AIT
Asian Institute of Technology

ANNUAL REPORT ON RESEARCH 2017

PREFACE

The Asian Institute of Technology (AIT) is pleased to release the Report on Annual Research 2017. This provides a consolidated overview of all the sponsored activities conducted across the institute during the year. AIT has played an important role in the development of technologies and scientific competence and capacity of the Asian region and beyond. AIT's research has enabled close interactions with institutions throughout the region and the world and has successfully positioned the Institute to reach out to different stakeholders at all levels in Asia and beyond. By acting as a bridge between the global, the regional and the local, AIT enhances opportunities for local partners to raise their knowledge, to analyze needs and to set priorities that bring them into regional and global agendas.

This year there were 406 sponsored and contracted projects, with a budgeted value of 1.33 billion Thai baht that were carried out during this year by the faculty and staff of the three schools: School of Engineering and Technology (SET), School of Environment, Resources and Development (SERD), and School of Management (SOM), as well as at AIT Extension, Internet Education and Research Laboratory (IntERLab) and Institute-wide centers. AIT's continues to forge new partnerships and remains committed to building the quality of its research, which is demonstrated through book, journal and conference publications, which numbered over 300 during the year. Other publications include the master's thesis and research study and the doctoral dissertations. AIT continues to focus on continuous quality assurance and systemic quality improvement of its research processes and research outputs with state of art laboratories and research facilities to successfully accomplish the diverse range of research activities. I would like to take this opportunity to thank all AIT faculty, staff, and students for their strong support and collective efforts towards achieving our research goals.

Professor Sivanappan Kumar
Vice President for Academic Affairs

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ASIAN INSTITUTE OF TECHNOLOGY


AIT

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 has become a leading regional postgraduate institution and 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 230,000 volumes and 830 print and on-line 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

2.1 Project Numbers and Budget 2017

In line with the desire to impact on society by integrating academic research with industry and society's needs, AIT witnessed a good growth in the numbers of sponsored and contracted projects undertaken and that of publications 2017. **Figure 2.1** gives an overview of the trend of the ongoing sponsored and contracted projects for 2017 both in and budget value terms and in terms of the number of ongoing projects undertaken during the same period.

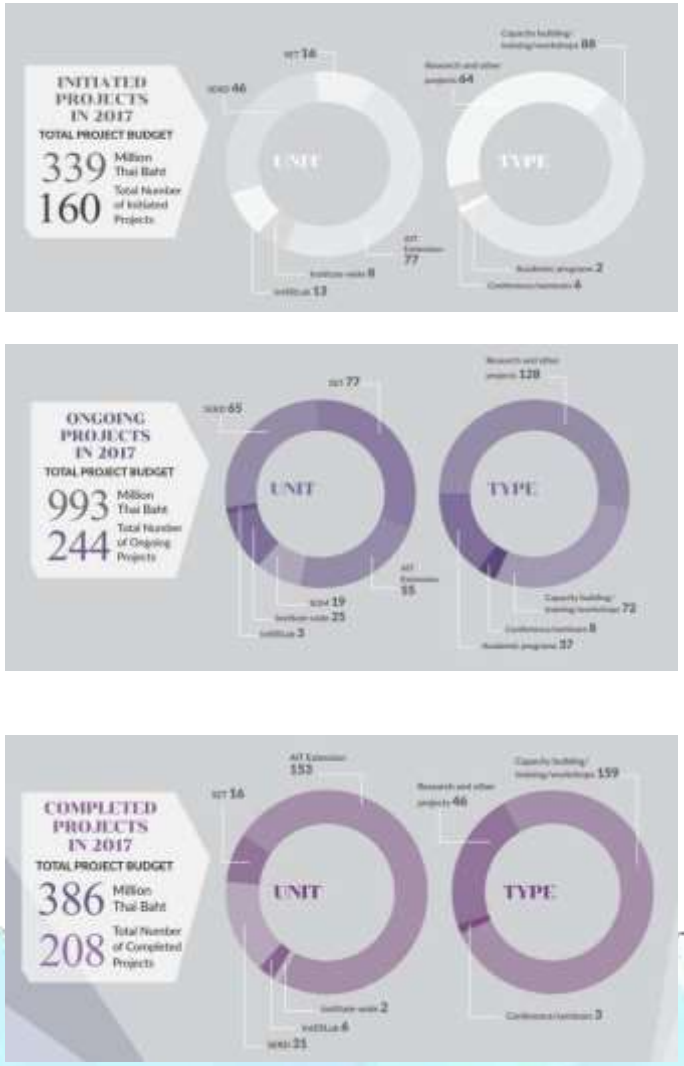

Figure 2.1: Total Project Budget

2.2 Faculty Strength

Over the years there has been a reduction in seconded faculty (supported by different countries). This led to a reduction in the total full-time faculty (as they were not all replaced by direct hire faculty) and highlights the tremendous effort put in by our faculty and research staff. There has also been a subsequent increase in adjunct faculty who offer specialized courses and professional programs. Figure 2.2 below shows the trend in the Faculty strength grouped as Full time faculty and total faculty including adjunct, affiliated, visiting faculty, etc

Faculty	Facuty Headcount Annual Average	Faculty Strength in FTE*
SCHOOL OF ENGINEERING AND TECHNOLOGY		
Full-time Faculty	34	34
Visiting Faculty >1y	5	5
Visiting Faculty <1y	8.08	4.04
Adjunct Faculty	34.83	8.71
Total	**81.92**	**51.75**
SCHOOL OF ENVIRONMENT, RESOURCES AND DEVELOPMENT		
Full-time Faculty	28.5	28.5
Visiting Faculty >1y	3.08	3.08
Visiting Faculty <1y	4.25	2.13
Adjunct Faculty	9.25	2.31
Total	**45.08**	**36.02**
SCHOOL OF MANAGEMENT		
Full-time Faculty	6.92	6.92
Visiting Faculty >1y	0	0
Visiting Faculty <1y	7.5	3.75
Adjunct Faculty	5.5	1.38
Total	**19.92**	**12.04**
ASIAN INSTITUTE OF TECHNOLOGY		
Full-time Faculty	69.42	69.42
Visiting Faculty >1y	8.08	8.08
Visiting Faculty <1y	19.83	9.92
Adjunct Faculty	49.58	12.4
Total	**146.92**	**99.81**

Figure 2.2: Faculty Strength

Research excellence in an international institution of higher learning as AIT is linked with the graduate students we have.

Figure 2.2 gives an institute wide trend on the intake, Enrolment and graduated student strength for the period.

2.3 Graduation

AIT confers degrees at three times in a year (May, July and December). The number of graduates including all types of degree programs ranging from master, professional master, doctoral, special, certificate, diploma and UG during 2012-2017, and Figures 2.3 and ***2.4*** present the trend of graduation by the three schools and types of degrees. The trend of graduates has been increasing in the last few years.

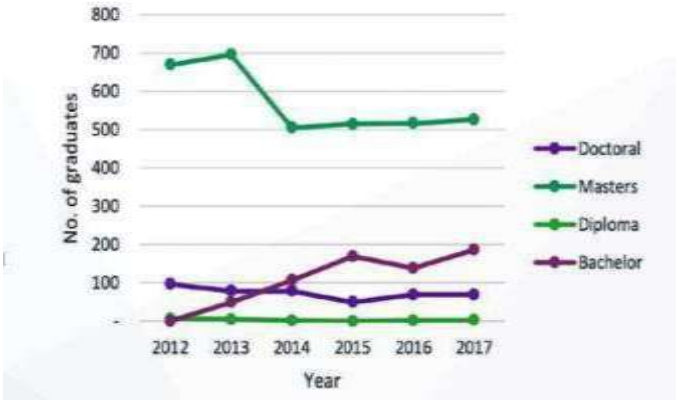

Figure 2.3: Graduates by Schools

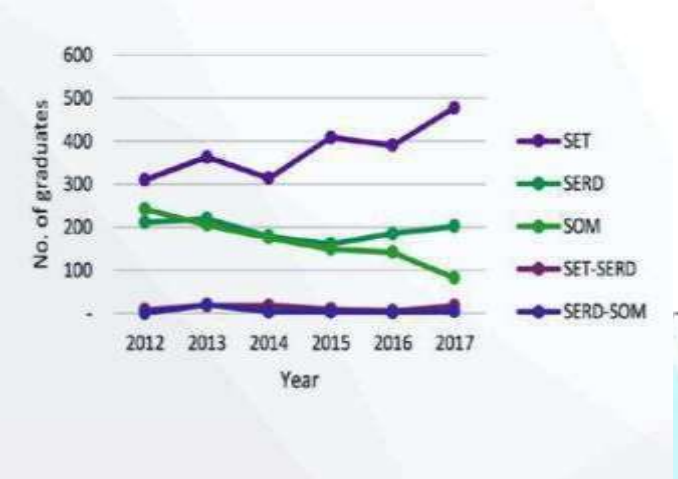

Figure 2.4: Graduates by Degrees

2.4 Most cited papers in Scopus

Publication and citation information is considered one of the most widely recognizable indicators of research output and quality, and collection and analysis of this information is among means to judge alignment of the institutions research activities with its strategic priorities. Here below shows the top 5 most cited publications in Scopus lifetime. It is planned to have a year on year analysis in due course.

Top 5 Researchers with the Highest Number of Projects initiated 2006 - 2017

1. On the acceptability of arguments and its fundamental role in nonmonotonic reasoning, logic programming and n-person games (Cited 2139-time(s)) 1995; Artificial Intelligence; Dung, P.M.
2. Developments in industrially important thermostable enzymes: A review (Cited 648-time(s)) 2003; Bio resource Technology; Haki, G.D., Rakshit, S.K.
3. Hydrothermal growth of ZnO nanostructures (Cited 555-time(s)) 2009; Science and Technology of Advance Material; Baruah, S., Dutta, J.
4. An analytical approach for DG allocation in primary distribution network (Cited 520-time(s)) 2006; Internation Journal of Electrical Power and Energy Systems, Acharya, N., Mahat, P., Mithulananthan, N.
5. Simultaneously mitigating near-term climate change and improving human health and food security (Cited 488-time(s)) 2012; Science; Shindell, D., Huylenstierna, J.C. I., Vignati., Demkine, V., Fowler, D.

2.5 Top 5 Researchers with the Highest Number of Projects initiated 2006 - 2017

The streamlining of Project management and corresponding incentives towards initiation of projects has helped reinforce the institutions research objectives and focus. **Table 2.1** highlights the top Researchers with the Highest Number of Projects initiated 2006- 2017.

Faculty Name	No of Projects as PI	PI and Co PI
Prof Kanchana Kanchanasut	69	69
Prof S. Kumar	20	55
Prof C. Visvanathan	38	47
Prof Mukand S. Babel	40	46
Dr Kunnawee Kanitpong	33	36
Dr Kyoko Kusakabe	23	32

Table2.1: Top 5 Researchers with the Highest Number of Projects initiated 2006 – 2017

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**

School of Engineering and Technology (SET) is the biggest school in AIT with academic programs offerings in five countries: Thailand (mother campus), Vietnam, Sri Lanka, Nepal and Myanmar. The school is currently organized in three thematic areas and 8 academic outreach centers.

SET emphasizes on a learning process that combines theoretical problem-solving and real-life application of engineering principles. Its research orientation is outward-looking; addersing the actual and anticipated needs of the region. SET enhances its academic portfolio by emphatically injecting the "5I" features namely internationality, innovation, integration, information technology and industrial partnership. The school is currently working on the international accreditation process for all programs.

In line with the mission of the Institute, the mission of the School of Engineering and Technology is:

To develop highly qualified engineers and technologists who play leading roles in promoting the region's industrial competitiveness in its integration into the global economy.

More information about the school can be accessed at the SET's homepage http://www.set.ait.asia/

3. Thematic Groups, Fields of Study and Multidisciplinary 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)
6) Offshore Technology and Management (OTM)
7) Disaster Preparedness, Mitigation and Management (DPMM)
8) Gender, Transportation and Development

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 fields of study:

1) Mechatronics (MEC)
2) Microelectronics and Embedded Systems (MES)
3) Industrial and Manufacturing Engineering (IME)
4) Nanotechnology

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

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

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.

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/

Geo informatics 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

Information Center

IFIC coordinates the activities of the International Ferro cement Society (IFS) including publication of "Journal of Ferro cement", conducting continuing education courses and sponsored research projects in low-cost construction. Visit IFIC: http://www.set.ait.asia/ific/

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.ait.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.ait.asia, http://www.tarc.or.th/

AIT Center of Excellence in Nanotechnology

The Center of Excellence in Nano-technology 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.ait.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.

Assistant 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 INFARSTRUTURE 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:

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6) Offshore Technology and Management (OTM)
7) Disaster Preparedness, Mitigation and Management (DPMM)
8) Gender, Transportation and Development

3.1.1 : SET – CONSTRUCTION ENGINEERING ANDINFRASTRUCTURE 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 Infarstructure 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

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

Visiting/Adjunct/Affilated 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 Univ. 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

Sypsomos, Michael G.
B.S. Univ. of South Alabama

3. Grants and Sponsored Research Completed in 2017

Professional master project management Ho Chin Minh, sept 2015
Duration: 01-09-15 to 31-07-17
Project Investigators: Dr Hadikusumo
Sponsor: Construction Corporation in Vietnam
Total Contracted Amount
(THB): 231,750

Built environment curricula in the Asia Pacific region: Responding to climate change
Duration: 01-Oct-16 to 31-Jul-17
Project Investigators: Dr Djoen S Santoso, Dr Sohee Kim
Sponsor: Royal Melbourne Institute of Technology
Total Contracted Amount
(THB): 79,163.00

Professional master project management in Naw Pyi Taw Myanmar, oct 2015
Duration: 01-10-15 to 31-07-17
Project Investigators: Dr. Hadikusumo
Sponsor: Ministryof construction, Myanmar
Total Contracted Amount
(THB): 309,000

4. On-going Grants and Sponsored Research

Professional master's in project management in Yangon, Myanmar
Duration: 01-Oct-15 to 31-Jul-18
Project Investigators: Dr BHW Hadikusumo
Sponsor: Multi Donor
Total Contracted Amount
(THB): 11,819,250.00

Application of ICT in grocery shopping and public transportation usage
Duration: 21-Aug-17 to 20-Feb-18
Project Investigators: Dr Djoen S Santoso
Sponsor: Unjversities Katolik Parahyangan (UNPAR)
Total Contracted Amount
(THB): 109,263

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

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

5. Publications

Papers in Refereed Journal

Joewono, T., Santoso D, Adinegoro L. (2017). Characteristics of Travel, Activities, and Action Space of Young Workers Riding Motorcycles in Developing City. Journal of Transportation Research Procedia. Vol: 25.

Liyanage, P.L., Santoso D.S. (2017). Investigating Behavior of Motorcycle Riders from Negative Experience and Profile: A Case Study of Colombo, SriLanka. Journal of Eastern Asia Society for Transportation Studies. Vol: 12.

Joewono, T., Santoso D., Ramadhan H.J., Stefani F. (2017). Identifying Characteristics of BRT-Lite System: Learning from Trans Metro Bandung, Indonesia. Journal of Eastern Asia Society for Transportation Studies. Vol: 12 Pages 14-34.

Papers in Conference Proceedings

Ranathunga C., Santoso, Djoen San. (2017). Three-Wheeler in Sri Lanka: Aspects and Problems Faced by Passengers. 18-21 Sep 2017 Ho Chi Minh City. 12th Eastern Asia Society for Transportation Studies Conference.

6. Doctoral Students' Dissertation

System Dynamics Modelling for Building Information Modelling Adoption in the Architectural and Engineering Design Industry in Thailand
By: Mr. Grit Ngowtanasuwan
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Impacts of Human Resource Development on Engineering, Procurement and Construction (EPC) Project Success
By: Mr. Nguyen Thanh Huong
Supervisor: Dr. Bonaventura H.W. Hadikusumo

A Model of Integrated Safety Intervention Practices Affecting Workers' Safety Behaviour in the Malaysian Construction Industry
By: Ms. Mazlina Zaira Binti Mohammad

7. Masters Students' Theses and Projects

Contractual Risk Assessment in Public Construction Projects from Owner Perspective in Afghanistan
By: Mr. Abdul Rahim Kamrani
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Critical Activities of Pre-Project Planning in Public Infrastructure Projects in Afghanistan
By: Mr. Mohammad Aref Vaezi
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Critical Failure Factors of Dam Construction Projects in Afghanistan: Case Studies of the Ministry of Energy and Water of Afghanistan
By: Mr. Abdul Qadir Rasooli
Supervisor: Dr. Chotchai Charoenngam

Critical Factors Affecting the Project Delivery System Selection and Comparison of Design Build and Design Bid Build Delivery Methods in Afghanistan Public Construction Projects
By: Mr. Sayed Mustafa Sadat
Supervisor: Dr. Djoen San Santoso

Contract Administration in International Projects: A Study of ADB Projects in Afghanistan
By: Mr. Nasir Ahmad Aryanfar
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Contract Administration Procedure for World Bank Funded Construction Projects in Afghanistan
By: Mr. Mohammad Khalid Saljoqi
Supervisor: Dr. Djoen San Santoso

Project Engineer's Situation Awareness in Myanmar Building Construction
By: Mr. Phone Ko Ko Lwin
Supervisor: Dr. Chotchai Charoenngam

Contractor Project Management Maturity of Building Construction Projects in Afghanistan
By: Mr. Ahmad Basit Payab
Supervisor: Dr. Chotchai Charoenngam

Effectiveness of Marketing Strategies and Activities for Business Development of Construction Companies in Myanmar
By: Ms. Win Theingi Nwe
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Core Capabilities in Business Development of Construction SMEs in Sri Lanka
By: Mr. Palihawadana Arachchige Rivindu Prabhashwara Perera Jayawardena
Supervisor: Dr. Chotchai Charoenngam

Organizational Strategy and Performance for Real Estate Firms in Sri Lanka
By: Mr. Amarasinghe Arachchilage Samitha Rangana Amarasinghe
Supervisor: Dr. Bonaventura H.W. Hadikusumo

High-End Condominium Project Development in Bangkok: A Case Study of Four Thai Property Developers
By: Mr. Pongpak Roengrittirong
Supervisor: Dr. Chotchai Charoenngam

Money Management of Building Construction Projects in Bangladesh
By: Ms. Nazila Mehnaz
Supervisor: Dr. Chotchai Charoenngam

Investigating the Moderating Factors Affecting the Relationship between Contract Admisnistration Practices and Project Risks of Contractors in Myanmar
By: Ms. Hnin Hay Mar Soe
Supervisor: Dr. Bonaventura H.W. Hadikusumo

