Doctor of Business Administration
Duration: 1-Aug-2012 to 31-Jun-2019
Project Investigator(s): Winai Wongsurawat
Total Contracted Amount (THB): 19,440,000.00

International Executive MBA-Vietnam for Hanoi 16
Duration: 01-10-2015 to 31-12-2020
Project Investigators: Prof Nazrul Islam
Total Contracted Amount (THB): 9,520,000.00

International Executive MBA-Vietnam for HCMC#12
Duration: 01-08-2015 to 01-05-2020
Project Investigators: Prof Nazrul Islam
Total Contracted Amount (THB): 9,520,000.00

10. Publications

International Journal Articles


Dost, M., Arshad, M., Afsar, B. The influence of entrepreneurial orientation on types of process innovation capabilities and moderating role of social capital. Entrepreneurship Research Journal

Do Ba, K., Duong, H.Q. Competitive equilibrium and informational asymmetry in the private higher education market. Education Economics


Ratchukool, N., Igel, B. The effect of proximity between universities and research institutes and firms on firm innovativeness Asian Journal of Technology Innovation

Atitumpong, A., Badir, Y.F. Leader-member exchange, learning orientation and innovative work behavior. Journal of Workplace Learning


Watchaton, A., Krairit, D. Factors influencing organizational information systems implementation in Thai public
universities Journal of Systems and Information Technology

Khoa, T.D.

Mulasastra, I., Krairit, D.
Key factors impacting information quality: An empirical study of Thailand’s healthcare sector. International Journal of Business and Systems Research

Dost, M., Badir, Y.F.
Generation or adoption? The role of social capital. Management Decision

Yadav, R., Wongsurawat, Winifred Ijomah.

Yuttachai Hareebin, Sununta Siengthai, Somnuk Aujirapongpan.
Creating sustained strategic capabilities through organisational dynamic capabilities and strategies: A case study of rubber wood export industry in Thailand. Asian Academy of Management Journal 23(1)

Afzar, B., Shahjehan, A., Shah, S.I.
Frontline employees’ high-performance work practices, trust in supervisor, job-embeddedness and turnover intentions in hospitality industry. International Journal of Contemporary Hospitality Management

Chaowanapong, J., Jongwanich, J., Ijomah, Winifred Ijomah.
The determinants of remanufacturing practices in developing countries: Evidence from Thai industries. Journal of Cleaner Production

Attasit Patanasiri & Donyprueth Krairit.

Nutcharee Pakdeechoho, Vatcharapol Sukhotu.
Sustainable supply chain collaboration: Incentives in emerging economies. Journal of Manufacturing Technology Management

Burhanudin Burhanudin, David Ferguson.
Environmental issues: managing product switching intentions among Indonesian consumers. Journal of Asia Business Studies

11. Doctoral Students’ Dissertation

Uncovering Growth Opportunities from Light and Heavy Users: A Case Study of One FMCG Category in Thailand
By: Mr. Opas Ruangthammakit
Supervisor: Prof. Sununta Siengthai

The Process of Strategic Planning and Strategic Control in Universities: A Case Study of Universities in Thailand
By: Mr. Sakchai Jarernsiriopkornkul
Supervisor: Prof. Nazrul Islam, Prof. Indra M. Pandey

The Impact of a Leaders’ Technical Competence on Employee Innovation and Learning
By: Mr. Nguyen Van Minh
Supervisor: Dr. Yuosre F M Badir

Multivariate Cointegration and Causality between Electricity Consumption, Economic Growth, Foreign Direct Investment and Exports: Recent Evidence from Vietnam
By: Mr. Nguyen Ngoc Tuyen
Supervisor: Dr. Winai Wongsurawat, Prof. Barbara Igel

The Interface Between Electronic Banking and Accounting Modules: A Case Analysis of Companies in Vietnam
By: Mr. Nguyen Danh
Supervisor: Dr. Yuosre F M Badir, Dr. Arun Kumar Gopalaswamy

The Vietnam Competitive Generation Market: An Assessment of Market Power and Efficiency
By: Mr. Tran Dang Khoa
Supervisor: Dr. Fredric W. Swierczek, Dr. Yuosre Badir

Critical Factors in Public University Information Systems (IS) Implementation: The Case of Public Universities in Thailand
By: Ms. Ananchanok Watchaton
Supervisor: Dr. Donyprueth Krairit

The Effect of Proximity Between Universities and Research Institutes and Firms on Firm Innovativeness
By: Ms. Nucharin Ratchukool
Supervisor: Prof. Barbara Igel

Participatory Management and Innovative Work Behavior: The Mediating Role of Affective Trust and the Moderating Role of Supervisor-subordinate Guanxi and Organizational Commitment
By: Mr. Saqib Jamil
Supervisor: Dr. Vimolwan Yukongdi

The Trade-Enhancing Effects of Free Trade Agreements in South Asia: Evidence from Pakistan
By: Ms. Farhat Mahmood
Supervisor: Dr. Juthathip Jongwanich