The Effect of Contract Management Practices and the Moderation Effect of Owner-Contractor Relationship Variables on Project Success in Myanmar
By: Ms. Pann Myat Myut Chae
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Organizational Culture Affecting Project Performance in Construction: A Study of Contractor Companies in Myanmar
By: Ms. Khin Thiri Naing
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Entrepreneurship in Construction Business in Sri Lanka: From Startup to Stabilization
By: Mr. Sunera Supasan Samaranayake
Supervisor: Dr. Chotchai Charoenngam

The Influence of Cultural Differences between China and Thailand on Construction Management in Thailand
By: Mr. Tao Yuechen
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Investigating the Moderating Factors Affecting the Relationship between Schedule Management Practices and Schedule Performance in Construction Projects in Myanmar
By: Ms. May Yu Mo
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Design Change in Building Projects in Thailand: Causes, Effects and Contract Administration Practices
By: Mr. Swastik Shankar Shrestha
Supervisor: Dr. Chotchai Charoenngam

Assessing the Responsibilities of Project Stakeholders for Quality Management: A Case Study of the New Thaketa Bridge Project in Myanmar
By: Ms. Kaung Waddy Saint
Supervisor: Dr. Chotchai Charoenngam

Collaboration among Project Participants in Tunnel Construction Projects in Thailand: A Case Study of the Volume Increase for Storage in Mea Goung Udomtara Dam
By: Mr. Voraton Vongsamut
Supervisor: Dr. Djoen San Santoso

Cloud-Based Multi Visualization Functions in Building Information Modeling (BIM) for Construction Projects
By: Mr. Pisut Aunwong
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Effective Safety Organization Structure for Construction Companies
By: Ms. Nunnapat Nittayo
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Construction Quality Management Manual for Property Developer: A Case Study of LVC Project, HCMC, Vietnam
By: Mr. Pham Thanh
Supervisor: Dr. Bonaventura H.W. Hadikusumo

PPP Projects in Vietnam and Contractual Risk Management: A Case Study of the Ninh Binh-Bai Vot Highway Project
By: Mr. Pham Dung Ha
Supervisor: Dr. Chotchai Charoenngam

A Study of Challenges in Using FIDIC Contracts in ODA Transport Projects in Vietnam
By: Mr. Nguyen Khac Trung
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Vietnam Regulation Related with Procurement Management for Design Consultant Service
By: Mr. Nghiem Thanh Duc
Supervisor: Dr. Bonaventura H.W. Hadikusumo

The Owner's Strategy Project Management for Food and Beverage Outlets
By: Mr. Ngo Quoc Binh
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Management for Environmental Infrastructure Project: A Case Study of Tan Xa Lake Protection and Dua Gai Stream Improvement
By: Mr. Nguyen Manh Ha
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner's Quality Management Systems in EPC Projects: A Case Study of Mechanical Work for EPC Packages of Thermal Power Plants
By: Mr. Tang Phuoc Tan
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Project Implementation of JICA-ODA Loan Project in Myanmar: A Case Study of Daik U-Sitt Taung Road Upgrading Project
By: Mr. Kyaw Soe Thein
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Analyzing Resettlement Programme of Eindu to Kawkareik Road Improvement in Myanmar
By: Mr. Min Lwin Tun
Supervisor: Dr. Djoen San Santoso

Owner's Project Development for Housing Project in Myanmar: A Case Study of Shwe Lin Pan Low Cost Project
By: Mr. Nay Htun Oo
Supervisor: Dr. Chotchai Charoenngam

Factors Influencing Safety Work Behaviour of Workers in Construction
By: Mr. Marla Narasimha Koundinya
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Analyzing Project Factors and the Moderating Effect of Team Effectiveness on Overall Delay in Indian Construction Projects
By: Mr. Balineni Sai Chandra
Supervisor: Dr. Djoen San Santoso

Study of Safety Culture Characteristics Related with Organizational Culture in South Indian Construction Companies
By: Mr. Mindaguditi Venkata Sri Sai Vikranth
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Examining Factors and Practices to Minimize Waste in Construction Projects
By: Mr. Godi Niteesh Roy
Supervisor: Dr. Djoen San Santoso

Claims and Arbitration in Road Construction Highway Projects in India
By: Mr. Manthena Tarun Varma
Supervisor: Dr. Bonaventura H.W. Hadikusumo

An Assessment of Site Layout in Indian Commercial Projects
By: Mr. D.V.S.S. Arjun
Supervisor: Dr. Chotchai Charoenngam

Adoption of Transtheoretical Behavioral Model for Worker Safety Behavior in the Construction Industry
By: Mr. Goriparthi Yaduvamsi Krishna
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Utilization of Social Media in Medium and Small-Scale Construction Companies in India
By: Mr. Dwarampudi A.A.S.R. Krishna Reddy
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Strategic Development of Real Estate Developers for Mid-Rise Condo Development in India
By: Mr. Soumyshree Bariki
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Assessment on Labor Productivity Factors in Indian Construction Projects
By: Mr. Naruboina Narendra Yadav
Supervisor: Dr. Chotchai Charoenngam

Lean Construction: Practices and Maturity of Indian Construction Companies
By: Mr. Gopu Akhil Reddy
Supervisor: Dr. Chotchai Charoenngam

Applying Contract Administration to Manage Quality of JICA Funded Road Project: A Case Study of Hanmyintmo-Myogyi-Ywangyan Road Improvement Project
By: Mr. Khin Maung Htwe
Supervisor: Dr. Djoen San Santoso

Project Administration for Design and Build Project - Contractor Perspective: A Case of T.K Plaza Innovation Project
By: Mr. Nguyen Anh Ngoc
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Safety Management System for a Building Contractor: A Case Study of a Contractor in Ho Chi Minh City
By: Mr. Tran Xuan Minh Vu
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Organization Restructuring in Real Estate Project Developer: A Case Study of Real Estate Developer in Ho Chi Minh City
By: Mr. Nguyen Thuy Nhan
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Contractor Project Quality Management for Road Rehabilitation Project in Myanmar: A Case Study of Maubin Pyapon Road
By: Ms. Su Mon Kyaw
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner's Project Management: A Case Study for ODA Bridge Project in Myanmar
By: Mr. Htay Aung
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Contract Administration and Management in ADB-ODA Funded Project: A Case Study of GMS-EWEC, Eidu-Kawkkreik Road Improvement Project
By: Mr. Kaung Zan
Supervisor: Dr. Djoen San Santoso

Owner's Quality Management for Road Construction: A Case Study of Tan Ta Bin - La Mu Dan - Kyu Taw Road Construction Project
By: Mr. Than Naing
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Construction Problems Affecting Delay in Road Development Project: A Case Study of Widening of Maubin-Yelaegalay-Shwetaungmhaw-Kyaitpi-Mawlamyaingkyun Road Project
By: Mr. Kyaw Than Htay
Supervisor: Dr. Chotchai Charoenngam

Schedule Management in Bridge Construction Project: A Case Study of Ayeyarwaddy Bridge (Pakokku)
By: Mr. Kyaw Myo Htun
Supervisor: Dr. Chotchai Charoenngam

Construction Engineering and Management of Concrete Work in Hydropower RCC Dam Project: A Case Study of "Yeywa Hydropower Roller Compacted Concrete Dam Construction Project"
By: Mr. Kyaw Win Aung
Supervisor: Dr. Chotchai Charoenngam

Owner's Quality Management for Asia Highway Project: A Case Study of "Eindu-Kawkeraik Road Improvement"
By: Mr. Kyaw Kyaw Winn
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Adoption of Modern Project Management Practices in the Management of Hotel Construction Project: A Case Study of Novotel Hotel Construction Project
By: Ms. Thet Hnin Soe
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Contract Conditions Affecting Performance: A Case Study of Construction of Green Asla Port Terminal (Thilawa)
By: Mr. Aung Sein
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Owner's Quality Management for Building: A Case Study of Botahtaung Time Square Housing Project
By: Ms. Pa Pa Htwe
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Stakeholder Management in Planning and Implementation of Project and Programs in Regional Government in Myanmar: A Case Study of Regional Budgeting Proecss in Ayeyarwaddy Region
By: Mr. Aung Myo Oo
Supervisor: Dr. Chotchai Charoenngam

Stakeholder Coordination Management in Construction Project in Myanmar: A Case Study of Wunna Theikadi Sport Complex Construction Project in Nay Pyi Taw, Myanmar
By: Mr. Khin Maung Kywe
Supervisor: Dr. Chotchai Charoenngam

Analyzing and Negotiating the Contract Conditions of Geotechnical Investigation Services: A Case Study of a Hydropower
By: Mr. Aung Kyaw Soe
Supervisor: Dr. Djoen San Santoso

Risk in Build and Transfer (B.T) Infrastructure Project for Investor and Government in Vietnam: A Case Study of the Infrastructure Development on the Northern Residential and Completion of the North-South Axial in Thu Thiem New Urban Area by Build and Tra
By: Mr. Nguyen Tuan Dang
Supervisor: Dr. Chotchai Charoenngam

Contractor's Tendering Stratey for the ODA Loan Project: Approach in Myanmar
By: Mr. Aye Paw Tun
Supervisor: Dr. Chotchai Charoenngam

Owner's Project Quality Management for Ayeyarwon-Yandana High-Rise Housing Project in Myanmar
By: Ms. Khin Khin Htay
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Competency Strategy of a Private Myanmar Contractor in Post Economic Reforms: A Case Study of a Construction Company in Myanmar
By: Mr. Patrick Kong
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Cost, Time and Quality Performance Comparison Between Soil Stabilization and Penetration Macadam Method: A Case Study of Pyarphon-Dawnyein-Ama Road
By: Ms. Nyein Nyein Hlaing
Supervisor: Dr. Chotchai Charoenngam

Expansion Stragegy of a Small-Medium Size Contractor: A Case Study of H.P.Y. Company
By: Mr. Ye Yint Aung
Supervisor: Dr. Bonaventura H.W. Hadikusumo

Examining Delays in a Building Construction Project: A Case Study of the Central Bank of Myanmar
By: Mr. Myo Myint
Supervisor: Dr. Djoen San Santoso

3.1.2 : SET – GEOTECHNICAL AND GEOTECHNICAL EARTH RESOURCES ENGINEERING FIELD OF STUDY

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

Interdisciplicary 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-Thailand 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, Geoexploration & 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 equipments 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 airphotos 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.

Geoexploration and Petroleum

Geoengineeirng 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)*

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

Associate Professor *(Geotechnical and Eart Resourcese Engineering; Geosystem Exploration and petroleum Geo-engineering)*

Bergado, Dennes T.
Professor
Ph.D. Utah State University
M.Eng. Asian Institute of Technology

Park, Kyung-Ho
Assistant Professor
Ph.D., State University of New York at Buffalo

Jamsawang, Pitthaya
Acting Lab. Supervisor
M.Eng., King Mongkut's University of Technology, Thonburi

4. Grants and Sponsored Research Completed in 2017

Evaluation of Design of Anti-Slide Piles in Expansive Soil Slopes
Duration: 01-march-17 to 31-Dec-17
Project Investigators: Dr. Kuo-Chieh Chao
Sponsor: Asian Institute of Technology (AIT)
Total Contracted Amount (THB): 50,000

5. Doctoral Students' Theses

Evaluation of Shale Gas Potential in the Lower Cretaceous Sembar Formation, the Southern Indus Basin, Pakistan.
By: Ms. Nosheen Sahir
Supervisor: Dr. Pham Huy Giao

TDIP-based Petrophysical Model to Predict Permeability of Cement-Admixed Clay
By: Ms. Khin Moh Moh Latt
Supervisor: Dr. Pham Huy Giao

6. Masters Students' Theses

Decommissioning Cost Estimation of Steel Jacket Platform in the Gulf of Thailand
By: Mr. Non Lucknawong
Supervisor: Dr. Pham Huy Giao

Soil Characterization for the Long Phu 1 Thermal Power Plant
By: Mr. Tran Duc Luan
Supervisor: Dr. Pham Huy Giao

Well Logging Interpartation for a Fracture Igneous Rock Reservoir in the Wichian Buri, Sub-basin, Thailand
By: Mr. Tanadech Kanjanapan
Supervisor: Dr. Pham Huy Giao

Geotechnical Aspects of Solid Waste Landfill in a Land Development Project in Bangkok
By: Mr. Tristan Louie Cosejo Pineda
Supervisor: Dr. Noppadol Phien-wej

Rock Slope Engineering Along Navigation Lock, Xayaburi Hydroelectric Power Project, Lao PDR
By: Ms. Wariyanan Hanka
Supervisor: Dr. Noppadol Phien-wej

O-Cell Testing to Assess the Bored Pile Capacity Improvement by Shaft Grouting in the Mekong Deltaic Soils.
By: Mr. Nguyen Dinh Khiem
Supervisor: Dr. Pham Huy Giao

Prediction of Settlement of the Soft Clay Deposit Improved by PVD and Vacuum Loading at the Nam Dinh Thermal Power Plant.
By: Mr. Tran Manh Dung
Supervisor: Dr. Pham Huy Giao

Analysis of Ground Water Drawdown Effects on Possible Subsidence of the UMRT Line No. 2 in Hanoi
By: Ms. Vu Thi Hue
Supervisor: Dr. Pham Huy Giao

Preliminary Analysis of Landslide Monitoring Data at Hai Van Pass, Vietnam
By: Mr. Nguyen Huy Cuong
Supervisor: Dr. Pham Huy Giao

GEological Condition and Tunnel Ground Behavior Along Mae Ngad-Mae Kuang Water Transfer Tunnel Project
By: Ms. Paweena Singdaeng
Supervisor: Dr. Noppadol Phien-wej

Study of Strong Ground Motion in Kathmandu Basin
By: Mr. Nawin Kumar Acharya
Supervisor: Dr. Kuo-Chieh Chao

Ground Characterization and Comparative Analysis of Ground Response to Conventional and Mechanized Tunneling in Lahore, Pakistan
By: Mr. Muhammad Danish
Supervisor: Dr. Noppadol Phien-wej

Numerical Simulation of Resistivity Testing on Soft Clay Samples with Reference to Permeability Prediction
By: Ms. Kanidtha Prarom
Supervisor: Dr. Pham Huy Giao

Applicability of Vp-Vs Technique in Well Log Analysis for Clastic Reservoir in the Sirikit Oilfield
By: Ms. Chonticha Naralam
Supervisor: Dr. Pham Huy Giao

The Appplication of Deep Learning to Predict Fracture Porosity of a Fractured Granite Basement Reservoir
By: Mr. Kohona Walawwe Kushan Oshadi Sandunil
Supervisor: Dr. Pham Huy Giao

Liquefaction Assessment: A Case of Mae Lao District, Chiangrai Thailand
By: Mr. Siwadol Dejphumee
Supervisor: Dr. Kuo-Chieh Chao

A Comparative Study of Tunnel Lining Design Practice and Analysis for Rock and Soft Ground
By: Mr. Viwattana Vipaviwat
Supervisor: Dr. Noppadol Phien-wej

Dynamic and Static Cone Penetration in Bangkok Subsoil
By: Ms. Ni Ni Aung
Supervisor: Dr. Kuo-Chieh Chao

Swelling Behavior of Compacted Residual Soil in the Chonburi Area, Eastern Thailand
By: Ms. May Hnin Ou
Supervisor: Dr. Kuo-Chieh Chao

Geotechnical Aspects of Problem Soils of Naypyidaw-Mandalay Expressway
By: Ms. Nway Nandar Win
Supervisor: Dr. Kuo-Chieh Chao

A Geological and Geotechnical Investigation of a Long and Deep Chi-Mun Water Transfer Tunnel in Northeast Thailand
By: Mr. Putpong Supawong
Supervisor: Dr. Noppadol Phien-wej

Classification and Petrophysical Characterization of Carbonate Reservoir Rocks in the Red River Basin
By: Ms. Ta Thi Hoa
Supervisor: Dr. Pham Huy Giao

Mapping the Formation Water Resistivity with Reference to Well Log Analysis for the Fang Oil Field
By: Mr. Suvichak Suriyan
Supervisor: Dr. Pham Huy Giao

Settlement Analysis Using Numerical and Analytical Methods for Embankments on Soft Ground in Hanoi - Hai Phong Expressway
By: Mr. Truong Quang Manh
Supervisor: Dr. Kuo-Chieh Chao

3.1.3 SET – STRUCTURAL ENGINEERING FIELD OF STUDY

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.

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

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*]

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

Adjunct Associate Professor [*Evaluation of seismic performance of reinforced concrete buildings; Nonlinear finite element analysis of reinforced concrete; Inspection, repairing and strengthening of reinforced concrete*]

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

Adjunct Associate Professor *[Advanced Concrete Technology; Forensic Engineering Structural Evaluation and Retrofitting of Structures; Dynamic soil-structure interaction; Seismic behavior of underground structure; Seismic behavior of earth structure; Multi-Agent simulation; Development of Virtual Clearinghouse for earthquake disaster reconnaissance]*

RAKTIPONG SAHAMITMONGKOL, D.Eng., M.Eng, University of Tokyo, Japan; B.Eng., Sirindhorn International Institute of Technology, Thailand.
Adjunct Faculty [*Cracking Resistance of Expansive Concrete; Chemically Prestressed Concrete; Inspection on Concrete Structures & Performance Based Design; Non-Destructive Testing for Concrete Structures; Tension Stiffening Effect and Bonding Characte-ristic of Reinforced Concrete*]

SONGSAK SUTHASUPRADIT, Ph.D., Konkuk University, Korea; M.Eng., AIT, Thailand; B.Eng., Srinakharinwirot University, Thailand.

Adjunct Faculty [*Development of a Nonlinear Enhanced Assumed Strain Shell Element for Bridge Analysis; An Assumed Strain 4-Node Reinforced Concrete Shell Element Considering Geometric and Material Nonlinearity; Railway Bridge Inspection an Evaluation*]

KITTIPOOM RODSIN, Ph.D., The University of Melbourne, Australia M.Eng., AIT, Thailand; B.Eng., Chulalongkorn Univ, Thailand.

Adjunct Faculty *[Experimental Investigation of Socket-Type Connection for Pre-Cast Column-Footing Connection; Suppression of Pedestrian Bridge Vibration in Bangkok]*

NAVEED ANWAR, D.Eng., M.Eng., AIT, Thailand; B.Sc.Eng., Univ. of Engineering & Tech., Lahore, Pakistan.

Affiliated Faculty *[Advanced Concrete Structures; Tall Buildings; Structural Analysis and Design; Computational Mechanics; Computer Application; Bridge Engineering; Software Development]*

BUI THANH TAM, D.Eng., M.Eng., AIT, Thailand; B.Eng., HoChiMinh City University of Technology, Vietnam.