The Moderating Effect of Incentives on the Relationships between
Sustainable Supply Chain Management Capabilities and Sustainability Performance  
By: Ms. Nutcharee Pakdeechoho  
Supervisor: Dr. Vatcharapol Sukhotu

An Empirical Study of Social Enterprise Marketing that Creates Social Value: A Case Study of Food Social Enterprises in Thailand  
By: Ms. Sorawadee Srivetbodee  
Supervisor: Prof. Barbara Igel

12. Masters Students’ Theses, Research Studies and Projects

An Information Technology Roadmap for Nam Cuong Group  
By: Mr. Ngo Minh Thang  
Supervisor: Dr. Huynh Trung Luong, Dr. Fredric W. Swierczek

Solutions for Imported Coal Supply for a Thermal Power Project  
By: Mr. Phung Manh Trong  
Supervisor: Dr. Huynh Trung Luong, Dr. Fredric W. Swierczek

Service Preferences of Subscribers for Vietnамobile  
By: Ms. Nguyen Thi Phuong Thao  
Supervisor: Dr. Fredric W. Swierczek, Dr. Huynh Trung Luong

Developing an Information Security Management System in the General Tax Department of Vietnam  
By: Mr. Nguyen Hai Dang  
Supervisor: Dr. Fredric W. Swierczek

Implementing the Advanced Alternating Current Field Measurement (ACFM) Inspection Service in Vietsovpetro  
By: Mr. Nguyen Anh Duc  
Supervisor: Dr. Fredric W. Swierczek, Dr. Huynh Trung Luong

Improving Competitiveness of the Drilling and Workover Division in Vietsovpetro  
By: Mr. Nguyen Thai Son  
Supervisor: Dr. Fredric W. Swierczek, Dr. Huynh Trung Luong

Strategic Management to Optimize the Procurement Costs in EPCI Projects Carried Out by PTSC MC  
By: Ms. Nguyen Thi Thanh Huong  
Supervisor: Dr. Huynh Trung Luong

An Analysis of Petro Vietnam Power Corporation’s Strategic Implementation  
By: Mr. Nguyen Xuan Tan Viet  
Supervisor: Dr. Fredric W. Swierczek

Energy Efficiency Enhancement in Shrimp Farming  
By: Mr. Dang Bang Viet  
Supervisor: Dr. Huynh Trung Luong, Dr. Fredric W. Swierczek

Improving Efficiency of Raw Materials Inventory Management: The Case of Nuplex Resins Vietnam Limited  
By: Ms. Dao Ngoc Thanh Tam  
Supervisor: Dr. Huynh Trung Luong, Prof. Barbara Igel

Project Management in Vietnam: A Case Study of the Project to Supply and Install Vertical Transportation System at Schindler Vietnam  
By: Mr. Duong Van Hung  
Supervisor: Dr. Do Ba Khang, Dr. Vimolwan Yukongdi

Strategy for PTSC Mechanical and Construction in the Oil Business Downturn  
By: Mr. Le Quang Hieu  
Supervisor: Dr. Yuosre F M Badir

Improving Strategic Human Resource Implementation for Competitiveness: A Case Study of DMC-Drilling Fluids and Well Services (DMC-WS)  
By: Mr. Mr. Pham Dang Son  
Supervisor: Dr. Vimolwan Yukongdi

Optimization of Labor Cost and Restructuring of the Company: A Case of the Drilling and Workover Division of Vietsovpetro J.V. (D&WD)  
By: Mr. Bui Anh Nam  
Supervisor: Dr. Vimolwan Yukongdi

Evaluating the Effectiveness of Cost Cutting Solutions at JV Vietsovpetro in Periods of Oil Price Decline  
By: Mr. Nguyen Cong Trinh  
Supervisor: Dr. Yuosre F M Badir

Developing Bidding Strategies for Project Management: A Case of Offshore Construction Division, Vietsovpetro  
By: Mr. Tran Van Dung  
Supervisor: Dr. Vimolwan Yukongdi, Dr. Clemens Bechter

Solutions to Improve Customer Satisfaction in Beemart  
By: Ms. Nguyen Thi Thu Hoa  
Supervisor: Dr. Vimolwan Yukongdi, Dr. Fredric W. Swierczek

Cross-Cultural Leadership and Organizational Change in NC Vietnam (NCV)  
By: Ms. Le Thi Binh Thin  
Supervisor: Dr. Vimolwan Yukongdi, Dr. Fredric W. Swierczek

Improving Technical Services in the Lancaster Hanoi Building  
By: Ms. Phan Thi Trang  
Supervisor: Dr. Huynh Trung Luong, Dr. Fredric W. Swierczek

Redesigning the Information and Communication Technology Company of Vietnam Electricity (EVNICT)  
By: Mr. Nguyen Phu Quoc  
Supervisor: Dr. Huynh Trung Luong, Dr. Fredric W. Swierczek
Building Corporate Culture at Petro Vietnam Power Corporation
By: Mr. Ngo The Linh
Supervisor: Dr. Huynh Trung Luong, Dr. Fredric W. Swierczek

Organizational Change for Competitiveness in the Drilling Mud Corporation (DMC)
By: Mr. Nguyen Manh Hung
Supervisor: Dr. Vimolwan Yukongdi, Dr. Fredric W. Swierczek

Improving the Operations of a Coal-fired Power Plant in the Vietnam Power Market
By: Ms. Pham Ngoc Vi Hien
Supervisor: Dr. Fredric W. Swierczek, Dr. Vimolwan Yukongdi

Developing a Marketing Strategy for Home Furnishing Online Retail Business
By: Mr. Vu Thien An
Supervisor: Dr. Fredric W. Swierczek

Optimization of the Organizational Structure of a Research and Engineering Institute: The Case of Vietsovpetro Joint Venture
By: Mr. Pham Thanh Vinh
Supervisor: Dr. Yuosre F M Badir

An Analysis of PetroVietnam Overseas Investments
By: Mr. Nguyen Hong Viet
Supervisor: Dr. Huynh Trung Luong, Dr. Fredric W. Swierczek

The Influence of Personality Traits, Human Capital and Situational Factors on the Individual Entrepreneurial Orientation of Women Entrepreneurs: Evidence from Dhaka, Bangladesh
By: Mr. Ahmed Al Asheq
Supervisor: Dr. Vimolwan Yukongdi

A Research Project on Organizational Climate and Workplace Familism: A Study of a Handcraft Enterprise in the Philippines
By: Ms. Clara Marie Asuncion Q. Gonzales Elizaga
Supervisor: Dr. Vimolwan Yukongdi

The Influence of Student Adjustment on Academic Achievement: An Empirical Study of AIT Students
By: Mr. Muhammad Mujahid Memon
Supervisor: Dr. Vimolwan Yukongdi

Social Entrepreneurial Intention: The Influence of Personality Traits, Self-Efficacy, Social Support and Gender Differences
By: Mr. Md. Uzzal Hossain
Supervisor: Dr. Vimolwan Yukongdi

Mobile Payment: An Empirical Research of Chinese Tourists' Behavior in Thailand
By: Ms. Zhi Tan
Supervisor: Dr. Supasith Chonglerththam

China’s Belt and Road Initiative: Opinions and Reasons from France, Explored and Compared with those of Experts
By: Ms. Xueying Peng
Supervisor: Dr. Willi Zimmermann, Dr. Vimolwan Yukongdi

Determining the Important Product Cues Influencing Consumers’ Purchase Decision for Processed Snack Products in Philippines
By: Ms. Rogine Joy F. Ceballos
Supervisor: Prof. Nazrul Islam

Consumer Intention to Use Mobile-Devices as an Alternative to Grocery-shopping: A Comparative Study between France and Thailand
By: Ms. Mariam Bury
Supervisor: Dr. Yuosre F M Badir

Perception of Corporate Social Responsibility and Consumers' Purchase Intention: A Comparative Study of French vs South-East Asian Students
By: Ms. Ramadji Celine Djimet
Supervisor: Dr. Vimolwan Yukongdi

Improving the Capacity of the North-South Transmission Network System of Vietnam Electricity
By: Mr. Tran Ngoc Khanh
Supervisor: Dr. Fredric W. Swierczek

Solutions for the Line Loss of EVNNPT’s 500kv Transmission Grid
By: Mr. Ngo Quoc Huy
Supervisor: Dr. Fredric W. Swierczek

By: Miss Nguyen Thi Viet Bang
Supervisor: Dr. Fredric W. Swierczek

Applications of Digital Transformation in the Operations of Vietnam Electricity
By: Mr. Tran Viet Anh
Supervisor: Dr. Fredric W. Swierczek

A Strategy for the Development of the Vietnam Oil and Gas Group
By: Mr. Truong Duc Trong
Supervisor: Dr. Fredric W. Swierczek

Factors Affecting Customers' Repurchase Intention: A Study of Online Shopping of Fresh Vegetables in Vietnam
By: Ms. Nguyen Thi Quynh Trang
Supervisor: Dr. Vimolwan Yukongdi
Chapter 6: AIT EXTENSION

6.1 Introduction

AIT Extension’s programs and services complement those of AIT’s graduate degree programs, and contribute to AIT’s mission by enabling a flexible, innovative, and client-oriented response to emerging and changing needs in the region.

AIT Extension is the Institute-wide center principally responsible for continuing professional and executive development, with a mission that complements that of the Schools. It specializes in customized capacity building and professional development services for practicing professionals, and has expertise in designing and implementing programs for diverse clients in many sectors. Expert resources include internal staff, AIT faculty members, and experts in relevant fields based in Thailand and the region. AIT Extension also provides support services and staff development programs to other units at AIT.

6.2 Mission

To design and deliver continuing, professional and executive education, and other capacity development services required by our clients by drawing on the expertise of AIT faculty and experts in AIT’s network.

6.3 Unit Governance

Courses and Services

AIT Extension is led by an Executive Director. In collaboration with the AIT President, to whom he reports, the Executive Director is responsible for defining the strategic direction of AIT Extension, and executing its programs.

Senior colleagues each lead a client portfolio, and are responsible for client relationship management and leading program design teams that respond to clients’ requirements. Program work is supported by an administrative and technical team, led by a Coordinator, and by a Client Management and Marketing team.