Senior Research Associate *[Computational Mechanics; Finite Element Analysis; Structural Analysis; Fluid-Structure Interaction; Parallel Computing; Software Development]*

4. Publications

Papers in Refereed Journal

Pennung W., Qureshi I.M. (2017). Reduction of inelastic seismic demands in a mid-rise rocking wall structure designed using the displacement-based design procedure. Journal of The Structural Design of Tall and Special Buildings. Vol: 26.

Mehmood T., Pennung W., Qureshi I.M. (2017). Alternative approach to compute shear amplification in high rise reinforced concrete core wall buildings using uncoupled modal response history analysis procedure. Journal of The Structural Design of Tall and Special Buildings. Vol: 26.

S. Niyompanitpattana., Pennung W. (2017). Effects of masonry infill walls with openings on seismic behaviour of long-span GLD RC frames. Magazine of Concrete Research. Vol: 0, 1-21.

Pennung W., Zaman S. (2017). Topographically-Derived Near-Surface Shear Wave Velocity Map for Pakistan. Journal of Earthquake and Tsunami. Vol: 11.

Pananont P., Herman W.M., Furlong P.K., Pennung W. (2017). Seismo Tectonics of the 2014 Chiang Rai, Thailand, Earthquake Sequence. Journal of Geophysical Research: Solid Earth. Vol: 0.

Honda K., Nagai M., Pennung W. (2017). Classifying building occupancy using building laws and geospatial information: A case study in Bangkok. International Journal of Disaster Risk Reduction. Vol: 24, 419-427.

Poovarodom N., Chamlagain, D., Pennung W. (2017). Site characteristics of Kathmandu valley from array microtremor observations. Earthquake Spectra. Vol: 33.

Yooprasertchai E., Warnitchai P. (2017). Seismic performance of precast hybrid moment-resisting frame-rocking wall systems. Magazine of Concrete Research. Vol: 0, 1-57.

Supaviriyakit T., Pimanmas A., Warnitchai P. (2017). Nonlinear Finite Element Analysis of Nonsensically Detailed Interior RC Beam-Column Connection Under Reversed Cyclic Load. ASEAN Journal on Science and Technology for Development. Vol: 24, 369-386.

Punchet T., Kullachai T. (2017). Effect of soft soil layer on local dynamic response of floating pile under harmonic lateral loading. Canadian Geotechnical Journal. Vol: 54, 1637-1646.

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

A Fragility Study of Low-to Mid-Rise Reinforced Concrete Frame Buildings with Configuration Irregularities
By: Ms. Ja Kai Aung
Supervisor: Dr. Pennung Warnitchai

A Fragility Study of Low-to Mid-Rise Reinforced Concrete Frame Buildings with Configuration Irregularities
By: Mr. John Laurence Golez Chan
Supervisor: Prof. Pennung Warnitchai

A Study on Performance of Galvanic Cathodic Protection for Protecting Steel Bars in Concrete from Corrosion
By: Mr. Wikarin Sornthom
Supervisor: Prof. Pennung Warnitchai

The Effects of Aerodynamic Interference on Dynamic Wind Pressure and Dynamic Response of Tall Buildings
By: Mr. Anurak Pitirattanaworranat
Supervisor: Prof. Pennung Warnitchai

Study on Effect of Anchorage Bar on Prestressed Concrete Pile Joint
By: Mr. Theanchai Namuangrak
Supervisor: Dr. Punchet Thammarak

Improvements on Compression-Free Energy Dissipative Brace Mechanisms to Eliminate Low Initial Stiffness
By: Mr. Suparat Thusawong
Supervisor: Dr. Punchet Thammarak

Seismic Response of a Typical Low Rise Precast Concrete Frame Shophouse in Bangkok Built with Welded Splice Type Beam-Column Connections Using Non-Linear Time History Analysis
By: Mr. Anish Shakya
Supervisor: Dr. Punchet Thammarak

Development of Modal Hysteretic Model for the Seismic Response Analysis of Tall Buildings with RC Shear Walls
By: Mr. Sudan Pandey
Supervisor: Prof. Pennung Warnitchai

Effect of Design Wind Level on the Seismic Performance of Tall Buildings
By: Mr. Shilpa Nirman Thilakarathna
Supervisor: Prof. Pennung Warnitchai

Seismic Performance Improvement of Low-to Mid-Rise RC Frame Buildings with a Non-Symmetric Arrangement of Brick Infill Walls
By: Mr. Suraj Thapa
Supervisor: Prof. Pennung Warnitchai

Optimum Span Length for Steel Composite Girder Expressway Bridges
By: Ms. Hnin Su San
Supervisor: Dr. Punchet Thammarak

Application of Linear Time History Analysis in Code-Based Design of Tall Buildings Instead of Response Spectrum Analysis
By: Ms. Chu Thin Zar Oo
Supervisor: Dr. Punchet Thammarak

Performance-Based Evaluation of Nonstructural Components in Tall Buildings
By: Ms. Nwe Ni Sein Toe
Supervisor: Prof. Pennung Warnitchai

Optimization the Proportioning of Normal Strength Concrete Using a Fractional Factorial Design Method
By: Ms. Hnin Oo Wai Kyaw
Supervisor: Dr. Punchet Thammarak

Optimum Span Length for a PC I Girder Expressway Bridge
By: Mr. Nikshan Amatya
Supervisor: Dr. Punchet Thammarak

Seismic Performance of Mid-Rise Buildings Designed Using Various Codes in High Seismic Zone
By: Ms. Mi Mi Khaing Soe
Supervisor: Dr. Punchet Thammarak

Aerodynamic Interference Effects of Tall Buildings on Dynamic Wind Pressures and Load Combination due to Two Interfering Buildings
By: Mr. Jenpop Chaikongthong
Supervisor: Prof. Pennung Warnitchai

Aerodynamic Interference Effects of Two Interfering Buildings on the Characteristics of Wind Force on a Tall Building
By: Mr. Kittikarn Maneekad
Supervisor: Prof. Pennung Warnitchai

A Survey of Construction Techniques for Exterior Walls in High-rise Buildings in Thailand and Experiments on Typical Precast Exterior Walls under Lateral Cyclic Loading
By: Ms. Natthaporn Jongthitinon
Supervisor: Dr. Punchet Thammarak

Effect of Expansive Additive and Grout Proportions on Shrinkage of Preplaced Aggregate Concrete
By: Mr. Kunal Krishna Das
Supervisor: Dr. Punchet Thammarak

Flag Wall System for Improving Wind Performance of Tall Buildings
By: Mr. Nith Chan Virak
Supervisor: Prof. Pennung Warnitchai

Forensic Case Study: An Investigation in Cracking of Post Tension Slab System
By: Mr. Sukontee Pulchai
Supervisor: Prof. Pennung Warnitchai

Structural Health Monitoring and Damage Detection by Normalized Modal Strain in Steel Members
By: Mr. Idirimanna Arachchillage Dulan Chamara Idirimanna
Supervisor: Dr. Punchet Thammarak

A Study of the Behavior of the Rama 7 Bridge by Numerical Analysis and Ambient Vibration Measurement
By: Mr. Wasin Waiyasusri
Supervisor: Dr. Punchet Thammarak

An Experimental Study of Welded-Splice Connection in Typical Beam-Column Precast Frames in Thailand under Reversed Cyclic Load
By: Mr. Sathapat Chuachart
Supervisor: Dr. Punchet Thammarak

The Seismic Performance of High-Rise Buildings Designed Using Various Codes
By: Mr. Waqar Hassan
Supervisor: Dr. Punchet Thammarak

Heuristic Tools for Preliminary Design and Response Prediction of Tall Buildings
By: Mr. Aadhish Man Rajbhandari
Supervisor: Dr. Punchet Thammarak

Structural Health Monitoring of a Reinforced Concrete Column by Normalized Modal Strain Approach

By: Ms. Le Thi Hang
Supervisor: Dr. Punchet Thammarak

Development of Procedure for Improving the Design of Pre-stressed Concrete Poles Using Confinement
By: Ms. Hnin Zar Chi Win
Supervisor: Dr. Punchet Thammarak

A Comparison of Shear Wall-Flat Slab, Shear Wall-Frame and Shear Wall-Flat Slab-Outrigger Systems for Tall Buildings Based on Primary Cost
By: Mr. Sai Shashank Reddy
Supervisor: Dr. Punchet Thammarak

Flag Walls Systems to Improve the Seismic Performance of Tall Buildings
By: Mr. Saddi Abhishek Reddy
Supervisor: Prof. Pennung Warnitchai

A Comparison of Performance of Outrigger and Belt Wall Systems in Tall Buildings
By: Mr. Parki Sesha Sai Prudhvi Chandra
Supervisor: Dr. Punchet Thammarak

A Comparative Study of the Reponse of Frame, Shear Wall and Outrigger, Structural Systems with Core Wall to Lateral Loads on Mid-Rise Buildings
By: Mr. Goli Sai Deekshith
Supervisor: Dr. Punchet Thammarak
te

Performance of Surface Coatings in Suppressing Corrosion of Reinforced Concrete
By: Mr. Apichat Kemngern
Supervisor: Prof. Pennung Warnitcha

3.1.4 : SET – TRANSPORTATION ENGINEERING FIELD OF STUDY

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 University, Thailand

Assistant Profersor (*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

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

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

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

Srivarang jendupakarn, Bechelor 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 2017

Motorcycle Accident Investigation
Duration: 15-Sep-16 to 31-Dec-17
Project Investigators: Dr Kunnawee Kanitpong
Sponsor: Asian Honda Motor Co Ltd & Yaaha Motor Co Ltd
Total Contracted Amount (THB): 14,295,453.00

Toyota Passenger Car Accident Analysis
Duration: 06-Jan-16 to 31-Jan-17
Project Investigators: Dr Kunnawee Kanitpong
Sponsor: Toyota Motor Asia Pacific Engineering and Manufacturing Co. Ltd
Total Contracted Amount (THB): 1,559,129.00

Capacity and Team building for in depth Road Accident Investigation
Duration: 20-Aug-15 to 19-Aug-17
Project Investigators: Dr Kunnawee Kanitpong
Sponsor: Toyota Motor Asia Pacific Engineering and Manufacturing Co. Ltd
Total Contracted Amount (THB): 9,064,000.00

Feasibility Study of collecting Gasoline Tax from Road users to support the modal shift from road to rail
Duration: 23-Sep-16 to 22-Dec-17
Project Investigators: Dr Surachet Pravinvongvuth
Sponsor: EPPO/Chulalongkorn University
Total Contracted Amount (THB): 4,587,500.00

Traffic and Public Transportation Master Plan in Nakhon Ratchasima City
Duration: 23-Sep-16 to 22-Dec-17
Project Investigators: Dr Surachet Pravinvongvuth
Sponsor: Suranaree University of

Technology
Total Contracted Amount
(THB): 477,208.00

4. On-going Grants and Sponsored Research

Toyota Passenger-Car Accident Analysis-Phase 2
Duration: 5-june-17 to 5-March-18
Project Investigators: Dr Kunnawee Kanitpong
Sponsor: Toyota Motor Asia Pacific
Total Contracted Amount
(THB): 517,805

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
Sponsor: DOH
Total Contracted Amount
(THB): 5,233,272.14

5. Publications

Papers in Conference Proceedings

Surachet P. (2017). A sustainable transportation index and its application to AEC countries. The 96th Annual Meeting Transportation Research Board. 8-12 Jan 2017, Washington, D.C.

Surachet P., Gunathilake P. (2017). Rail Rapid Transit Operational Assessment: A Case Study of the Airport Rail Link Bangkok, Thailand. Proceedings of the Eastern Asia Society for Transportation Studies. 18-21 Sep 2018, Ho Chi Minh City, Vietnam.

6. Masters Students' Theses and Research Studies

Obtaining the Optimum Size of New At-Grade Transportation Network without Signalized Intersections, Roundabouts, or Stop Signs
By: Ms. Sohani Pramoodha Liyanage
Supervisor: Dr. Surachet Pravinvongvuth

Investigating Risk Factors of Bus-Related Accidents and Casualties
By: Mr. Kantaphol Subanrat
Supervisor: Dr. Kunnawee Kanitpong

Analysis of Passenger Car Accidents and Driver Maneuvers at Crashes
By: Ms. Patteera Jensupakarn
Supervisor: Dr. Kunnawee Kanitpong

A Study on Characteristic-based Encouragement of Thai Tourists to Visit Hokkaido During the Winter Season
By: Ms. Yuka Suzuki
Supervisor: Dr. Kunnawee Kanitpong

The Impact of Fuel Prices on Mode Choice Behavior within the Airport Rail Link Corridor
By: Mr. Kittiwat Insupan
Supervisor: Dr. Surachet Pravinvongvuth

Integration of Various Traffic Data for Developing a Microscopic Traffic Simulation Model to Improve Traffic Circulation
By: Mr. Prem Chinnaworn
Supervisor: Dr. Surachet Pravinvongvuth

Laboratory Investigation of High Friction Surface Treatment Materials
By: Mr. Chirawat Kaweera
Supervisor: Dr. Kunnawee Kanitpong

The Influence of Attitudes toward Modes of Transportation on Behavioral Intention in Commuting Mode Choice among University Students: A Comparison across Sri Lanka and Thailand
By: Mr. Anuradha Nadun Prematthilake
Supervisor: Dr. Surachet Pravinvongvuth

3.1.5 : SET – WATER ENGINEERING AND MANAGEMENT FIELD OF STUDY

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 master's degree, Doctoral Degree, Professional master's 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 master's 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 UNUINWEH, 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 quantity-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's 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

WEM also offers e-learning programs on:

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

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

2. Faculty and Research Staff

Emeritus Professor

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

Associate 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.

Assistant 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 Disaster 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 Instutute 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 , Thailandproviding 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 Sponsor-ed Research Completed in 2017

Development of Simple Operation Method for Poorly Equipped Dam-Gate Reservoirs
Duration: 01-may-2017 to 1- dec-2017
Project Investigators: Dr. Duc Hoang Nguyen
Sponser: Asian Institute of Technology (AIT)
Total Contracted Amount (THB): 50,000

Prepare extreme and rare events in coastal regions
Duration: 01-Jan-2014 to 31- Dec-2017
Project Investigators: Dr Sutat Weesakul
Sponser: UNESCO-IHE, The Netherlands
Total Contracted Amount (THB): 1,212,588.00

CTCN PCA for cross cutting activities
Duration: 01-Nov-2015 to 31- Dec-2017
Project Investigators: Prof Mukand S Babel
Sponser: UNEP
Total Contracted Amount (THB): 1,400,000.00

The training on Water distribution modelling Practice (EPANET)
Duration: 01-Oct-2016 to 31- Sep-2017
Project Investigators Prof Mukand S Babel
Sponser: International Committee of the Red cross
Total Contracted Amount (THB): 612,000.00

Evaluation of climate change impacts and suitable adtation strategies for crop production and its environmental and economic implications in vulnerable regions of Thailand
Duration: 01-Sep-2016 to 31- Aug-2017
Project Investigators: Prof Mukand S Babel, Dr Sangam Shrestha, Dr Damien Jourdain, Dr Sanyogita Andriyas
Sponser: MOFAID France
Total Contracted Amount (THB): 1,350,000.00

Conference on Water security and climate change: Challenges and opportunities in Asia
Duration: 01-Jun-2016 to 30- Jun-2017
Project Investigators: Prof Mukand S Babel
Sponser: TU Braunschweig, Germany
Total Contracted Amount
(THB): 524,400.00

Physical Hydraulic Model Study of Khlong Loei Chi Mun Water diversion project by gravity
Duration: 01-May-2016 to 30-Apr-2017
Project Investigators: Mr Arturo G Roa
Sponser: Panya Consultants Co Ltd
Total Contracted Amount
(THB): 2,513,300.00

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 Shreshtha, Dr. Vilas Nitivattanon and Dr. Duc Hoang Nguyen
Sponser: USAID
Total Contracted Amount
(THB): 6,930,000

Training on Hydrological Modelling for Water Accounting
Duration: 18-Dec-2017 to 17-Nov- 2018
Project Investigators: Dr. Sangam Shrestha & Dr. Duc Hoang Ngyuen
Sponser: Food and Agriculture Organizations of United Nations (FAO)
Total Contracted Amount
(THB): 995,488

5. Publications

Book Chapters

Andriyas S. and McKee M. (2017). Classification and regression trees for analyzing irrigation decisions. To appear in Statistics in Practice Wiley series – Proposal. Publishing: Wiley house.

Papers in Refereed Journal

Babel S. M., Sirisena G. J., Singhrattna N. (2017). Incorporating Large-scale Atmospheric Variables in Long-term Seasonal Rainfall Forecasting Using Artificial Neural Networks: An Application to the Ping Basin in Thailand. Journal of Water Hydrology Research, Vol: 40 Pages 867-882.

Ghulami M., Babel S. M., Shrestha S. M. (2017). Evaluation of Gridded Precipitation Datasets for the Kabul River Basin, Afghanistan. *International Journal of Remote Sensing*, Vol: 38 Pages 3317-3332.

Shrestha S., Babel S. M. (2017). Developing Intensity Duration Frequcy (IDF) Curves under Climate Change Uncertainty: The Case of Bangkok, Thailand. Journal of Water, Vol: 9 Page 145.

Sharma D., Babel S. M. (2017). Assessing Hydrological Impacts of Climate Change using Bias-corrected Downscaled Precipitation in Mae Klong Basin of Thailand. Journal of Meteorological Applications. Vol: 0. Doi:10.1002/met.1706 Article in PRESS

Shrestha S., Shrestha M., Babel S. M. (2017). Assessment of climate change impact on water diversion strategies of Melamchi Water Supply Project in Nepal. Journal of Theoretical and Applied Climatology. Vol: 128 Pages 311-323. DOI: 10.1007/s00704-015-1713-6.

Bhagabati S., Kawasaki A., Babel S. M. (2017). A Cooperative Framework for Optimizing Transboundary Hydropower Development. Journal of Water International. Vol: 42.

Shrestha S., Chapagain R., Babel S. M. (2017). Quantifying the Impact of Climate Change on Crop Yield and Water Footprint of Rice in the Nam On Irrigation Project, Thailand. Journal of Science of the Total Environmnetal. Vol: 599 Pages 689- 699.

Techamahasaranont J., Shrestha S., Shrestha M., Babel S. M. (2017). Spatial and Temporal Variation in the Trends of Hydrological Response of Forested Watersheds in Thailand. Journal of Environmental Earth Sciences. Vol: 76 Page 430.
DOI
10.1007/s12665-017-6764-9.

Shrestha K.P., birkinshaw J., Shrestha S. (2017). Model-based estimation of land subsidence in Kathmandu Valley, Nepal. Journal of Geomatics, Natural Hazards and Risk. Vol: 8, 974-996.

Woraphong L., Shrestha S. (2017). Flood hazard assessment under climate change scenarios in the Yang River Basin, Thailand. International Journal of Sustainable Built Environment. Vol: 0.

Shrestha S., Kafle R. (2017). Evaluation of index-overlay methods for groundwater vulnerability and risk assessment in Kathmandu Valley, Nepal. Journal of Science of the Total Environment. Vol: 575, 779-790.

Shrestha S., Shrestha P., Shrestha M. (2017). Evaluation of the SWAT model performance for simulating river discharge in the Himalayan and tropical basins of Asia. Hydrology Research Journal. Vol: 49.
http://hr.iwaponline.com/content/early/2017/04/21/nh.2017.189

Book Chapters

Saroj A., Shrestha S. (2017). Assessment of Water, Energy, and Carbon Footprints of Crop Production: A Case Study, Water-Energy-Food Nexus: Theories and Practices.
Publish: AGU-Wiley.

Pandey V.P., Shrestha S. (2017). Evolution of the Nexus as a Policy and Development Discourse, Water-Energy-Food Nexus: Theories and Practices.
Publish: AGU-Wiley.

Papers in Conference Proceedings

Babel S. M., Anusart K. (2017). POTENTIAL OF WATER AND ENERGY SAVINGS IN BANGKOK WATER SUPPLY SYSTEM, THAILAND. 21-24 June 2017, Athens. 5th International Conference on Sustainable Solid Waste Management

Hoang N., Shrestha S., Bui V Trang. (2017). Quantifying and comparing the impact of climate change and groundwater abstraction on groundwater, 20-23 Sep 2017 S. Korea. 1st International Asia Water Week: Asian Solution for water.

Shrestha, Sangam. (2017). Climate change adaptation on water resources and water use, 20- 23 september 1st Asia International Water Week (AIWW), S. Korea.

Boonwichai., Shrestha, Sangam. (2017). Climate change impact on rainfed rice production and irrigation water requirement in Songkhram river, 28-29 october. Climate change impact on rainfed rice production and irrigation water requirement in Songkhram river, Malyasia.

Anil A., Sangam S., Jun M. (2017). Quantifying the sources of uncertainty in climate projection on hydrologic modelling. 14-16 june, The SimHydro 2017: Choosing the right model in applied hydraulics. France.

Ranju C., Sangam S. (2017). Quantifying climate change impact on rice production in Northeast of Thailand: a critical review thr, 25-27 jan THA2017 International Conference on Water Management and Climate Change towards Asis's Water-Energy, Bangkok.

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

Water Quality Modelling for Maintaining Residual Chlorine in a District Metering Area of Bangkok's Water Supply Network
By: Mr. Thanyawat Maneechote
Supervisor: Prof. Mukand S. Babel

Flood Risks Due to Dam Break: A Case Study in the Hari-Rud River, Afghanistan
By: Mr. Hamid Karimi
Supervisor: Dr. Duc Hoang Nguyen

A Multi-Criteria Approach for Ranking Potential Hydropower Projects in the Upper Harirud Basin, Afghanistan
By: Mr. Syed Mohammad Omar Eshaq
Supervisor: Prof. Mukand S. Babel

Groundwater Potential Zone Identification and Recharge Management: A Case of the Lower Hari Rud River Basin, Afghanistan
By: Ms. Naheed Karimi
Supervisor: Dr. Sangam Shrestha

Ground Vulnerability Assessment to Climate Change: A Case Study of Herat City and Surrounding Districts, Afghanistan
By: Ms. Maryam Yusufi
Supervisor: Dr. Sangam Shrestha

Assessment of Green and Blue Water under Climate Change: A Case of the Harirud-Murghab Basin, Afghanistan
By: Ms. Mitra Safar Zadeh
Supervisor: Dr. Sangam Shrestha

Climate Change Impact on Inflow and Hydropower Production at the Salma Dam in the Harirud Basin, Afghanistan
By: Mr. Jalal Naser Faqiryar
Supervisor: Prof. Mukand S. Babel

Evaluation of Water Demand and Supply in Lower Harirud River Basin, Afghanistan
By: Mr. Rateb Hamim
Supervisor: Dr. Sangam Shrestha

Development of a Decision Support Tool for Managing Freshwater Inflows and Salinity Intrusion in the Indramayu Estuary of the West Java Province, Indonesia
By: Mr. Muchamad Wahyu Trinugroho
Supervisor: Dr. Duc Hoang Nguyen

Modeling Climate Change Impact on Hydrology and Sediment Yield in the Swat Basin in Pakistan
By: Ms. Hira Sattar
Supervisor: Dr. Sangam Shrestha

Real-Time Forecast of Influent Flow Rate and Ammonia in Wastewater Treatment Plant: A Case Study of Damhusaen Catchment in Denmark
By: Mr. Zia Ul Hassan
Supervisor: Prof. Mukand S. Babel

Development of a Generic Framework for River Health Assessment: A Case Study of the Songkhram River Basin, Thailand
By: Ms. Prangpisut Suttharom
Supervisor: Prof. Mukand S. Babel

Collaborative Risk Informed Decision Analysis (CRIDA): An Evaluation of Critical Thresholds for Bangkok Water Supply Utility
By: Ms. Rachel Koh
Supervisor: Prof. Mukand S. Babel

Predicting Biomass by Using Remotely-Sensed NDVI for Crop Yield Forecasting
By: Ms. Subsinee Anurak
Supervisor: Dr. Sanyogita Andriyas

A Water Availability Assessment for Improvement of Community Managed Irrigation Schemes: The Case of the Mkwasine Diversion System in the South Eastern Lowveld of Zimbabwe
By: Mr. Siyakia Mandirega
Supervisor: Dr. Sanyogita Andriyas

The Rice Based Farming System and Farmers' Perception of Climate Change Impact: A Case of Konkan, India
By: Mr. Saroj Kumar
Supervisor: Dr. Damien Jourdain

Wind-Driven Rainfall and Runoff Estimation for Tall Buildings
By: Ms. Chanakarn Chanphu
Supervisor: Dr. Sutat Weesakul

Estimating Soil Moisture Using Optical/Thermal Infrared Remote Sensing: A Case Study
By: Mr. Vu Hai Son
Supervisor: Dr. Sanyogita Andriyas

Assimilation of Remotely Sensed Soil Moisture into Hydrological Modeling: A Case Study in the Mahanadi River Basin, India
By: Ms. Soumya Sucharita Behera
Supervisor: Prof. Mukand S. Babel

Estimation of Crop Yield Losses due to Meteorological Drought and Recommendations for Improvement: A Case of Sangke River Basin, Battambang Province, Cambodia
By: Mr. Ang Sovanna
Supervisor: Dr. Sanyogita Andriyas

Real Time Modelling of Drainage Systems: A Case Study of AIT, Pathumthani, Thailand
By: Ms. Khin Seanghak
Supervisor: Dr. Duc Hoang Nguyen

Assessing Climate Change Impacts on Flood Inundation in the Vu Gia-Thu Bon Basin, Vietnam
By: Mr. Vu Trung Dung
Supervisor: Dr. Duc Hoang Nguyen

Climate and Land Use Change Impacts on Streamflow and Water Quality in the Songkhram River Basin, Thailand
By: Mr. Binod Bhatta
Supervisor: Dr. Sangam Shrestha

Evaluation of Climate and Land Use Change Impact on Hydrology of the Songkhram River Basin, Thailand
By: Mr. Dhiraj Acharya
Supervisor: Dr. Sangam Shrestha

Streamflow Forecasting Using Multivariate Relevance Vector Machine Algorithm
By: Ms. Thi Reindar Tin Tun
Supervisor: Dr. Sanyogita Andriyas

Effects of Climate Change on Sediment Transport Along Shoreline in the Gulf of Thailand
By: Mr. Noppadol Sanbai
Supervisor: Dr. Sutat Weesakul

UWEM

Assessing the Effectiveness of Green Infrastructures on Urban Flood Reduction and Thermal Comfort Enhancement: A Case Study of Sukhumvit Area, Bangkok
By: Mr. Abdul Naser Majidi
Supervisor: Dr. Sutat Weesakul

Assessment of Green Infrastructure Measures to Reduce Stormwater Runoff and Enhance Multiple Benefits in Urban Areas
By: Mr. Jose Manuel Patiño Gomez
Supervisor: Dr. Sutat Weesakul

Phosphorus Removal Using Algae Bacteria Consortia in Photo Sequencing Batch Reactor (PSBR)
By: Mr. Joseph Mathew
Supervisor: Dr. Thammarat Koottatep

Towards a Framework for Analysing Cascading Effects of Flood Impacts on Critical Infrastructure: The Case Study of Sukhumvit, Thailand
By: Mr. Geofrey Gerald Hilly
Supervisor: Dr. Sutat Weesakul

Management of Nitrogen Losses in Co-composting of Anaerobically Digested Faecal Sludge with Vegetable Wastes
By: Ms. Faith Muthoni Marekia
Supervisor: Dr. Thammarat Koottatep

Salinity Modelling in the Chao Phraya River under Future Sea Level in Relation to Municipal Water Supply in Bangkok
By: Mr. Bernard Kosgey Kipchumba
Supervisor: Prof. Mukand S. Babel

Assessment of Climate Change Impacts on the Performance of Bangkhen Water Treatment Plant in Bangkok
By: Mr. Theesit Mesomsup
Supervisor: Prof. Chettiyappan Visvanathan

Assessment of Climate Change Impacts on the Performance of Bangkhen Water Treatment Plant in Bangkok
By: Mr. Theesit Mesomsup
Supervisor: Dr. Assela Pathirana

3.1.6 : SET – OFFSHORE TECHNOLOGY AND MANAGEMENT PROGRAM

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 bachelors 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's 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 internshipplace 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-ACECOMS

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.S. 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, Doctor of Philosophy, University of Leeds; Doctor of Science, Technical University of Isai; Doctor of Science, Technical University of Cluj Napoca

POOVADOL SIRIRANGSI, Master of Business Administration, University of Central Oklahoma the United State; Doctor of Engineering, Asian Institute of Technology, Bangkok, Thailand

PORNPONG ASAVADORNDEJA, Master of Engineering, Asian Institute of Technology, Bangkok, Thailand; Doctor of Engineering, Asian Institute of Technology, Bangkok, Thailand

SARUNPHONG ARTICHARTE; Master of Science, Texas A&M University, USA

THITISAK BOONPRAMOTE, Master of Science, Colorado School of Mines, USA; Ph.D., Colorado School of Mines, USA

WINAI OUYPORNPRASERT, Master of Engineering, Chulalongkorn University, Bangkok, Thailand; Ph.D., University of Insbruck, Austria

APISIRI SOOKSAEN, Master of Engineering, Chulalongkorn University, Bangkok, Thailand

3. Masters Students' Theses and Internships

Flexibility of Well Completion Project Bidding by Using Real Options and a New Business Models in the Oil and Gas Industry
By: Mr. Piyapong Chamnan
Supervisor: Assoc. Prof. Gregory L. F. Chiu

Motion Response Analysis of FPSO: A Comparison of the Uncoupled and Coupled Analysis Methods
By: Ms. May Brany Aung
Supervisor: Assoc. Prof. Gregory L. F. Chiu

Onshore Natural Gas Pipelines Deactivation: Risk Analysis, Legal Procedures and Land Impact Analysis
By: Mr. Thanakorn Plungpongpun
Supervisor: Assoc. Prof. Gregory L. F. Chiu

Reliability of Uncontrolled Lateral Buckling of Subsea Pipeline under High Pressure and High Temperature Conditions
By: Mr. Napath Ruamchomrat
Supervisor: Assoc. Prof. Gregory L. F. Chiu

Process Safety of LPG Storage System and Damage Loss Estimation
By: Mr. Nitikorn Pengsawang
Supervisor: Assoc. Prof. Gregory L. F. Chiu

Offshore Oil and Gas Decommissioning - Business Prospects in the UAE
By: Mr. Manoj Dubey
Supervisor: Assoc. Prof. Gregory L. F. Chiu

3.2: SET – INDUSTRIAL SYSTEMS ENGINEERING GROUP

For several decades, AIT has served in the development of the region by equipping young engineering with the high-tech knowledge required to work in complex industrial environments, since itsinception, the industrial Systems Engineering (ISE) thematic group at AIT hac 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)
2. Microelectronics and Embedded Systems (MES)
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 (S5, S7200/300/400, INDRAMAT, BOSCH), distributed control systems (PCS7), operator panels (OP5, 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, ANYSIM, ANSYS, ADAMS and many types of special sensors and actuators are also available for research use.

The Integrated Circuit Design laboratory gives students access to a wide variety of professional software applications including ANSYS, Orcad, ModelSim SE, Xilink 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.

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, Xilink 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, selforg-anisation, Biomimetic processes,*

Polyelectrolyte deposition, Gas sensors, Bio-sensors, optoelectronic devices]

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

Associate 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

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

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

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.

GABOR LOUIS 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 *[Span carbon nanotube synthesis & thermodynamics, nano metal composite materials fabrication and optical properties, template synthesis of gold-55 quantum dot clustersyn thesis& optical character-rization]*

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

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

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

Adjunct Faculty *[Electrical Engineering]*

4. Grants and Sponsored Research Completed in 2017

Preparation of Commercialization of Walking Rehabilitation Robot Project
Duration: 01-Dec-2015 to 30-Nov-2017
Project Investigator (s): Prof. Manukid Parnichkun
Sponsor: Thailand Center of Excellent for Life Sciences
Total Contracted Amount (THB): 800,000.00

Development of Autonomous Mobile Robotic Chair with Ability of Staircase Climbing for Handicapped and Elderly People Project
Duration: 01-Feb-2015 to 31-Jan-2017
Project Investigator (s): Prof. Manukid Parnichkun
Sponsor: Health Systems Research Institute
Total Contracted Amount (THB): 1,590,000.00

Development of Automated Eucalyptus Transparent Machine Project
Duration: 16-Aug-16 to 15-Aug-2017
Project Investigator(s): Dr Mongkol Ekpanyapong & Dr Matthew N Dailey
Sponsor: Eucalyptus Thai Co Ltd
Total Contracted Amount (THB): 815,000.00

Development of Automated Portable Camera system for Eucalyptus growth measurement project
Duration: 16-Aug-16 to 15-Feb-2017
Project Investigator(s): Dr Mongkol Ekpanyapong & Dr Matthew N Dailey
Sponsor: Member Alliance Co Ltd
Total Contracted Amount (THB): 705,000.00

Smart City: Video Analytic Platform for CCTV Security
Duration: 01-Jul-16 to 30-Dec-2017
Project Investigator(s): Dr Mongkol Ekpanyapong & Dr Matthew N Dailey
Sponsor: NSTDA, Thailand
Total Contracted Amount (THB): 14,000,000.00

Automated Vehicle Identification Service Platform
Duration: 01-Jul-16 to 30-Dec-2017
Project Investigator(s): Dr Mongkol Ekpanyapong & Dr Matthew N Dailey
Sponsor: NSTDA, Thailand
Total Contracted Amount (THB): 1,672,000.00

5. On-going Grants and Sponsored Research 2017

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

Development of Autonomous Mobile

Robotic Chair with the ability of staircase climbing for Handicapped and Elderly people Phase II
Duration: 01-Nov-16 to 31-Oct-2018
Project Investigator(s): Prof Manukid Parnichkun
Sponsor: HSRI
Total Contracted Amount (THB): 672,000.00

6. Publications

Papers in Refereed Journal

Kim C. Moon., Parnichkun M. (2017). Prediction of settled water turbidity and optimal coagulant dosage in drinking water treatment plant using a hybrid model of k-means clustering and adaptive neuro-fuzzy inference system. International Journal of Applied Water Science, Springer. Vol: 0.

Kim C. Moon., Parnichkun M. (2017). MLP, ANFIS and GRNN based real-time coagulant dosage determination and accuracy comparison using full-scale data of a water treatment plant. Journal of Water Supply: Research and Technology – AQUA. Vol: 66, 49-61.

Tuvayanond W., Parnichkun M. (2017). Position Control of a Pneumatic Surgical Robot Using PSO based 2-DOF Loop Shaping Structured Controller. International Journal of Mechatronics. Elsevier Science Ltd. Vol: 43, 40-55.

Papers in Conference Proceedings

Manukid P., Nicom P. (2017). A Study of Influences of Time Delay, Sampling Rate, and Measurement Noise in Attitude Control. 2017 TRS Conference on Robotics and Industrial Technology (CRIT 2017). Bangkok.

Tuvayanond W., Parnichkun M. (2017). Position Control of a Pneumatic Surgical Robot Using PSO based 2-DOF Loop Shaping Structured Controller. 2017 TRS Conference on Robotics and Industrial Technology (CRIT 2017). Bangkok.