AIT Extension offers courses in the following specializations:

- Agriculture and Food Processing
- Environment and Natural Resources Management
- Education and Training Development
- Poverty Reduction and Livelihoods Development
- Business Performance, Management and Strategy
- Development Effectiveness
- Public Sector Services and Management
- Private Sector Development
- Information and Communication Technologies
- Information and Communication Management
- Banking and Finance.

Most international training courses usually last from one to three weeks.

Customized Courses

AIT Extension specializes in designing, developing and implementing short courses to the specifications of particular client organizations. Every organization with which we work is unique; and change interventions required by
our clients are most usually specific to that organization. Wherever required, therefore, we work closely with our clients to develop unique training solutions that meet their specific needs. This process will usually start with the clients’ own terms of reference, to which AIT Extension responds. Meetings are scheduled with the client to discuss all aspects of the required training, and to ensure that the client’s needs are met.

**Exposure Visit Programs**

Many professionals are interested in field visits to observe best practices in their field. Exposure visits are designed to provide senior government officials and decision makers with opportunities to visit and observe current technology and practices in their fields, to exchange information, to exchange experiences with local counterparts, project personnel and beneficiaries on development and management of similar projects, and to exchange views with participants from other countries. At the end of each program, a seminar is conducted at AIT to enable participants to reflect on what has been learned and what can be adapted to their own development contexts.

Thailand provides numerous examples of best practice in a wide diversity of fields. AIT Extension is also experienced in organizing exposure visit programs to many countries in the region, with recent experience in Vietnam, Laos, Malaysia, Korea, Philippines, Indonesia, Singapore and the UK.

**Consulting Services**

AIT Extension professional staff offer a wide range of technical assistance and consulting services. These include:

- Human Resource Development: Development of human resource development (HRD) programs and projects; assessment of training needs in organizations; evaluation of training courses, projects or plans; review and evaluation of the management and operation of training centers; management and implementation of training development projects.

- Educational Development: Curriculum design and development; evaluation of educational programs and projects; management and implementation of educational development projects; report writing and documentation.

- Organizational change and development: Strategic planning.

- Information Technology: Strategic information technology. Planning; information system analysis and design; IT project management.

6.4 Learning Approach

Our teaching and learning approach is to apply best practices in training, based on established principles of adult learning.

AIT Extension training strategies are consistent with the principles of adult learning: peer learning, reflective thinking, problem-based learning, participatory learning and experiential learning. We aim to maximize learning by mixing these approaches appropriate to each learning context.

Methods used include short presentations, group discussions, case studies, workshops, individual exercises, simulation, role plays, project work, peer learning and exposure visits. Training sessions are designed to allow participants the scope to interact with resource persons and actively engage in the learning process.

Participants benefit from close personal attention by AIT Extension staff. Our courses provide five to six hours of workshop sessions every weekday, with extensive social and cultural trips organized at the weekends in courses of two weeks or longer. IT relevant and appropriate to every group of participants are incorporated into the course design.

Feedback from participants in one course is a critical input to subsequent courses. All our training courses are undertaken with the aim of continuous quality improvement.

All AIT Extension activities take advantage of AIT’s academic and social environment, and the Institute’s multicultural English-speaking academic community.

6.5 Training Resources

AIT Extension’s professional staff members are specialists in continuing professional education, assessments, and monitoring & evaluation, learning facilitation, and related disciplines.

AIT Extension academic and professional Resource Persons are drawn principally from AIT’s schools, and from leading international and local organizations based in Thailand.

For specific technical expertise, AIT Extension enters into complementary partnerships with organizations and individuals with relevant technical expertise. For courses in third countries, AIT Extension works with country partners with relevant local knowledge.
Most courses are delivered in the AIT Hotel and Conference Center, which has hotel accommodation for almost 200 participants, an auditorium seating 300, and 10 training rooms for groups ranging in size from 10 to 50 participants. AIT’s campus also has student dormitory accommodation, a medical clinic, an international cafeteria, several restaurants and sports facilities, including tennis and squash courts, football and cricket fields, a golf course and a swimming pool.

6.6 Trainings Completed in 2018

Bangchak Cooperative Service Stations Case Study
Duration: 10 Oct 2017 – 29 June 2018
Project Leader: Panchica Koonchaimang
Total contracted amount: THB 3,49,999.65

Social Business Youth Summit Asia-Pacific 2018
Duration: 12 March 2018 – 24 Sep 2018
Project Leader: Andres Parraquirre
Total contracted amount: THB 93,000.00

CLMV Regional Conference on SDG Implementation in Partnership with VPD Office & ASEF
Duration: 26 March 2018 – 23 Sep 2018
Project Leader: Rowena C. Alcoba
Total contracted amount: THB 1,61,200.00

International Exposure Program on Housing, Water Supply & Estate Infrastructure Development
Duration: 23 Dec 2017 – 27 June 2018
Project Leader: Rowena C. Alcoba, Parichad Nuntavong
Total contracted amount: THB 5,67,600.00