7. Doctoral Students' Dissertation

Mechatronics

High Impedence Actuator Fusion: A New Concept for a Haptic System
By: Mr. Niphon Lapanaphan
Supervisor: Assoc. Prof. Erik L. J. Bohez

The Development and Control of a Unicycle Robot
By: Mr. Surachat Chantarachit
Supervisor: Prof. Manukid Parnichkun

Coagulant Dosage Determination Using Neural Networks and ANFIS in Drinking Water Treatment Plant
By: Mr. Kim Chan Moon
Supervisor: Prof. Manukid Parnichkun

8. Masters Students' Theses and Projects

Microelectronics

Development of a Segway-Tpye Wheelchair
By: Mr. Kittipong Pramotago
Supervisor: Dr. Manukid Parnichkun

The Development of a Feet Gait Generator for Rehabilitation
By: Mr. Warawut Suwalai
Supervisor: Dr. Manukid Parnichkun

Sensorless Terrain Estimation and Longitudinal Acceleration Suppression for a Wheeled Mobile Robot
By: Mr. Arunya Prasantha Senadeera Senadiri Dumunnage
Supervisor: Dr. A.M. Harsha S. Abeykoon

Analysis of the Power System Stablity of Islanding Mode of a Micro Hydro Power Plant with PID and Fuzzy
By: Mr. Zaw Htet Pyae
Supervisor: Assoc. Prof. Erik L. J. Bohez

Fruit Ripeness Testing Using Force Sensorless Haptic Control
By: Mr. Quan Minh Pham
Supervisor: Dr. A.M. Harsha S. Abeykoon

Development of a Domestic Active Solar Water Heating System
By: Mr. Nesar Ahmad Zaland
Supervisor: Dr. Manukid Parnichkun

Orthopedic Rehabilitation Robot for Elbow Fractures
By: Ms. Thanaporn Viriyasaranon
Supervisor: Dr. A.M. Harsha S. Abeykoon

Development and Control of a Stick Robot Using Two Reaction Wheels
By: Mr. Amila Sri Madhushanka Gilimalage
Supervisor: Dr. Manukid Parnichkun

Depth, Linear Speed and Attitude Control Using Gyro and Thrust Propeller of an Underwater Robot
By: Mr. Akhila Madhushan Jayasekara
Supervisor: Dr. Manukid Parnichkun

Robot-aided Rehabilitation and Tele-rehabilitation Systems Design with Sensorless Torque Control
By: Mr. Patikiri Arachchige Diluka Harischandra
Supervisor: Dr. A.M. Harsha S. Abeykoon

Sensor Fusion for Autonomous Navigation with Unreliable GPS Data
By: Mr. Tanmoy Kumar Das
Supervisor: Dr. A.M. Harsha S. Abeykoon

Adaptive Virtual Compliance Controller for Bilateral Teleoperation
By: Mr. Chanuphon Trakarnchaiyo
Supervisor: Dr. A.M. Harsha S. Abeykoon

Development of a Self-Depth and Self-Heading Controlled Underwater Remotely Operated Vehicle
By: Mr. Don Nipuna Nuwan De Silva Wickramanayake
Supervisor: Dr. Manukid Parnichkun

A Life Cycle Assessment of Tetra Pak Containers for Water Packaging to Improve End of Life (EOL) Processes
By: Mr. Mishkat Ullah
Supervisor: Assoc. Prof. Erik L. J. Bohez

Development of a Pendulum-Based Spherical Robot
By: Mr. Satawat Prakancharoen
Supervisor: Dr. Manukid Parnichkun

Microelectronics and Embedded Systems

Automatic Vehicular Accident Detection and Notification with an Accident Video
By: Mr. Pruek Vanna-iampikul
Supervisor: Dr. Mongkol Ekpanyapong

An Experimental Study of the Feasible Deployment of V21 Technology Using OLSR in Road Bends
By: Mr. Jayasingam Adhuran
Supervisor: Dr. Mongkol Ekpanyapong

Digital Signal Processing of ECG Signals to Diagnose Heart Diseases
By: Mr. Asrith Krishna Chakka
Supervisor: Dr. Mongkol Ekpanyapong

Design and Implementation of a Wristband Style Elderly Fall Detection System with Acceleration Threshold, Velocity Threshold and Quaternion Data
By: Ms. Kotte Hema Mounika
Supervisor: Dr. Mongkol Ekpanyapong

Drowsiness Detection by Using Frequency of Blinks, Diameter and Blink Duration Using IR Sensors
By: Ms. Nalajala Charishma Chowdary
Supervisor: Dr. Mongkol Ekpanyapong

Automatic Gate Authentication System for RFID Tags and Thai-ID Cards
By: Ms. Triplicane Gayatri Nidhi Singh
Supervisor: Dr. Mongkol Ekpanyapong

High Performance Parallelized Architecture for Hardware Acceleration of Real Time Stream Processing of HOG Computer Vision Algorithm on an Embedded System-On-Chip (SoC)
By: Mr. R.A.D.M. Piyumal Ranawaka
Supervisor: Dr. Mongkol Ekpanyapong

3.2.2 : SET – INDUSTRIAL AND MANUFACTURING ENGINEERING

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- TechnischIngenieur, RijksUniversiteit Gent (State University Ghent, Belgium); Kandidatuur Burger lijkIngenieur, RijksUniversiteit Gent (State University Ghent, Belgium); TechnischIngenieur Electro-Mechanica, HogerTechnischInstituutSint Antonius Gent, (High 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 inventtory 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, 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) [Rapid Prototyping; Sensing and Control for Manufacturing Processes and Systems; Laser Applications in Manufacturing; Condition- Based Maintenance; Continuous Improvement]*

Visiting Faculty

Dr. 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 2017

Training on Micro-Hydro Turbine Power Plant Development
Duration: 24-Mar-2017 to 31-may-2017
Project Investigator (s): Dr Than Lin
Sponsor: MYANMAR
Total Contracted Amount (THB): 341,600

5. On-going Grants and Sponsored Research

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: 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

Luong H. Trung., Karim R. (2017). An integrated production inventory model of deteriorating items subject to random machine breakdown with a stochastic repair time. International Journal of Industrial Engineering Computations. Vol: 8, 217-236.

Muhammad S., Luong H. Trung. (2017). Joint Replenishment and Joint Delivery of Multiple Items. International Journal of Industrial Engineering: Theory, Applications and Practice. Vol: 0 (Accepted for Publication).

Astanti R., Luong H. Trung., Wee H. Ming. (2017). A Forward with Backward Inventory Policy Algorithm for Non-Linear Increasing Demand and Shortage Backorders. International Journal of Mathematics in Operational Research.Vol: 0 (Accepted for Publication).

Raut R., Gardas B. Baskar., Luong H. Trung. (2017). An ISM Approach for the Barrier Analysis in Implementing Sustainable Practices: An Indian Oil and Gas. Benchmarking: An International Journal. Vol: 0 (Accepted for Publication).

Narkhede B.E., Raut R., Gardas B. Baskar., Luong H. Trung. (2017). Selection and Evaluation of Third-Party Logistics Service Provider (3PLSP) by using an Interpretive Ranking Process (IRP). Benchmarking: An International Journal. Vol: 24, 1597-1648.

Muhammad S., Luong H. Trung. (2017). Production Allocation Decision using Revenue Sharing Contract with Prior Commitment and Two-Way Penalties. International Journal of Industrial and Systems Engineering. Vol: 26, 247- 274.

Pisut K. (2017). Improving Decision Making in Product Flow-Based Tiling Automation for Custom Mosaic Design. Journal of Assembly Automation. Vol: 37, 391-399.

Pisut K., Faisal R., Megha C. (2017). Characteristics and Potential for Successful Co-Creation. Journal of Industrial Integration and Management. Vol: 2.

Papers in Conference Proceedings

Jin, A., Ririn A.R., Sekarsari S., Luong, H. Trung. (2017). An Inventory Decision Model of Two Products with Vector Autoregressive Demand. APIEMS 2017, 3-6 Dec 2017 Yogyakarta, Indonesia.

Choo- ngern A., Luong, H. Trung. (2017). Bidirectional Contract: The Case of allowing Retailer to Order Higher than the Total of Initial Order. APIEMS 2017, 3-6 Dec 2017 Yogyakarta, Indonesia.

Luong, H. Trung., Nutcha T. (2017). Development of a Lost Sales Policy for the Growth Stage of Short Life-Cycle Nondeteriorating Product. APIEMS 2017, 3-6 Dec 2017 Yogyakarta, Indonesia.

Kyaw Y. Myat., Luong, H. Trung. (2017). Optimal Production Quantity under Bidirectional Contract. APIEMS 2017, 3-6 Dec 2017 Yogyakarta, Indonesia.

Hussadintorn Na Ayut., Koomsap P. (2017). Assessment of Student Learning Experience with LOVE. Mar 2017 The 11th annual International Technology, Education and Development Conference, INTED2017. Valencia, Spain.

Duangthida H., Pisut K. (2017). Identify Student Participation in Co-Creation of Learning Activities. Mar 2017 The 11th annual International Technology, Education and Development Conference, INTED2017. Valencia, Spain.

Faisal R., Pisut K., Mehla C. (2017). Identifying Firm Characteristics for Successful Co-Creation literature Review. July 2017 Singapore, Transdisciplinary Engineering: A Paradigm Shift.

Faisal R., Pisut K., Mehla C. (2017). Firmation Potential for Co-Creation. uly 2017 Singapore, Transdisciplinary Engineering: A Paradigm Shift.

David W.R., Pisut K. (2017). Additive and digital manufacturing design tools: an application of product-service system design. Dec 2017 Seoul, South Korea. Asian Design Engineering Workshop (A-DEWS) 2017.

Yasara D., Pisut K. (2017). Investigation of customers responses to Kano questionnaire. Dec 2017 Seoul, South Korea. Asian Design Engineering Workshop (A-DEWS) 2017.

7. Doctoral Students' Dissertation

Improved Differential Evolution Algorithms for Vehicle Routing Problems
By: Ms. Siwaporn Kunnapapdeelert
Supervisor: Prof. Voratas Kachitvichyanukul

Influence of the Bulk Viscosity on the Plastic Injection Parameters during Packing-Holding Stage
By: Mr. Prapol Chivapornthip
Supervisor: Assoc. Prof. Erik L. J. Bohez

Vendor-Managed Inventory Policies for One Vendor-One Retailer and One Vendor-Multiple Retailer Supply Networks
By: Mr. Cahyono Sigit Pramudyo
Supervisor: Dr. Huynh Trung Luong

8. Masters Students Theses and Projects

Industrial and Manufacturing Engineering

Container Unloading Scheduling Problem: A Case Study of Nabati Vietnam Company Limited
By: Mr. Ta Hoang Loc
Supervisor: Prof. Voratas Kachitvichyanukul

Inventory Policy for Raw Materials and Accessories at NS Bluescope Lysaght Vietnam
By: Ms. Le Thi Phuong
Supervisor: Dr. Huynh Trung Luong

A Multi-Objective Mathematical Model for Integrated Planning of Harvesting and Post-harvesting Operations for Agricultural Products
By: Ms. Thanaphorn Sornprom

Supervisor: Dr. Huynh Trung Luong

Innovative Packaging of Processed Cheese
By: Mr. Arunkumar Wilson
Supervisor: Assoc. Prof. Erik L. J. Bohez

Design of Self-heating Instant Noodle Packaging
By: Ms. Ei Thae Ponnami Mya Tin
Supervisor: Assoc. Prof. Erik L. J. Bohez

Inventory Replenishment Policy for a Deteriorating Item with Stochastic Demand Allowing Shortages and Partial Backlogging
By: Mr. Tun Min Kyaw
Supervisor: Dr. Huynh Trung Luong

Knowledge and Technology Transfer: Levels and Key Factors in Implementation of CAD/CAM/CAE Systems in Context of Manufacturing in Thailand
By: Ms. Pondchanok Piraintorn
Supervisor: Dr. Mongkol Ekpanyapong

Development of a Lost Sales Inventory Policy for the Growth Stage of Short Life Cycle Non-Deteriorating Products
By: Ms. Nutcha Taneepanichskul
Supervisor: Dr. Huynh Trung Luong

Optimal Production Quantity under Bidirectional Option Contract
By: Ms. Yin Myat Kyaw
Supervisor: Dr. Huynh Trung Luong

Meta-Heuristic for a Multi-Objective Multi-Commodity Distribution Network with Environmental Considerations
By: Mr. Ratnayake Mudiyanselage Malika Nisal Ratnayake
Supervisor: Dr. Huynh Trung Luong

Bidirectional Option Contract: A Case of Allowing Retailer to Order Higher than the Total of Initial Order Quantity and Option Quantity
By: Ms. Areeya Choo-ngern
Supervisor: Dr. Huynh Trung Luong

Distribution Level Packaging-Design of Pomegranates: A Case Study of Afghanistan
By: Mr. Muhammad Ameen Pakteen
Supervisor: Assoc. Prof. Erik L. J. Bohez

The Optimization of Automatic TIG Welding Repairs for Inconnel 718 Compressor Blades by Response Surface Design
By: Mr. Rizky Yulviano Siahaan
Supervisor: Assoc. Prof. Erik L. J. Bohez

Examining the Influence of Product's Quality Towards the Ease of Use of a Product at Different Stages of Products' Usage
By: Mr. Sahan Sachinda Rathnayake
Supervisor: Dr. Pisut Koomsap

A New Design of One-Handed Lipstick Packaging
By: Ms. Thanyatorn Fongsatitkul
Supervisor: Dr. Huynh Trung Luong

A New Semi-Automatic GTAW Method Developed on the Basis of Experiments on the Geometric Reconstruction of Deteriorating High-Pressure Compressor Blades
By: Mr. Malinga Maushadha Basnayaka
Supervisor: Prof. Manukid Parnichkun

Optimization of Biomass Power Plants Based on Rubber Wood
By: Mr. Kraiwit Thampanyasakul
Supervisor: Assoc. Prof. Erik L. J. Bohez

Assembly Line Balancing and Optimization Using SIEMENS Tecnomatix Plant Simulation: A Case Study in an Electric Power Steering Column Assembly Line
By: Mr. Zay Yar Myint
Supervisor: Dr. Huynh Trung Luong

Multi-Criteria Decision Making for Selecting a 5-Axis Machine Tool
By: Ms. Mullika Wiriyapirom
Supervisor: Assoc. Prof. Erik L. J. Bohez

3.2.3 : SET – NANOTECHNOLOGY

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

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 this burgeoning technology area. Nanotechnology with a focus on 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 AIT Nanotechnology Graduate program is a unique blend of truly cross-disciplinary teaching with an integrated curriculum. Budding Nanotechnologists come from different disciplines, including various engineering disciplines, physics, materials sciences and chemistry, so a good postgraduate programme in nanotechnology must be able to accommodate students from a wide range of backgrounds. Nanotechnology is an interdisciplinary field and the engineering focus of the AIT programme indeed targets only the engineers and science background students.

3.7.2 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 equipments such as optical spectrophotometer, contact-angle measurement system, solar simulator, photocatalyis bench, gas-sensor test bench, CVD system, methanol reforming reactor, nanowire factory etc. The electronics lab is equipped with digital o cilloscopes, 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, NANOTEC/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.

3.7.3 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, photoca-talysis, Gas sensors, Bio-sensors, solar cells, water treatment, desalination]*

Associated Faculty

GABOR LOUIS 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

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 green house gas mitigation, Solar Energy, Cleaner production, Energy and sustainable development)*

CHETTIYAPPAN VISVANATHAN, Ph.D. (1998) Chemical / Environmental Engineering, Institut National Polytechnique, Toulouse, France.

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 Wasterwater 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- /Nanoencapsulation, 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

SIDDHARTH JABADE, Ph.D. (2005) in Mechanical Engineering, Indian Institute of Technology-Bombay, India.

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

Adjunct Faculty

CHANCHANA THANACHAYANONT, Ph. D. (1999) and BE (1994), Imperial College, London. The National Metals and Materials Technology Center, National Science and Technology Development Agency, Thailand

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

Assistant Administrative Office

3.7.4 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

3.7.5 Masters Students' Theses and Research Studies

Synthesis and Characterization of Chemically Modified Porous and Luminescent Silica Nanoparticles
By: Ms. Shadmani Shamim
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 master's program in computer science, the Computer Science field of study also offers a master's 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 wide-spread 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)*

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)*

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

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

Visiting and Adjunct Faculty

PAUL JANECEK, 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. Publications

Papers in Refereed Journal

Kongsilp S., Mattew D.N. (2017). Motion parallax from head movement enhances stereoscopic displays by improving presence and decreasing visual fatigue. Journal of Displays. Vol: 49 Pages 72-79.

Majeed M.F., Ahmed S.H., Dailey M.N. (2017). Enabling Push-Based Critical Data Forwarding in Vehicular Named Data Networks. Journal of IEEE Communications Letters. Vol: 21.

Majeed M.F., Khan R., Dailey M.N. (2017). Pre-caching: A proactive scheme for caching video traffic in named data mesh networks. Journal of Network and Computer Applications. Vol: 87.

Qureshi W.S., Payne A., Dailey M.N. (2017). Machine vision for counting fruit on mango tree canopies. Journal of Precision Agriculture. Vol: 18.

Papers in Conference Proceedings

Kongsilp S., Mattew D.N. (2017). Communication portals: Immersive communication for everyday life. March 7-9, 2017 Paris, France. International Conference on Innovation in Clouds, Internet, and Networks.

5. Doctoral Students' Dissertation

Computer Science

Information Centric Networking Scheme for Proactive Content Dissemination in Named Data Mesh Networks
By: Mr. Muhammad Faran Majeed
Supervisor: Dr. Matthew N. Dailey

Information Management

Cross-Domain Citation Recommendation Based on Topic Model and Co-Citation Selection
By: Ms. Supaporn Tantanasiriwong
Supervisor: Prof. Sumanta Guha

6. Masters Students' Theses and Research Studies

Computer Science

OpenCCTV: A Video Analytic Platform for CCTV Security
By: Ms. Ponsuge Anjana Chandani Tissera
Supervisor: Dr. Matthew N. Dailey

Collaborative Residential Rental Web Application
By: Ms. Chayawit Wonganusorn
Supervisor: Dr. Matthew N. Dailey

Embedding XML/XSLT as Data Structure into Java
By: Mr. Manish Shakya
Supervisor: Prof. Phan Minh Dung

Customer Face Analysis for Retail Analytics
By: Mr. Nabil Tahmidul Karim
Supervisor: Dr. Matthew N. Dailey

Design and Analysis of Intelligent Strategies to Play Pacman
By: Mr. Shyam Bhattarai
Supervisor: Prof. Phan Minh Dung

Helmet Violation Processing Using Deep Learning
By: Mr. Dharma Raj K.C.
Supervisor: Dr. Matthew N. Dailey

Modelling of PAC-MAN Game
By: Mr. Sanim Raj Shakya
Supervisor: Prof. Phan Minh Dung

Email Security: Vulnerabilities on Email Flow and a Simple Email System
By: Mr. Godugu Arunkumar
Supervisor: Prof. Phan Minh Dung

AIML Technology for Intelligent Personal Assistant
By: Mr. Ranjith Venkata Dontamsetti
Supervisor: Prof. Phan Minh Dung

Mobile Traffic Violation Evidence Collection Application
By: Mr. Gangisetty Sai Sathwik
Supervisor: Dr. Matthew N. Dailey

Security Vulnerabilities in C and Java Web Applications: A Prototype for Testing the Vulnerabilities
By: Mr. A. Prithvi Raj
Supervisor: Prof. Phan Minh Dung

Text Mining for Sentiment Analysis of Tweets in Twitter: Smartphone Product Review
By: Mr. Anubhav Rana
Supervisor: Dr. Vatcharaporn Esichaikul

Applying Data Mining Techniques on Yelp Challenge Dataset
By: Ms. Raja Vyshnavi
Supervisor: Prof. Sumanta Guha

Mobile Game Development with Unity and Its Marketing Strategies
By: Mr. K R Sree Sainath Reddy
Supervisor: Prof. Sumanta Guha

Android Application for Customer Service Video Analytic Systems
By: Mr. V. Satya Kiriti
Supervisor: Dr. Matthew N. Dailey

Identifying License Plate Character Segmentation Boundaries Using Convolutional Neural Networks
By: Mr. Benoit Philippe Jean-Michel Bazard
Supervisor: Dr. Matthew N. Dailey

Particle Filtering for People Tracking and Heat Mapping in Surveillance Videos
By: Mr. Jayet-Laraffe Alexandre
Supervisor: Dr. Matthew N. Dailey

Detection, Appearance Modeling, Identification and Tracking of People in Surveillance Videos
By: Ms. Sanjana Jain
Supervisor: Dr. Matthew N. Dailey

Information Management

A Forecasting System for Batsmen Playing One-Day International Cricket
By: Mr. Peruma H. S. S. Wijayarathna
Supervisor: Prof. Sumanta Guha