15th Policy, Planning & Management Course
Duration: 09 Jan 2018 – 19 July 2018
Project Leader: Worawan Sumroetrum
Total contracted amount: THB 9,96,000.00

Management Development Workshop (Batch 2) for the Medical Supplies Department MoH SL
Duration: 09 Jan 2018 – 14 July 2018
Project Leader: Parichad Nuntavong
Total contracted amount: THB 10,75,200.00

Governance & Anti-Corruption for CIAA official
Duration: 19 Jan 2018 – 29 July 2018
Project Leader: Phyu Sin
Total contracted amount: THB 9,21,000.00

Regional Integration & ASEAN Experiences
Duration: 21 Jan 2018 – 26 July 2018
Project Leader: Chatuphol Pholwan
Total contracted amount: THB 7,92,500.00

Leadership for Utility Managers
Duration: 24 Jan 2018 – 07 Aug 2018
Project Leader: Md. Omar Farouk
Total contracted amount: THB 6,97,500.00

Professional Development Course on Modern Medical Treatment & Health Care in Public Hospital
Duration: 24 Jan 2018 – 13 Aug 2018
Project Leader: Warindhorn Wachirasiri
Total contracted amount: THB 9,70,000.00

Sustainable Consumption & Production
Duration: 25 Jan 2018 – 31 Dec 2018
Project Leader: Thaniya Jirasathipornpong
Total contracted amount: THB 25,50,000.00

Procurement & Contract Management
Duration: 25 Jan 2018 – 1 Aug 2018
Project Leader: Tharakorn Chanlapa
Total contracted amount: THB 4,18,500.00

Strategic Planning & Management of Sustainable Agricultural Technology Transfer (Batch 2)
Duration: 14 Feb 2018 – 30 Sep 2018
Project Leader: Worawan Sumroetrum
Total contracted amount: THB 8,95,900.00

Professional Development Short Training Program on "Strategic Leadership & Organization Renewal" for NTC, NEPAL
Duration: 28 Feb 2018 – 31 Dec 2018
Project Leader: Sk Shahin Hossain
Total contracted amount: THB 8,68,000.00

Innovative Irrigation & Agriculture Techniques
Duration: 12 March 2018 – 23 Sep 2018
Project Leader: Furqan Ali, Tharakorn Chanlapa
Total contracted amount: THB 15,52,500.00

Accounting: Significant Aspects in Power Utilities Companies
Duration: 12 March 2018 – 13 Sep 2018
Project Leader: Md. Omar Farouk
Total contracted amount: THB 5,09,500.00

CLMV Professional Development on Insurance
Duration: 26 March 2018 – 26 Sep 2018
Project Leader: Worawan Sumroetrum
Total contracted amount: THB 8,52,500.00
### 16th Policy, Planning & Management Course
Duration: 28 Mar 2018 – 7 Nov 2018  
Project Leader: Worawan Sumroetrum  
Total contracted amount: THB 9,74,000.00

### Leadership, Office Management & Communication Skills
Duration: 8 Apr 2018 – 12 Oct 2018  
Project Leader: Mahbooba, Thaniya  
Total contracted amount: THB 4,05,000.00

### Agro-Processing & Value Chain Management in Agricultural Marketing
Duration: 24 Apr 2018 – 8 Nov 2018  
Project Leader: Phyu Sin  
Total contracted amount: THB 7,07,250.00

### Monitoring & Evaluation of Health Systems Strengthening & Results-based Project Management
Duration: 29 Apr 2018 – 1 Nov 2018  
Project Leader: Kanlaya Muangsan, Dr. Pradeep Kumar Dash  
Total contracted amount: THB 4,32,000.00

### Project Management, Monitoring & Evaluation Batch 4
Duration: 7 May 2018 – 18 Nov 2018  
Project Leader: Rowena C. Alcoba  
Total contracted amount: THB 3,58,500.00

### 65 FTC MoPA Foundation Course from Government of Bangladesh
Duration: 7 May 2018 – 25 Nov 2018  
Project Leader: Sk Shahin Hossain  
Total contracted amount: THB 8,44,500.00

### International Financial Reporting Standards for Gas & Oil Companies
Duration: 11 May 2018 – 22 Nov 2018  
Project Leader: Syed Muntasir H. Bokhari  
Total contracted amount: THB 14,01,750.00

### Corporate Innovation & financial Evaluation
Duration: 22 May 2018 – 31 Dec 2018  
Project Leader: Thaniya Jirasathipornpong  
Total contracted amount: THB 4,48,350.00

### Advanced Public Sector Management for Effective Policy Implementation, Senior Staff, BPATC
Duration: 22 May 2018 – 03 December 2018  
Project Leader: Sufian Eteaa  
Total contracted amount: THB 8,64,000.00

### Innovation
Duration: 04 June 2018 – 05 December 2018  
Project Leader: Syed Muntasir H. Bokhari  
Total contracted amount: THB 4,30,688.00

### Disaster Risk Reduction & Management
Duration: 21 June 2018 – 30 December 2018  
Project Leader: Mahbooba, O. Farouk  
Total contracted amount: THB 15,36,000.00

### 6.7 Ongoing Grant and Sponsored Trainings

#### Capacity Building Project for Ministry of Public Work & Transport, Lao PDR
Duration: 01 August 2018 – 29 May 2020  
Project Leader: Chatchata Prasongsuk  
Total contracted amount: THB 25,52,320.00

#### Bangchak Social Business Design Project
Duration: 1 June 2018 – 29 Apr 2019  
Project Leader: Panchica Koonchaimang  
Total contracted amount: THB 6,29,999.99

#### SDGs Entrepreneurship Field Study Program
Duration: 3 Aug 2018 – 20 Apr 2019  
Project Leader: Panchica Koonchaimang  
Total contracted amount: THB 4,72,480.00

#### Comprehensive Financial Solutions for City Resilience Conference
Duration: 21 June 2018 – 08 Feb 2019  
Project Leader: Panchica Koonchaimang, Parichad Nuntavong  
Total contracted amount: THB 24,74,236.80

#### Procurement & Contract Management FIDIC Batches 2 & 3
Duration: 21 March 2018 – 30 March 2019  
Project Leader: Rowena C. Alcoba  
Total contracted amount: THB 88,08,800.00

#### Customer Service Management Provident fund Nepal
Duration: 11 April 2018 – 28 February 2019  
Project Leader: Suthida Phosuwan  
Total contracted amount: THB 9,00,000.00

#### Leadership Development for Research Managers
Duration: 15 May 2018 – 07 April 2019
Project Leader: Md. Anishur Rahman  
Total contracted amount: THB 8,78,400.00

Leadership & Organizational Renewal  
Duration: 22 May 2018 – 31 Dec 2019  
Project Leader: Chatcata Prasongsuk  
Total contracted amount: THB 8,51,840.00

Public Finance & Risk Management (Batch 3)  
Duration: 18 June 2018 – 11 Jan 2019  
Project Leader: Phyu Sin  
Total contracted amount: THB 8,43,500.00

Governance & Anti-corruption: The Methods & Tools behind & Effective Corruption  
Duration: 18 June 2018 – 05 Jan 2019  
Project Leader: Worawan Sumroetrum  
Total contracted amount: THB 10,32,000.00

AULIA National Resource Persons' Masterclass  
Duration: 10 Oct 2018 – 29 April 2019  
Project Leader: Rowena Alcoba  
Total contracted amount: THB 26,41,000.00

Training Course on: planning, Implementation & Management of Effective Signal & Traffic Control Systems with Awareness  
Duration: 21 June 2018 – 09 Jan 2019  
Project Leader: Kanlaya Muangsan, Dr. Pradeep Kumar Dash  
Total contracted amount: THB 8,16,000.00

Advanced Public Sector Management for Effective Policy Implementation Batch 2  
Duration: 31 July 2018 – 12 Feb 2019  
Project Leader: Chatcata Prasongsuk  
Total contracted amount: THB 12,03,413.00

Planning, Management & Execution of Effective Defense Policy  
Duration: 05 Nov 2018 – 30 Aug 2019  
Project Leader: Furqan Ali Shaikh  
Total contracted amount: THB 10,87,250.00

The Practical Aspects of Reinsurance  
Duration: 12 Nov 2018 – 15 May 2019  
Project Leader: Kanlaya Muangsan  
Total contracted amount: THB 16,31,200.00

Professional Development Course on Training of Trainers on Environment Education  
Duration: 17 Dec 2018 – 19 June 2019  
Project Leader: Warindhorn Wachirasiri  
Total contracted amount: THB 3,77,600.00

Best Practices in Managing State-Owned Water Supply Organizations for NWSDB officials  
Duration: 02 Dec 2018 – 06 June 2019  
Project Leader: Phyu Sin  
Total contracted amount: THB 5,06,998.00
Chapter 7: INTERNET EDUCATION AND RESEARCH LABORATORY (intERLab)

7.1 Introduction

Continual expansion of the Internet is creating greater demand for well-trained human resources to support the infrastructures and applications of the Internet. New computer science and engineering solutions are needed to simply handle the exponential growth in the traffic and bandwidth usage which is putting severe strain on the Internet today. There is urgent need for a new breed of engineers and technologists to respond to the growing demand from this rapid expansion with endless range of new applications.

As the Internet continues to penetrate every corner of society and of the economy, there are other non-technical issues to be addressed along with the advancement of technological progress. There is a definite need for better understanding of the Internet’s social, business, economic as well as legal implications in order to promote the standards of behaviour and practices for the community that are appropriate to continued growth and beneficial use of the Internet.

The intERLab was established in December 2003 as a fixed regional center for Internet infrastructure capacity building, where AIT based on its human and institutional networks, could play a very significant role for the region. Many Internet organizations such as Network Startup Resource Center (NSRC) funded by NSF, the Asia-Pacific Network Information Centre (APNIC) and the Asia-Pacific Advanced Network (APAN) as well as many Internet business organizations provided strong support for the intERLab establishment.