Open Government Data Mining and Visualization: A Case Study of New Year Festival Traffic Accidents in Thailand
By: Mr. Muhammad Baimatpuncho
Supervisor: Dr. Vatcharaporn Esichaikul

Color Identification Mobile Application for Visually-Impaired People: An Integration of Haptic and Auditory Sensories
By: Ms. Punchaya Raksasakul
Supervisor: Dr. Vatcharaporn Esichaikul

Integration of Internet of Things (IoT) and Crowdsourcing for Disaster Warning Systems
By: Ms. Elisha Rajbhandari
Supervisor: Dr. Vatcharaporn Esichaikul

Ontology for a Personal Assistant: A Case Study in Financial Services
By: Mr. Ranjan Venkata Dontamsetti
Supervisor: Prof. Phan Minh Dung

Soccer Result Prediction through Data Mining using Predictive Analytics
By: Mr. Dasu Ankith
Supervisor: Prof. Sumanta Guha

Stock Price Trend Prediction Through Data Mining Techniques
By: Mr. Dhulipala Yashwanth Chowdary
Supervisor: Prof. Sumanta Guha

Prediction of Imdb Movie Rating Using Data Mining Techniques
By: Mr. Alimi Manideep
Supervisor: Prof. Sumanta Guha

Tactical Crime Analysis Using Clustering of San Francisco Crime Data
By: Ms. Anitha Ponnuru
Supervisor: Prof. Sumanta Guha

Data Mining Techniques for Predicting Consumer Behavior Based on Government Utility Water Services
By: Ms. Bindu Kaladgi
Supervisor: Prof. Sumanta Guha

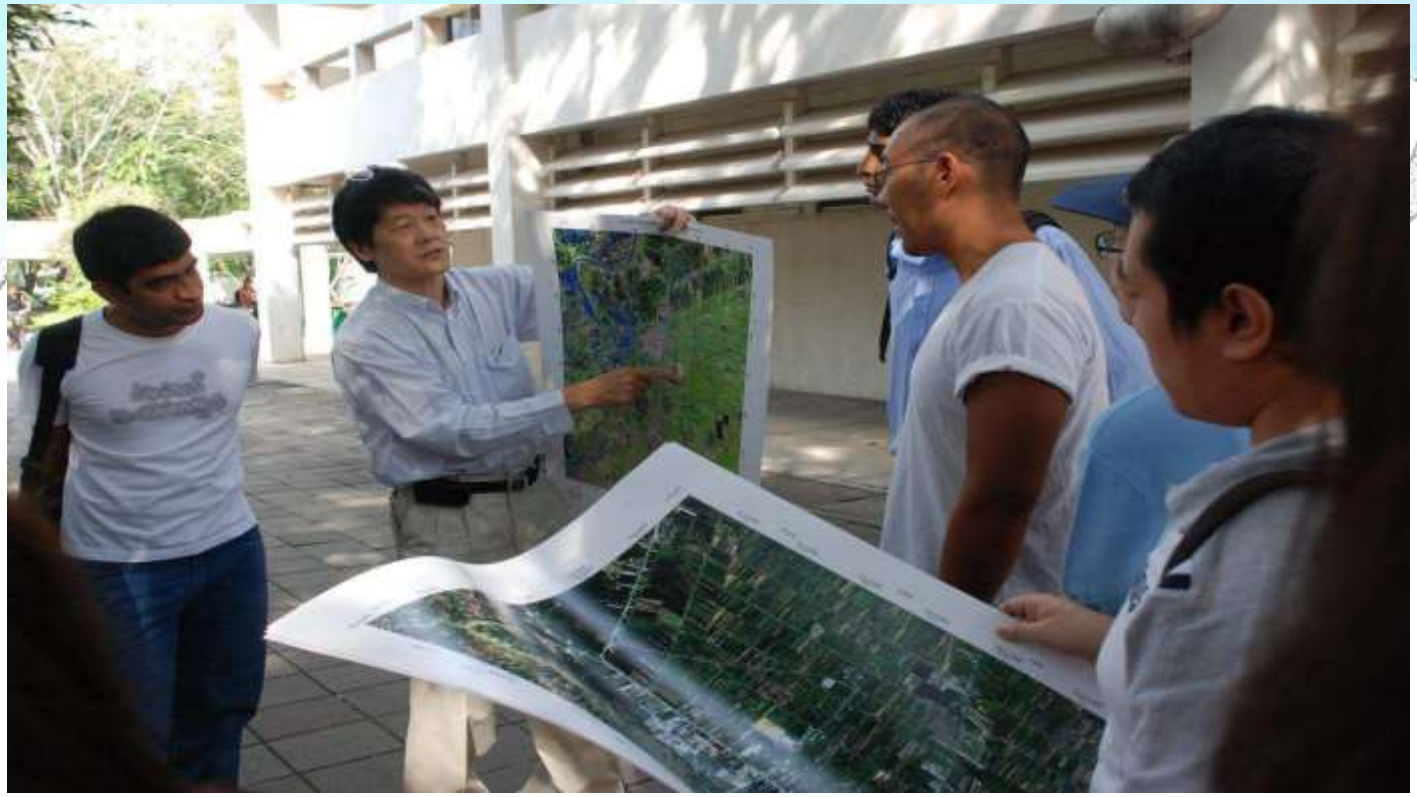
Heart Disease Prediction System Using Data Mining Techniques
By: Mr. Sudheer Yadav
Supervisor: Dr. Vatcharaporn Esichaikul

A Survey on Credit Card Fraud Detection Techniques
By: Ms. Madireddy Tejasree
Supervisor: Prof. Sumanta Guha

Identifying Duplicate Questions on Quora
By: Mr. Chennu Akhileshwar
Supervisor: Prof. Sumanta Guha

A Miniature Prototype Cloud Computing System for Instructional Purposes
By: Mr. Tata Rohit Sairam
Supervisor: Prof. Sumanta Guha

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 add.

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 ex-tensive computing infrastructure for its students, including network file servers for shared access to data and publiclyaccessible 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 geoexplorer; 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, IIT; PhD, IIT, Kanpur, India.

Associate Professor *(GIS, Remote Sensing, RFID and Vehicle Tracking, Indoor Positioning Systems, Enviro-nment, Disaster, Agriculture, Health, Applications)*

SARAWUT NINSAWAT, BSci, Silpakorn University; MSci, 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, BAgr, 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 spati-temporal 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 2017

Goeservivces 4 sustainability
Duration: 01-Sep-2015 to 30-Nov-2017
Project Investigators: Dr Nitin kumar

Thripathi
Sponsor: ERASMUS+University of Saizburg
Total Contracted Amount:
(THB) 2,730,000.00

Geospacial data analysiss
Duration: 01-Jun-2015 to 31-May-2017
Project Investigators: Dr Masahiko Nagai, Dr. Apichon Witayangkurn
Sponsor: The University of Tokyo
Total Contracted Amount:
(THB) 1,360,497.00

UGI Education Camp 2017 UGI Group of Institutions, India
Duration: 15-Jun-2017 to 30 sept 2017
Project Investigators: Prof Nitin Kumar Tripathi
Sponsor: United Group of Institutions India
Total Contracted Amount:
(THB) 867,244.75

Asian summer school for geo-informatics and issues on sustainable development in asia 2017
Duration: 01-july-2017 to 31-dec-2017
Project Investigators: Dr Sarawut Ninsawat
Sponsor: Chubu University
Total Contracted Amount:
(THB) 300,000

SRMU Educational camp and study tour 2016 for Sri Ram memorial university, India
Duration: 09-Sep-2015 to 30-Sep-2017
Project Investigators: Dr Nitin kumar Thripathi
Sponsor: Sr Ram Memorial University
Total Contracted Amount:
(THB) 255,000.00

5. On-going Grants and Sponsored Research

Education workshop and study tour
Duration: 01-Jan-2016 to 30-Jan-2018
Project Investigators: Dr. Nitin kumar Thripathi
Sponsor: JIS Group and downtown university
Total Contracted Amount:
(THB) 760,000.00

Asia GIS Dataset Development with Ontology Data
Duration: 01-Apr-2016 to 31-Dec-2018
Project Investigators: Dr Masahiko Nagai, Dr Apichon Witayangkurn
Sponsor: The University of Tokyo
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
Sponsor: MOFAID France/RFCC Funding
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
Sponsor: United Group of Institutions India
Total Contracted Amount:
(THB) 965,000.00

JIS Eduction Camp and Study Tour 2017
Duration: '1 Feb 2017 to 30 june 2019
Project Investigators: Prof Nitin Kumar Tripathi
Sponsor: JIS Group of Institutions, India
Total Contracted Amount:
(THB) 910,988.78

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

Scan Tree
Duration: 01-april-2015 to 31-May-2018
Project Investigators: Dr. Salvatore G.P. Virdis
Sponsor:
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
Sponsor: The University of Tokyo
Total Contracted Amount:
(THB): 2,481,433

6. Publications

Papers in Refereed Journal

Rahim K.A.., Sousa R., Virdis S.G.P., Zieritz A. (2017). Combined effects of global change on a hotspot's freshwater diversity. Science of the Total Environment. Vol: 0.

McGowan S., Ozersky T., Virdis S.G.P. (2017). Recent ecological change in ancient lakes. Journal of Limnology and Oceanography.
Vol: 0.

Ferrara R., Virdis S.G.P., Ventura A. (2017). An automated approach for wood-leaf separation from terrestrial LIDAR point clouds using the Density based Clustering Algorithm DBSCAN.
Journal of Agricultural and Forest Meteorology, Vol:0.

Sidiqi M., Shrestha S., Ninsawat S. (2017). Projection of Climate Change Scenarios in the Kabul River Basin, Afghanistan. Current Science. Journal of Current Science. Vol: 0.

Papers in Conference Proceedings

Padedda B.M., Sarria M., Virdis S.G.P. (2017). A straightforward approach to assess the impact and linkage between land uses and trophic status. XXIII Congresso della Associazione Italiana di Oceanologiae
Limnologia, 26-29 Sep 2017, Italy.

7. Doctoral Students' Dissertation

Reducing Hillslope Size in Digital Elevation Models at Various Scales and the Effects on Model Estimation
By: Mr. Chatchai Tantasirin
Supervisor: Dr. Masahiko Nagai

Building Occupancy Mapping by Multi-Sources Spatial Data Integration with Building Construction Laws and Regulations: A Cas Study of Bangkok
By: Ms. Chomchanok Arunplod
Supervisor: Dr. Masahiko Nagai

Modeling Urban Expansion in Bangkok Metropolitan Region Using Demographic-Economic Data
By: Mr. Chudech Losiri
Supervisor: Dr. Masahiko Nagai

Agriculture Risk Management Through Crop Insurance Using Geospatial Technologies
By: Ms. Shweta Sinha
Supervisor: Prof. Nitin Kumar Tripathi

Differential SAR Interferometry for Rapid Earthquake Detection and Damage Assessment
By: Ms. Nopphawan Tamkuan
Supervisor: Dr. Masahiko Nagai

8. Masters Students' Theses

Development of a System for Crowd Sourced Air Quality Mapping through IoT Technology
By: Mr. Masood Ahmed
Supervisor: Dr. Sarawut Ninsawat

Bangkok Taxi Service Zone Analysis using Taxi Probe Data
By: Ms. Apantri Peungnumsai
Dr. Apichon Witayangkurn

Assessment of Soil Erosion and Sediment Yield Using a SWAT Model and Remote Sensing Data in the Kharokh Watershed in the Lower Harirod River Basin, Afghanistan
By: Ms. Sowaida Ghafori
Supervisor: Dr. Hiroyuki Miyazaki

Erosion and Deformation of Hari Rud River and Salma Dam's Effect on Cross Section of the River
By: Ms. Samira Fazly
Supervisor: Dr. Tai Nakamura

Urban Growth Modelling of Herat, Afghanistan Using Geospatial Technology
By: Mr. Sayed Abdul Bari Fazli
Supervisor: Prof. Nitin Kumar Tripathi

Identification of Suitable Location for Off-Grid Solar Plant in Farah Province of Afghanistan
By: Mr. Maziar Karimi
Supervisor: Dr. Sarawut Ninsawat

GIS-Based Assessment and Mapping of Noise Pollution in the Urban Area of Bago City, Myanmar
By: Ms. Su Thandar Aung
Supervisor: Prof. Nitin Kumar Tripathi

The Development of a Cloud-Based Application for Estimating Air Temperature Using Satellite Image and Crowd-Sourced Weather Data
By: Ms. Thannarot Kunlamai
Supervisor: Dr. Sarawut Ninsawat

A Multi-Criteria Routing Algorithm for Supporting Visually Impaired Route Planning Based on pgRouting
By: Ms. Nattakran Kitsawat
Supervisor: Dr. Sarawut Ninsawat

Allometric Characterization Using Airborne LiDAR and Determination of Biomass in Mo Singto Plot at Khao Yai National Park, Thailand
By: Ms. Nitchanan Sithiprom
Supervisor: Prof. Nitin Kumar Tripathi

Assessment of Fertilization Effect on Soil Organic Matters using Multi-temporal MODIS EVI Data: Case Study in Sleman Regency, Indonesia
By: Mr. Agung Iswadi
Supervisor: Dr. Hiroyuki Miyazaki

The Identification and Estimation of Health of Coconut Trees by Using Unmanned Aerial Vehicles' (UAV) Data and Machine Learning Method
By: Ms. Panruthai Tangprasert
Supervisor: Dr. Apichon Witayangkurn

Accuracy Enhancement of UAV Products Using GNSS Derived Ground Control Points and Varying Flying Heights
By: Mr. Harish Naidu Dharmana
Supervisor: Prof. Nitin Kumar Tripathi

Shoreline Delineation and Erosion and Accretion Analysis: A Case Study of Rayong, Thailand
By: Mr. Myla Venkata Ravi Varma
Supervisor: Prof. Nitin Kumar Tripathi

Identification of a Burning Area Using Hotspot Data and Aerosol Properties
By: Ms. Chanakan Wuthisakkaroon
Supervisor: Dr. Sarawut Ninsawat

The Correlation between Sea Surface Temperature Anomalies and Typhoons over the Western North Pacific Ocean
By: Ms. Nutnaree Thongrueang
Supervisor: Prof. Nitin Kumar Tripathi

Effect of Urban Multipath and Spatial Distribution of Cellular Network on Smartphone and GNSS Devices
By: Mr. Korakot Saelim
Supervisor: Dr. Sarawut Ninsawat

An Urban Heat Island around the Coastal Environment of Rayong, Thailand
By: Mr. Datla Sravanth Varma
Supervisor: Prof. Nitin Kumar Tripathi

The Impact of Climate Change on Solar Power Generation in North East Thailand
By: Mr. Mutyala Bapi Raju
Supervisor: Dr. Sarawut Ninsawat

Semi-Arid Region Agricultural Drought Predictive Model in Telangana Region India Using Day Time Temporal Data
By: Ms. Namala Vijaya Deepika
Supervisor: Prof. Nitin Kumar Tripathi

Greening the Urban Environment Using Geospatial Techniques: A Case Study of Vijayawada, Andhra Pradesh, India
By: Ms. Kalthuri Sulekya
Supervisor: Prof. Nitin Kumar Tripathi

Development of Water Monitoring System for Aquaculture Using a Low Power Platform and UAV
By: Mr. Raviteja Peketi
Supervisor: Dr. Apichon Witayangkurn

Identifying a Suitable Location for a Faecal Sludge Treatment Plant with Population Distribution in Tiruchirappalli District, Tamil Nadu, India
By: Ms. Doddaka Raaga Harsha Sayoji
Supervisor: Dr. Sarawut Ninsawat

Linear Time Series Modelling of GPS-Derived TEC Over the Andaman Region
By: Mr. Puram Sai Suraj
Supervisor: Prof. Nitin Kumar Tripathi

Remote Monitoring of Diabetic Patients Using a Web Platform and Mobile Application
By: Mr. Malla Reddy Mettu
Supervisor: Prof. Nitin Kumar Tripathi

Development of Solar Powered Automatic Weather Station (AWS-Solar) and Alert System using Smart Sensors and Smartphone Applications
By: Mr. Gajula Manoj Mahajan
Supervisor: Prof. Nitin Kumar Tripathi

Analysis of Urban Growth and Future Prediction in Hyderabad Metropolitan Region Using Landsat Satellite Data
By: Mr. Bheemavaram Sreehari Preetham
Supervisor: Dr. Hiroyuki Miyazaki

Urban Flood Risk Mapping using Geoinformation Technology
By: Ms. Pasupuleti Bhavani
Supervisor: Prof. Nitin Kumar Tripathi

Spatial Epidemiological Diffusion Patterns and Hotspot Mapping: A Case of Payao, Thailand
By: Mr. Raasi Kumar Goud C
Supervisor: Prof. Nitin Kumar Tripathi

Rice Crop Monitoring Using Phenological Analysis through Landsat and Field Server Data in Niigata, Japan
By: Mr. S. Akhil Sai
Supervisor: Dr. Apichon Witayangkurn

Urban Growth Pattern Modelling and Future Projection Using Time Series Satellite Data: A Case Study of Nagpur, India
By: Mr. Pedhabudhi Kranthi Kumar
Supervisor: Dr. Hiroyuki Miyazaki

Landslide Hazard Zonation Using Multicriteria AHP Modeling in Reasi District, Jammu and Kashmir, India
By: Mr. Vihari Palacharla
Supervisor: Prof. Nitin Kumar Tripathi

Analysis of GPS TEC Observations Using Singular Value Decomposition Model Over Low Latitude Regions
By: Mr. Neeli Rayappa Raghavendra
Supervisor: Prof. Nitin Kumar Tripathi

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's 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 Frontires 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 several 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 telecom-munications 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 Universitat Kaiserslautern, Germany, D.Tech., University of Oulu, Finland.
[Smart 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. On-going Grants and Sponsored Research

TV White Space
Duration: 6 March 2017 to 21 sept 2018
Project Investigator: Dr. Attaphongse Taparugssanagorn
Sponsor: The National Broadcasting and Telecommunications Commission (NBTC)
Total Contracted Amount (THB): 3,784,461.6

5. Publications

Papers in Refereed Journal

Rahman Mohammad Mizanur., Charoenlarpnopparut, Chalie., Attaphongse T. (2017). A False Alarm Reduction Method for Gas Sensor Based Electronic Nose, Sensors 2017. Vol: 17 Page 1-19

Vartiainen Johanna., Vuohtoniemi Risto ., Attaphongse T. (2017). TE and WLAN Signal and Interference Detection in Cognitive Radio Applications, International Journal on Advances in Telecommunications. Vol: 10 Page 1-10.

Papers in Conference Proceedings

Promsuk, Natthanan., Attaphongse T. (2017). Interference Suppression Methods with Adaptive Threshold in Internet of Things (IoT) Systems. 12 Oct – 13 Oct 2017, Phuket, Thailand. 9th International Conference on Information Technology and Electrical Engineering (ICITEE).

Lertsinsrubtavee Adisorn., Attaphongse T. (2017). TVCom: TV White Space for Rural Broadband Community. Nov 20, 2017 – Nov 22, 2017, Bangkok, Thailand. 13th Asian Internet Engineering Conference (AINTEC).

Man Pati, Bipun., Attaphongse T. (2017). Annual ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS 2018). June 20th to June 22nd, 2018 at Facebook (San Francisco, CA). Adaptive Threshold Setting for Determining Spectrum Occupancy in TV White Space.

6. Masters Students' Theses and Research Studies

Modeling of 4-Element Planar Inverted F-Antenna for 5G Application
By: Mr. Sagar Dutta
Supervisor: Dr. Teerapat Sanguankotchakorn

Cell Selection Methods using Co-Channel Deployment in Heterogeneous LTE-Advanced Network
By: Ms. Hettipathirannehelage Chathuri Hettipathirana
Supervisor: Dr. Teerapat Sanguankotchakorn

An Analysis of Internet Traffic in a Local Service Provider Based on Users' Preferences
By: Mr. Sunsern Khantong
Supervisor: Dr. Teerapat Sanguankotchakorn

Probability of False Alarm-based Interference Suppression Methods in Internet of Things (IoT) Systems
By: Mr. Promsuk Natthanan
Supervisor: Dr. Attaphongse Taparugssanagorn

A Study of a Belief-Desire-Intention Model for Proactive Behavior in Indoor Robots
By: Mr. Ujjwal KC
Supervisor: Dr. Teerapat Sanguankotchakorn

Wireless Sensing of a Solar Power System
By: Ms. Su Kyi
Supervisor: Dr. Attaphongse Taparugssanagorn

Improved Correlated Core Based Data Dissemination for Wireless Sensor Networks
By: Ms. Bawani Aluthgama Guruge
Supervisor: Dr. Teerapat Sanguankotchakorn

IoT Intrusion Detection System: A Performance Analysis
By: Mr. Nikolai Berns
Supervisor: Dr. Attaphongse Taparugssanagorn

Data Dissemination on CDN-OLSR in VANET Repeated Transmission Using Different Numbers of Packets
By: Mr. Kommula Preetham Reddy
Supervisor: Dr. Teerapat Sanguankotchakorn

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.

Adjunct 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**

SUMANTA 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. Doctoral Students' Dissertation

Data Dissemination on MANET by Using Content Delivery Netowrk (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

5. Masters Students' Theses and Research Studies

Entrance Detection and Distance Classification Application for Visually-Impaired People
By: Mr. Sunjay Kumar
Supervisor: Dr. Sarawut Ninsawat

Obstacle Detection and Classification System for Visually Impaired People Using Smart Glasses and Smartphones
By: Ms. Thammitage Jude Delani Rushanka Perera
Supervisor: Dr. Attaphongse Taparugssanagorn

A Hybrid Pull-Push Method in Hybrid CDN-P2P Mesh-based Architecture for Live Video Streaming
By: Mr. Nonpawich Krueakampliw
Supervisor: Dr. Teerapat Sanguankotchakorn

Contribution on CCVP: Cost_Efficient Centrality-Based VNF Placement and Chaining Algorithm for Network Service Provisioning
By: Mr. Sachham Man Buddhacharya
Supervisor: Dr. Attaphongse Taparugssanagorn

Application of Data Mining Techniques to Measure Cancer Morbidity and Mortality Data
By: Ms. Sankeneni Sindhuja
Supervisor: Prof. Sumanta Guha

Chapter 4: SCHOOL OF ENVIRONMENT, RESOURCE AND DEVELOPMENT

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

3. Thematic Groups, Fields of Study and Multidisciplinary Programs

Through a rice 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
- 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 Bio-process Technology, Environmental Engineering and Management,

Energy 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. Many 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; Land use-climate, Geo info-rmatics)

4.1: SERD – DEPARTMENTS OF FOOD, AGRICULTURE AND BIORESOURCED

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 environ - mental 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 pro - duction 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 enough 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 activitie`s 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)

4.1.1 : SERD – AGRIBUSINESS MANAGEMENT PROGRAM

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.

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 professionnals, 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 market-ing, 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 opportu-neities within the agri-food and related sectors and increase the contribution of these sectors within public and national objectives.

Objectives

Specific objectives of the master's 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 inter-national standards on food safety and traceability in agricultural production, local and global trade policies etc.

2. Faculty and Professio-nal 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 Polysachharides; Food Colloids and Biopolymers; Encapsulation and Targeted Delivery of Biomolecules)

PEEYUSH SONI

Assistant Professorand 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 KAEWPRAKAISAENGKUL; 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 2017

Distributional Effects of Disasters and Climate Change on Food Security (Phase I)

Duration: 1 Apr. 2017 - 31 Oct. 2017

Investigator(s): Dr John K.M. Kuwornu
Sponsor: 'Economic Research Institute for ASEAN and East Asia - ERIA
Total Contracted Amount (THB): 165,350

4. Publications

Book Chapters

Datta A., Ullah H., Ferodus Z. (2017). Utilization of By-Products from Food Processing as Biofertilizers and Biopesticides. Food Processing By-Products andtheir Utilization, Publisher: John Wiley & Sons.

Datta A., Ullah H., Ferodus Z. (2017). Water Management in Rice. Rice Production Worldwide, Publisher: Springer.

Knezevic S Z, Datta A. (2017). Thermal Weed Control. Encyclopedia of Applied PlantSciences. Vol 3. Publisher: Waltham, MA: Academic Press, Elsevier Ltd.

Knezevic S Z, Jhala A., Datta A. (2017). Integrated Weed Management. Encyclopedia of Applied PlantSciences. Vol 3. Publisher: Waltham, MA: Academic Press, Elsevier Ltd.

Soni P., Salokhe V. (2017). Strategic Analysis of Urban/Peri-urban Agriculture in Asia: Issues, Potential and Challenges. SUSTAINABLE LANDSCAPE PLANNING IN SEECTED UBAN REGIONS
Publish: Springer.
ISBN: 978-4-431-56443-0.
DOI: 10.1007/978-4-431-56445-4_7

Papers in Refereed Journal

Zulfiqar F., Datta A., Thapa G. (2017). Determinants and resource use efficiency of better cotton: An innovative cleaner production alternative. Journal of Cleaner Production. Vol: 166.

Alam M S., Sasaki N., Datta A. (2017). Waterlogging, crop damage and adaptation interventions in the coastal region of Bangladesh: A perception analysis of local people. Journal of Environmental Development. Vol: 23

Cuong T X., Ullah H., Datta A. (2017). Effects of silicon-based fertilizer on growth, yield and nutrient uptake of rice in tropical zone of Vietnam. Journal of Rice Science. Vol: 24.

Ullah H., Datta A. (2017). The effects of cultivation methods and water regimes on root systems of drought-tolerant (RD6) and drought-sensitive (RD10) rice varieties of Thailand. Archives of Agronomy and Soil Science. Vol: 63.

Ferdous Z., Datta A., Anwar M. (2017). Plastic mulch and indigenous microorganism effects on yield and yield components of cauliflower and tomato in inland and coastal regions of Bangladesh. Journal of Crop Improvement. Vol: 31.

Ullah H., Datta A. (2017). Managing weeds using crop competition in soybean [Glycine max (L.) Merr.]. Journal of Crop Protection. Vol: 95.

Suan J D K., Datta A., Salam P.A. (2017). Effect of oil palm fly ash on soil properties and yield of sweet corn in the tropical zone of Thailand. Journal of Communications in Soil Science and Plant Analysis. Vol: 48.

Trang N.T.T., Shrestha S., Datta A. (2017). Evaluating the impacts of climate and land-use change on the hydrology and nutrient yield in a transboundary River Basin: A case study in the 3S River Basin (Sekong, Sesan, and Srepok). Journal of Science of the Total Environment. Vol: 576.

Shrestha M., Shrestha S., Datta A. (2017). Assessment of the climate change impact on water diversion from Bago River to Moeyingyi Wetland, Myanmar. Journal of Current Science. Vol: 112, 377-384.

Zathara M., Datta A., Boonkorkaew P. (2017). The effects of different media, sucrose concentrations and natural additives on plantlet growth of Phalaenopsis hybrid. Journal of Brazilian Archives of Biology and Technology. Vol: 60.

Malick S., Shivakoti G., Datta A. (2017). Value chain analysis of bitter gourd (Momordica charantia L.) seed in Bangladesh. International Journal of Value Chain Management. Vol: 8.

Neilson B., Bruening c., Datta A. (2017). Design and field testing of a combined flaming and cultivation implement for effective weed control. Journal of Applied Engineering in Agriculture. Vol: 33.

Kuwornu John., Saqib S.E. (2017). Assessment of bargaining power, market risk, and coordination costs in the Thailand cassava marketing channel. International Journal of Value Chain Management. Vol: 8, 307-324.

Kuwornu John., Narh JNR., Alfred B. (2017). Willingness to pay for excreta pellet fertilizer: Empirical evidence from Ghana. Journal of Acta Agriculturae Slovenica. Vol: 109, 315-323.

Mallick S., Datta A., Kuwornu, John K. M. (2017). Vegetable seed marketing- An

overview of challenges and opportunities. International Journal of Vegetable Science. Vol: 24, 10-28.

Mensah-Bonsu, Akwasi., Sarpong, D B., Kuwornu, John K. M. (2017). Intensity of and factors affecting land and water management practices among smallholder maize farmers in Ghana. African Journal of Agricultural and Resource Economics. Vol: 12, 142- 157.

Promme P., Kuwornu, John K. M., Soni P. (2017). Factors influencing rubber marketing by smallholder farmers in Thailand. Journal of Development in Practice. Vol: 27, 865-879.

Saqib S.E., Kuwornu, John K. M. (2017). Assessment of the factors influencing smallholder farmers access to credit in the flood-prone region of Pakistan. Kasetsart Journal of Social Sciences. Vol: 0.

Adu D.T., Kuwornu, John K. M. (2017). Application of Livelihood Vulnerability Index in Assessing Smallholder Maize Farming Householdstake Vulnerability to Climate Change in Brong-Ahafo Region of Ghana. Kasetsart Journal of Social Sciences. Vol: 0.

Kuwornu, John K. M., Apiors E.K. (2017). Access and Intensity of Mechanisation: Empirical Evidence of Rice Farmers in Southern Ghana. Brazilian Archives of Biology and Technology. Vol: 60, 1-18.

Malick S., Shivakoti G.P., Kuwornu, John K. M. (2017). Value chain analysis of bitter gourd (Momordica charantia L.) seed marketing system in Bangladesh. International Journal of Value Chain Management. Vol: 8, 151- 170.

Porgo M., Kuwornu, John K. M. (2017). Credit constraints and labour allocation decisions in rural Burkina Faso. Agricultural Finance Review. Vol: 77, 239-256.

Sathapatyanon J., Kuwornu, John K. M. (2017). The role of farmer organizations and networks in the rice supply chain in Thailand. Journal of Agribusiness in Developing and Emerging Economies. Vol: 0.

Kuwornu, John K. M., Saqib S E. (2017). Bargaining power, market risk, and coordination costs in the Thailand cassava starch marketing channel: A three stage principal-agent model and application. International Journal of Value Chain Management. Vol: 0.

Kuwornu, John K. M., Saqib S E., Ali U. (2017). Price risk management using forward contracts: the case of farmers in Pakistan. International Journal of Value Chain Management. Vol: 0.

Samseemoung G., Soni P. (2017). Development of a Variable Rate Chemical Sprayer for Monitoring Diseases and Pests Infestation in Coconut Plantations. Journal of Argiculture. Vol: 7, 1-13.

Samseemoung G., Srikul C., Soni P. (2017). Monitoring and Precision Spraying for Orchid Plantation with Wireless WebCAMs. Journal of Agriculture. Vol: 7, 1-14.

Papers in Conference Proceedings

Koysungnoen A., Datta A., Pomprom T. (2017). Efficacy of herbicides for weed control and their residues in sweet corn. 19th to 22 september 2017 Kyoto, Japan. The 26th Asian-PacificWeed Science Society Conference.

Ferdous Z., Datta A., Anwar M. (2017). The role of homestead gardening in improving household food security and monga mitigation in the cha. 20 – 22 March 2017 Stuttgart, Germany. 3rd International Congress Hidden Hunger Post-2015 Agenda and Sustainable Development Goals (SDG)

Datta A., Ullah H. (2017). The effects of cultivation methods and water regimes on root systems of one drought-tolerant (RD6). 21 to 25 Feb 2017 Hyderabad, India. International Conference on Drought (InterDrought-V).

Ferdous Z., Datta A. (2017). Effect of plastic mulch on yield and yield attributes of cauliflower and tomato in inland and coastal. 21 -25 Feb 2017 Hyderabad, India. International Conference on Drought (InterDrought-V).

Gautuam A., Datta A. (2017). Effect of silicon on growth and yield of rice under water stress. 10 – 12 Jan 2017 Kathmandu, Nepal. International Conference on Biodiversity, Climate Change Assessment and Impacts in Livelihood.

6. Doctoral Students' Dissertation

Determinants of the Type of Product to Sell and Marketing Channel Choice among Smallholder Rubber Farmers in Thailand
By: Ms. Paratta Promme
Superisor: Dr. John K.M. Kuwornu

Revolving Fund and Land Title Deed Redemption in the Context of Smallholder Livelihood Assets in Thailand
By: Ms. Ravivan Suwansin

Superisor: Dr. John K.M. Kuwornu

Policy Effectiveness: Effective Governance and Management of Community Irrigation and Community Enterprises in Thailand
By: Ms. Saowalak Kosanlawit
Supervisor: Prof. Ganesh P. Shivakoti

The Export Potential of Thai Vegetables to the ASEAN Market
By: Ms. Pheesphan Laosutsan
Supervisor: Prof. Ganesh P. Shivakoti

7. Masters Students' Theses and Research Studies

Effects of Herbs-Probiotic Based Supplement in Dairy Cattle on Organic Livestock Production
By: Mr. Abiral Pant
Supervisor: Dr. Anil Kumar Anal

Analysis of Consumers' Intention and Behavior Towards Organic Food Products in Chiang Mai Province, Thailand
By: Ms. Chanankan Khanthong
Supervisor: Dr. Anil Kumar

Assessing Relationship Quality and Brand Loyalty of Consumers through Beverage Brand Page on 'Facebook'
By: Ms. Jitinun Rompoh
Supervisor: Dr. Peeyush Soni

An Analysis of Consumer's Intention and Perception towards Functional Foods and Nutraceulicals in Bangkok Province, Thailand
By: Ms. Sarisa Sangratana
Supervisor: Dr. Anil Kumar

An Assessment of the Factors Affecting the Decision of Tourists to Buy Food Souvenirs: A Case Studyof Sai Yok Noi Waterfall, Kanchanaburi
By: Mr. Panus Danpitakkul
Supervisor: Dr. Avishek Datta

Sources of Agricultural Information for Women Vegetable Farmers: A Case of Three Districts of Herat, Afghanistan
By: Ms. Sonia Ghafoori
Supervisor: Dr. Peeyush Soni

An Analysis of Factors Influencing Marketing Channel Choice by Hom Mali Rice Farmers in Roi Et Province, Northeastern Thailand
By: Ms. Duangrat Choosakoo
Supervisor: Dr. Peeyush Soni

Evaluation and Analysis of Marketing Information for Vegetable Farmers in Central Region of Nepal
By: Ms. Sagun Sharma Pandit
Supervisor: Dr. Anil Kumar Anal

Intention to Purchase Herbal Toothpaste among Dental Patients in Bangkok, Thailand
By: Mr. Saran Khumrat
Supervisor: Dr. Peeyush Soni

Consumers' Behavior Towards E-Commerce of Agribusiness Products
By: Ms. Eka Yuliana Rahmawati
Supervisor: Dr. Peeyush Soni

4.1.2 : SERD – AGRICULTURAL SYSTEMS AND ENGINEERING FIELD OF STUDY

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 Professio-nal 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)*

Visiting, Adjunct Faculty/Affiliated Faculty

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. Publications

Papers in Refereed Journal

Samseemoung G., Soni P. (2017). Development of a Variable Rate Chemical Sprayer for Monitoring Diseases and Pests Infestation in Coconut Plantations, Journal Agriculture. Vol: 7, 1-13.

Sathapatyanon. j., John K.M., Soni P. (2017). The role of farmer organizations and networks in the rice supply chain in Thailand, Journal of Agribusiness in Developing and Emerging Economies. Vol: 0.

Kosanlawit S., Soni P. (2017). The Relationship between Effective and Equitable Water Allocation, Local Rice Farmer Participation and Economic Well-Being: Insights from Thailand's Chiang Mai Province. Journal of Water. Vol: 9, 1-17.

Pokhrel A., Soni P. (2017). Performance Analysis of Different Rice-base Cropping Systems in Tropical Region of Nepal. Journal of Environmental Mangement. Vol: 197, 70-79.

Widjaja Putra., Soni P. (2017). Evaluating NIR-Red and NIR-Red edge external filters with digital cameras for assessing vegetation indices under different illumination. Journal of Infrared Physics and Technology. Vol: 81, 148-156.

Promme P., John K.M., Soni P. (2017). Factors Influencing Rubber Marketing by Smallholder Farmers in Thailand, Journal of Developement in practice. Vol: 27, 865-879.