The concept of establishing a fixed location for the Internet human resources development has been discussed and endorsed by leading Asia-Pacific Internet organizations at their AP* Retreat meeting at AIT in year 2000. Several leading research institutions in Asia-Pacific, Europe and the US have indicated their interests in forming up a network of support for the intERLab research, training and education. The main idea is to work together with partners on training and workshops in order to produce network engineers for the stable deployment of the Internet. It was also encouraged that the intERLab develops its own expertise by doing its own research and eventually become one of the leading Internet research centers in the region.

The core component of the laboratory will be on research activities. This will be achieved by maintaining excellent research facilities and staff, hosting visiting researchers and taking advantage of linkages with research laboratories worldwide. The lab was built upon pre-existing Internetworking Research Laboratory of the School of Advanced Technologies and the Distributed Education Center.

7.2 Mission

To become one of the leading Internet regional centers of excellence; establishing intERLab/ AIT name, as one of the leading Internet infra-structure HRD centers in the Asia-Pacific region; launching our research products at the regional
and international level; and developing a regular degree program under SET.

7.3 Unit Governance

PROF. KANCHANA KANCHANASUT
IntERLab Director

7.4 Resources

Education
Distance Education and E-Education Platform VClass
VClass open source consortium
VClass trainings for AIT faculty and staff
VClass hosting service and technical support
ASEAN Virtual Institute of Science and Technology (AVIST) hosting
Custom courseware development;
E-learning consultancy;
Instructional design consultancy;
Custom course design
CanalAVIST streaming VDO over Trans-Eurasia Information Network (TEIN)

Research
Streaming Technology on the Internet
DVRelay for streaming high quality Video (DV format) over heterogeneous network
Overlay network for streaming content delivery

Computer Network Research
Wireless Internet as information infrastructure for rural Asia
Digital Ubiquitous Mobile Broadband OLSR emergency network project
Multimedia communication over heterogeneous network

Training and Internet Information Center
Trainings for Network Infrastructure Engineers (7-8 courses per year)
Human Resource Development for Trans-Eurasia Information Network
Secretariats for AP* Retreat and Asia Pacific Networking Group (APNG) organizations

7.5 Faculty and Research Staff

Faculty
KANCHANA KANCHANASUT, M.Sc and Ph. D. Computer Science, University of Melbourne, Australia. Graduate Diploma in Computer Science, University of Queensland, Australia. B. Sc. Mathematics, University of Queens-land, Australia.

Professor of Computer Science, School of Engineering and Technology and Director of intERLab. [Internet for education; Heterogeneous Networks; Emergency Networks; Mobile Ad Hoc Networks; Streaming Media and Distributed Computing]

Affiliates
MONGKOL EKPANYAPONG, Ph.D., Georgia Institute of Technology. M.Eng., Asian Institute of Technology, Thailand. B.Eng., Chulalongkorn University, Thailand.

Assistant Professor School of Engineering and Technology [VLSI design, physical design automation, micro architecture, compiler, and Embedded Systems]

POOMPAT SAENGUDOMLERT, Ph.D. in Electrical Engineering and Computer Science, MIT, USA M.S. in Electrical Engineering and Computer Science, MIT, USA B.S.E. in Electrical Engineering, Princeton University, USA

Associate Professor School of Engineering and Technology [Areas of Communication Theory; Optical networks; Resource Allocation Problems and Array Processing]


Associate Professor School of Engineering and Technology [Digital Signal Processing; Routing Algorithm in the network such as IP and MPLS network; High Speed network and IP-based multimedia applications]

Adjunct Researchers
TANACHAI KONGPOOL, Bachelor’s Degree of Computer Science, KMUTNB King Mongkut’s University of Technology North Bangkok
Assistant Researcher National Electronics and Computer Technology Center (NECTEC) [Network management; Network engineering; Ad hoc Network]

AIMASCHANA NIRUNTASUKRAT, Ph.D. in Electrical Engineering, University of Maryland (College Park), Master of Engineering in Electrical Engineering, Chulalongkorn University, Bachelor of Engineering (with honors) in Electrical Engineering, Chulalongkorn University

Researcher National Electronics and Computer Technology Center (NECTEC) [Network congestion control; Network performance modeling; Application of AI; Biomedical signal processing]

PANITA PONGPAIBOON, Ph.D. in Electrical and Computer Engineering, Carnegie Mellon University Master of Science in Electrical Engineering, Stanford University Bachelor of Science (with University Distinction) in Electrical Engineering, Stanford University

Researcher National Electronics and Computer Technology Center (NECTEC) [Optical network management; IP-overoptical networking; Survivable and fault-tolerant networks; Network measurement; Traffic classification; IPv6; Mobile IP and Intelligent transport system]

ONNO W. PURBO, Ph.D., University of Waterloo, Canada. M.Eng., McMaster University, Canada.

Retired Lecturer from Institute of Technology Bandung (ITB) & Retired Indonesian Civil Servant. He is an Eisenhower Fellow & Ashoka Senior Fellow. In the last 20 years, dedicate his time to educate Indonesians on Information technology, open source, Internet Telephony & Low Cost "Wireless" Internet Access. He has published 40+ books & thousands of articles in IT. He is active in 170+ mailing lists and moderate 10+ mailing lists. His vision is "To See Knowledge Based Society in Indonesia"

THIRAPON WONGSAARDSAKUL, D.Tech.Sc. in Computer Science, Asian Institute of Technology Master of Science in Telecommunications and Computers, George Washington University Bachelor of Engineering in Computer Engineering, Kasetsart University Associate Dean, School of Science and Technology, Bangkok University [Voice over IP; Mobile Ad Hoc Network; Peer to Peer; Distributed Hash Table; Intelligent transport system]

Research Staff

PREECHAI MEKBUNGWAN, Master of Engineering in Information and Communications Technologies (ICT), Asian Institute of Technology, Thailand. Bachelor of Engineering in Computer Engineering, Kasetsart University, Bangkok, Thailand.

Research Associate [Mobile Ad Hoc Network, Delay Tolerant Networking]

NUNTHAPAT WESHSUWANNARUGS, Master of Science in Information and Communications Technologies, Asian Institute of Technology, Thailand. Bachelor of Science in Computer Science, Payap University, Chiang Mai

Research Associate [Mobile ad hoc networking; Vehicular ad hoc networking; Disaster emergency networking]

APINUN TUNPAN, Ph.D. and M.S. in Computer Science, University of Maryland College Park, USA. B.Eng. in Computer Engineering, Chulalongkorn University, Thailand.

Senior Research Specialist [Mobile ad hoc networking; Vehicular ad hoc networking; Robotic ad hoc networking; Disruption tolerant networking; Disaster emergency networking; Intelligent transportation system; Network Coding; Information retrieval; Multimedia databases]

7.6 On-going Grants and Sponsored Research

Mobile application for Real-time Incident Alert
Duration: 01-Oct-2017 to 28-Feb-2019
Project Investigators: Dr. Mongkol Ekapanyapong, Dr. Matthew N. Dailey Kanchanasut
Total Contracted Amount (THB): 5,00,000.00

Smart City Deployment & Accuracy Improvement
Duration: 01-Oct-2017 to 31-Dec-2019
Project Investigators: Dr. Mongkol Ekapanyapong, Dr. Matthew N. Dailey
Total Contracted Amount (THB): 26,00,000.00

The Research on The Automatic Electrical Measurement of Lead Acid Battery for Power System
Duration: 01-Feb-2018 to 31-Dec-2019
Project Investigators: Dr. Mongkol Ekapanyapong
Total Contracted Amount (THB): 19,91,000.00

Low-cost Real-time Monitoring of Haze Air Quality Disasters in Rural
Chapter 8: INSTITUTE-WIDE SPONSORED AND CONTRACTED PROJECTS

8.1 Grants and Sponsored Research Completed in 2018

ADRC-JAPAN
Duration: 1-Jan-2018 to 31-Dec-2018
Project Investigator(s): Dr. Manzul K. Hazarika
Total Contracted Amount (THB): 9,30,000.00

CTCN South East Asia Stakeholder Forum 2017
Duration: 1-Dec-2017 to 30-Jun-2018
Project Investigator(s): Prof. Mukand S. Babel
Total Contracted Amount (THB): 95,11,425.00

8.2 On-going Grants and Sponsored Research

Simulation & Nanotechnology to enhance selected Solar Cell Materials
Project Investigator(s): Dr. G. Louis Homyak
Total Contracted Amount (THB): 15,00,000.00

Climate Change Risk Assessment ADB-Vietnam
Duration: 01-Jan-2018 to 31-Mar-2019
Project Investigator(s): Dr. Manzul K. Hazarika
Total Contracted Amount (THB): 16,12,800.00

Risk Assessment of 58 Districts in Tajikistan (43-2018-REP-UNEP-DRMP)
Duration: 10-Nov-2018 to 31-Jan-2020
Project Investigator(s): Dr. Manzul Kumar Hazarika
Total Contracted Amount (THB): 4,62,080.00

Drone Application & Training
Duration: 01-Feb-2018 to 31-Dec-2022
Project Investigator(s): Dr. Manzul Kumar Hazarika
Total Contracted Amount (THB): 12,00,000.00

intERLab Training 19
Duration: 1-Jul-2019 to 31-Dec-2019
Project Investigators: Prof. Kanchana Kanchanasut, Mr. Viraphan Samadi
Total Contracted Amount (THB): 76,64,240.00

intERLab ITServ 2019
Duration: 1-Jan-2019 to 31-Dec-2019
Project Investigators: Mr. Viraphan Samadi, Prof. Kanchana Kanchanasut
Total Contracted Amount (THB): 20,00,000.00

Communities in Thailand & Southeast Asia (SEA-HAZEMON)
Duration: 1-Sep-2018 to 31-Jul-2021
Project Investigators: Dr. Mongkol Ekapanapong
Total Contracted Amount (THB): 9,50,000.00

Baengpun: Resource Sharing Platform for Communities
Duration: 01-Jun-2018 to 30-Nov-2018
Project Investigators: Nisarat Tansakul
Total Contracted Amount (THB): 25,05,100.00