Book Chapters

Soni P., Salokhe V. (2017). Strategic Analysis of Urban/Peri-urban Agriculture in Asia.
Publish: Springer.
ISBN : 978-4-431-56443-0.
DOI:
10.1007/978-4-431-56445-4_7

5. Grants and Sponsored Research Completed in 2017

Project Planning and Implementation
Duration: 16-May 2016–15-May 2017
Project Investigator(s): Dr Peeyush Soni
Sponsor: Bangladesh Agricultural Institute
Total Contracted Amount (THB): 374,500.00

Capacity building on technology development for efficient use of resources in agricultural sector in Thailand
Duration: 15-Sep 2016–15-Sep 2017
Project Investigator(s): Dr Peeyush Soni
Sponsor: SDCC CTCN PCA
Total Contracted Amount (THB): 1,715,000.00

6. On-going Grants and Sponsored Research

Nitrogen-use-efficiencies under precision agriculture management
Duration: 4 Oct. 2017 - 31 Dec. 2018
Project Investigator(s): Dr Peeyush Soni
Sponsor: SABIC Global Technologies B.V., the Netherlands
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
Sponsor: 'Bangladesh Agricultural Research InstituteTotal Contracted 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
Sponsor: SABIC Global Technologies BV, The Netherlands
Total Contracted Amount (THB): 1,176,500

7. Doctoral Students' Dissertation

Socio-Economic Analysis of Vegetable Seed Production Using Drying Beads Technology in Bangladesh
By: Ms. Soma Mallick
Supervisor: Dr. Avishek Datta

Agricultural Policies that Induce Less Erosive Land Uses in Upper-Catchment: A Case Study of Indonesia
By: Ms. Idah Andriyani
Supervisor: Dr. Damien Jourdain

Development and Performance Evaluation of a Cassava Harvester Suitable for Thai Farms
By: Mr. Sahapat Chalachai
Supervisor: Dr. Peeyush Soni

Development of Strategy for Sustainable Peatlands Agriculture in Central Kalimantan, Indonesia
By: Mr. Arif Surahman
Supervisor: Prof. Ganesh P. Shivakoti

Effectiveness of Selective Innovative Agricultural Technologies in the Productivity, Profitability and Efficiency of Vegetable Farming in the Inland and Coastal Regions of Bangladesh
By: Mr. Md. Zannatul Ferdous
Supervisor: Dr. Avishek Datta

Performances of Rice-Based Cropping Systems and Practices in Nepal: Energy, Environment and Economic Analyses
By: Mr. Anil Pokhrel
Supervisor: Dr. Peeyush Soni

Development of a Non-Destructive Ground-Based Nitrogen Sensing System for Coffee Plantation
By: Mr. Bayu Taruna Widjaja Putra
Supervisor: Dr. Peeyush Soni

8. Masters Students' Theses

Effect of Soil Mixing with Silicon on Growth, Yield Components and Yield of Maize Under Drought Stress
By: Mr. Abdul Rahman Zahir
Supervisor: Dr. Avishek Datta

Impact of Integrated Nutrient Management on Growth and Yield of Rice under Different Water-Saving Cultivation Systems
By: Mr. Noor Ahmad Samim
Supervisor: Dr. Avishek Datta

The Effect of Alternate Wetting and Drying on Growth and Yield of Rice under Different Water-Saving Cultivation Systems
By: Mr. Abdul Hamid Mohammadi
Supervisor: Dr. Avishek Datta

Impact of Seed Priming with Silicon on Growth and Yield of Maize Under Water Stress
By: Mr. Mohammad Rafiq Jahid
Supervisor: Dr. Avishek Datta

Effect of Silicon Application Methods on Growth and Yield of Maize under Water Stress
By: Mr. Mohammad Salim Ghafoori
Supervisor: Dr. Avishek Datta

Effects of Potassium Rates on Growth and Yield of Rice under Different Cultivation Methods
By: Mr. Abdul Zahir Rahimi
Supervisor: Dr. Avishek Datta

Farmers' Perception and Assessment of Soil Fertility in Rice Growing Areas in Nakhon Ratchasima Province, Thailand
By: Ms. Phantipa Plangklang
Supervisor: Dr. Avishek Datta

A Panoramic Analysis of Agricultural Mechanization in the Asia Pacific: Energy and DEA Metafrontier Approach
By: Ms. Prerna Priya
Supervisor: Dr. Peeyush Soni

A Study of Rain Water Harvesting Structures' Potential in Rajasthan, India
By: Mr. Krishna Kumar Soni
Supervisor: Dr. Peeyush Soni

Effect of Nitrogen and Water Treatments in Maize on Water-Use and Nitrogen-Use-Efficiencies and Their Estimation Using Direct Leaf Imaging and Canopy Sensors
By: Ms. Aishwarya Gautam
Supervisor: Dr. Peeyush Soni

Effect of Water and Nitrogen Application on Growth of Maize and Yield Estimation Using Photosynthetically Active Rediation
By: Mr. Vipin Kumar
Supervisor: Dr. Peeyush Soni

Climate Change and Its Impact on Food and Nutrition Insecurity: A Case of the Northwest Region of Bangladesh
By: Mr. Debashis Roy
Supervisor: Dr. Avishek Datta

Determining the Effects of Light and Nutrients on Growth, Yield and Energy Consumption of Lettuce using Ground-Based Remote Sensing in NFT Hydroponics
By: Ms. Nia Kurniaty Chaeril
Supervisor: Dr. Peeyush Soni

4.1.3 : SERD – AQUACULTURE AND AQUATIC RESOURCES MANAGEMENT FIELD OF STUDY

1. Introduction

AARM promotes research and development through aquaculture and small-scale capture fisheries. The Field of Study has a wide spectrum of activities enabling it to address poverty, constraints facing the promotion of sustainable management and utilization of aquatic resources. The central theme is capacity building: the advancement of individuals and institutions creating indigenous capacity in education, research and development within the region.

2. Research Facilities and Laboratories

Aquaculture Laboratory serves the academic and research programs of aquaculture and aquatic resources management (AARM) field of study. It is equipped with modern equipment to analyze water quality, nutrients in food and feedstuffs, and soil classification and their problems identification. Some of its major laboratory equipment includes a Distillation Unit; Extraction Unit; Incubator; UV/Vis Spectrophotometer; Soxtec, Fibertec and Kjeltec system, microscope with camera, etc. The field facilities include a hatchery, outdoor tanks and earthen ponds for field research.

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), ArcView 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 Research Staff

Emeritus Professor
PETER EDWARDS, BSc, University of Liverpool, UK; PhD, University of Texas, USA.

(General aquaculture with emphasis on recycling organic wastes (human, animal, agro-industrial); small-scale aquaculture; integrated farming; aquaculture for poverty alleviation; and systems approaches to education, research and development; curriculum development; project formulation, management and evaluation.

Full-time Faculty

AMARARATNE YAKUPITIYAGE, BSc, Univ of Kelaniya, Sri Lanka; MSc, AIT, Thailand; PhD, Univ of Stirling, Scotland.

Associate Professor *(Aquaculture, Bioenergetics, Fish Nutrition, Statistics, Database Systems Development)*

WENRESTI GLINO GALLARDO, BSc, Master of Aquaculture, University of the Philippines; MSc, PhD, Nagasaki University, Japan;

Associate Professor *(Aquaculture - Seed Production and Grow-out, Fisheries Management, Integrated Coastal Management)*

LIONEL DABBADIE, MSc, Montpellier SupAgro (France), DSc (PhD), University of Paris 6, France;

Cirad Visiting Faculty (*Pond dynamics, Quality and Food Safety, Systemic*

Approach, Research for Development Knowledge Management)

Research Staff and Affiliated Faculty

RAM C. BHUJEL, BSc, Institute of Agriculture and Animal Sciences, IAAS, Chitwan, Nepal; MSc and PhD, AIT, Thailand;

Senior Research Scientist and Affiliated Faculty *(Biostatistics and Research Design, Curriculum Development, Women in Aquaculture, Broodstock Nutrition/Management and Fry Production, Technology Transfer/ Extension)*

4. Grants and Sponsored Research Completed in 2017

Giant Prawn 2017
Duration: 09- Feb -2017 to 31-Dec-2017
Project Investigator: Dr. K. R. Salin
Sponsors: International delegates
Total Contracted Amount
(THB): 1,080,000.00

Evaluation of growth performance and immunity of white shrimp against common pathogens
Duration: May -2017 to Dec-2017
Project Investigator: Dr. K. R. Salin
Sponsors: Kemin Industries (South Asia)
Total Contracted Amount
(THB): 1,282,500.00

Biomin feed supplement testing:
Duration: 01-Mar-2015 to 31- Dec-2017
Project Investigator: Dr. Ram C. Bhujel
Sponsor: Biomin Holding, Austria.
Total Contracted Amount
(THB): 632,000.00

Testing of Aqua feed supplements
Duration: 01-Dec-2016–30-Nov-2017
Project Investigator(s): Dr Ram Bhujel
Sponsor: Biomin Holdings, Austria
Total Contracted Amount
(THB): 1,113,000.00

Tilapia Training
Duration: 01-Dec-2015 to 30- Nov-2017
Project Investigator: Dr. Ram C. Bhujel
Sponsor: Multi Donors
Total Contracted Amount
(THB): 3,165,400.00

Waking up a sleeping giant: An assessment of the technical capacity of aquaculture business in East Africa
Duration: 01-Nov-2016 to 31- Dec-2017
Project Investigator: Dr K.R. Salin
Sponsor: Gats by Africa
Total Contracted Amount
(THB): 1,300,000.00

Smart Aquaculture Systems for Thailand: Partnering with VerifiK8
Duration: 01-Oct-2016 to 31- Dec-2017
Project Investigator: Dr K.R. Salin
Sponsor: Fairagora Asia Thailand
Total Contracted Amount
(THB): 180,000.00

Reports on Drinking Water services and Technologies in Asian Countries Phase II
Duration: 01-Apr-2016 to 30- Sep-2017
Project Investigator: Prof C Visvanathan
Sponsor: Japan Water Research Center
Total Contracted Amount
(THB): 280,000.00

AARM Lab Testing Services for the Aquaculture Industry
Duration: 01-Feb-2016 to 31- Dec-2017
Project Investigator: Prof C Visvanathan
Sponsor: Japan Water Research Center
Total Contracted Amount
(THB): 195,186.00

5. On-going Grants and Sponsored Research

ERASMUS+,GeoServices-4-Sustainability (GeoS4S) (2015-2018)
Duration: Oct 2015 – Dec 2018
Project Co-Investigator: Dr. K.R. Salin
Sponsor: European Commission
Total Contracted Amount
(THB): 2,730,000.00

Sustainable Asian Aquaculture Technology Series
Duration: Feb 2017 - 31 Dec 18
Project Investigator: Dr K.R. Salin
Sponsor: International delegates
Total Contracted Amount
(THB): 1,350,000.00

Sustainable Aquaculture Technology Development for East Africa
Duration: November 2017 - December 18
Project Investigator: Dr K.R. Salin
Sponsor: Sustainable Aquaculture Technology Development for East Africa
Total Contracted Amount
(THB): 615,808.00

Integrated Multitrophic Aquaculture 9IMTA) as a sustainable farming system for Asia
Duration: 1-December-2017 to 31-December-18
Project Investigator: Dr K.R. Salin
Sponsor: International delegates
Total Contracted Amount
(THB): 720,000.00

6. Publications

Books and Monographs

Salin K.R. (2017). Giant Prawns: Emerging possibilities for Sustainability. Book of Abstracts of GIANT PRAWN 2017. Asian Institute of Technology. Bangkok, Thailand.

Book Chapters

Salin K.R, Gabriel A. A. (2017). Aquaculture and the environment: towards sustainability. In Visvanathan, C., Boopathy, R., and Hai, F. Sustainable Aquaculture. Publisher: Springer (In press).

Gabriel A. A., Manoj T. K., Salin K.R. (2017). Food Industry by-products as protein replacement in Aquaculture diets of Tilapia and Catfish. In Anil K. Anal. Food Additivies. Publisher: John and Wiley Sons Ltd. (In press).

Salin K.R, Arun V.V, Nair C.M, James H Tidwell. (2017). Freedom from fish meal and fish oil: Hw far are we from a vegetarian fish. In Visvanathan, C., Boopathy, R., and Hai, F. Sustainable Aquaculture. Publisher: Springer (In press).

Papers in Refereed Journal

Arun V., Babita R., Saharan N., Salin K.R.

(2017). Multi-response optimization of Artemia hatching process using split-split-plot design-based response surface methodology, Scientific Reports. Vol: 7. DOI: 10.1038/srep40394.

4.3.7 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

4.3.8 Masters Students' Theses and Research Studies

Stock Assessment of Spotted Golden Goatfish (Parupeneus heptacanthus (Lacepede, 1802)) along the Andaman Sea Coast of Thailand
By: Mr. Sichon Hoimuk
Supervisor: Dr. Amararatne Yakupitiyage

Effect of Dietary Supplementation of Live Baker's Yeast (Saccharomyces cerevisiae) on Growth, Survival Rate and some Blood Parameters of Maroon Clown Fish (Premnas biaculeatus)
By: Ms. Nanthawan Santisathitkul
Supervisor: Dr. K. R. Salin

A Possible Additional Site of Penaeus Monodon Densovirus (PmDNV) Infection in the Gonads: An Evidence of Vertical Transmission of the Virus
By: Ms. Sudini Ranshaya Fernando
Supervisor: Dr. K. R. Salin

Comparative Evaluation of Biofloc and Aquamimicry Systems: Energy Fluxes Affecting Biocolloids, Sludge and Growth of Fish
By: Ms. Wanutsanan Pantachai
Supervisor: Dr. K. R. Salin

Comparative Study of Zooplankton Dynamics and Gut Contents of Tilapia Fingerlings in Biofloc and Aquamimicry Systems
By: Ms. Natthida Thammakirati
Supervisor: Dr. Ram C. Bhujel

Comparative Evaluation of Biofloc and Aquamimicry Systems Applied for Tilapia (Oreochromis niloticus) Nursery Rearing Phase: Bacterial Population Dynamics
By: Mr. Nguyen Minh Thuat
Supervisor: Dr. K. R. Salin

Comparative Evaluation of Biofloc and Aquamimicry System: Energy Fluxes Affecting Water Quality, Microbial Activity and Growth of Fish
By: Mr. Inamul Hassan Abdul Lathief
Supervisor: Dr. K. R. Salin

Comparative Evaluation of Biofloc and Aquamimicry Systems: Evaluation of Phytoplankton Dynamics and Gut Content of Fish
By: Ms. Rasita Srikeudkruen
Supervisor: Dr. K. R. Salin

Comparative Assessment of Mangrove and Non-Mangrove-Based Shrimp Farming Systems in Ayeyarwaddy Delta, Myanmar
By: Mr. Kyaw Moe Oo
Supervisor: Dr. K. R. Salin

4.1.4: SERD – FOOD ENGINEERING AND BIOPROCESS TECHNOLOGY FIELD OF STUDY

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
Assistant Professor (Food Engineering & Bioprocess Technology Field of Study *(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)*

Associate Deanfor Research & Outreach, School of Environment, Resources & Development

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, JaavpurUniv, India; MTech, PhD, Indian Inst of Tech, India

Professor *(Biochemical Engineering and Biotechnology; Biopolymers and LipidBiotechnology; 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 Completed in 2017

Internet of Thing (IoT) based Intelligent Quality Traceability and Control Technologies for Aquatic Products Supply Chain. (TICA)
Duration: 1 Nov 2015 – 31 Dec 2017
Project Investigators: Prof. Athapol Noomhorm
Sponsor: Thailand Internatioal Development Cooperation Agency (TICA)
Total Contracted Amount (THB): 138,500.00

Global Science, Technology and Innovation (G-STIC) Series Conference
Duration: 1 Jun 2017-28 Feb 2017
Project Investigators Dr Anil K. Anal
Sponsor: 'Vlaamse Instelling Voor Technologisch Onderzoek (VITO), Belgium
Total Contracted Amount (THB): 380,000

4. On-going Grants and Sponsored Research

ASIFOODS: University as Key Partners for the New Challenges Regarding Food Safety and Food Quality in South East Asian Institute of Technology
Duration: Oct 2015-Sep 2018
Project Investigators Dr Anil Kumar Anal
Sponsor: European Union
Total Contracted Amount (THB): 4,000,000.00

5. Publications

Book Chapters

Ahmad I., Nguyen, L.T. (2017). Water-Glass Transition Temperature Profile During Spray Drying of Sugar-Rich Foods. Ahmed, J., Rahman, M.S., Roos, Y.H. Glass Transition and Phase Transitions in Food and Biological Materials. Publisher: John Wiley & Sons Ltd.

Papers in Refereed Journal

Khanal, Bal Kumari., Sadiq, B., Singh, Manisha., Anal, Anil K. (2017). Screening of antibiotic residues in fresh milk of Kathmandu Valley, Nepal. Journal of Environmental Science and Health.

Sadiq, B., Tharaporn,P., Tarniq,J., Anal, Anil K. (2017). In vitro antioxidant and antimalarial activities of leaves, pods and bark extracts of Acacia nilotica (L.) Del. BMC Complimentary Medicine. Vol: 17

Nyo, M.K., Nguyen, L.T. (2017.) Value-Addition of Defatted Peanut Cake by Proteolysis: Effects of Proteases and Degree of Hydrolysis on Functional Properties and Antioxidant Capacity of Peptides. Journal of Waste and Biomass Valorization. Vol: 0, 1-9.

Nguyen Cong Ha., Devkota L., Nguyen, L.T. (2017). Enzymatic hydrolysis of catfish (Pangasius hypophthalmus) by-product: Kinetic analysis of key process parameters and characteristics of the hydrolysates obtained. Journal of Aquatic Food Product Technology. Vol: 26, 1070-1082.

Tien, B.Q., Ngoc, N.T., Nguyen, L.T. (2017). Biochip for Real-Time Monitoring ofHepatitis B Virus (HBV) by Combined Loop-Mediated Isothermal Amplification and Solution-Phase Electrochemical Detection. Journal of Electronic Materials. Vol: 46, 3565-3571.

Ratanapoompinyo, J., Nguyen, L.T. (2017). The effects of selected metal ions on the stability of red cabbage anthocyanins and total phenolic compounds subjected to encapsulation process. Journal of Food Processing and Preservation. Vol: 41.

Amarasiri, C., Nguyen, T.B., Nguyen, L.T. (2017). Electrochemical Immunosensor Based on Fe3O4/PANI/AuNP Detecting Interface for Carcinoembryonic Antigen Biomarker. Journal of Electronic Materials. Vol: 46: 5755-5763.

Luong, N.S., Ngo, V.D., Nguyen, L.T. (2017). Highly Visible Light Activity of Nitrogen Doped TiO2 Prepared by Solar Gel Approach. Journal of Electronic Materials. Vol: 46, 158-166.

Jaon, Surangna., Anal, Anil K. (2017). Production and characterization of functional properties of protein hydrolysates from egg shell membranes by lactic acid bacteria fermentation. Journal of Food Science and Technology. Vol: 54, 1062-1072.

Sadiq, B., Cho,TA., Tarniq,J., Anal, Anil K. (2017). Antibacterial activities and possible modes of action of Acacia nilotica (L.) Del. Against multidrug-resistant Escherichia coli and Salmonella. Molecules. Vol: 22

6. Doctoral Students' Dissertation

Prediction of Khao Dok Mali 105 Rice Milling Quality Attributes Using Near Infrared Spectroscopy
By: Ms. Wanvisa Srikham
Supervisor: Dr. Loc Thai Nguyen

7. Masters Students' Theses and Research Studies

Extraction of Crystalline Nanocellulose from Banana Pseudostem and its Utilization in Developing Bio-Nanocomposite Film
By: Ms. Pratiksha Shrestha
Supervisor: Dr. Anil Kumar Anal

Development of an Electrochemical Device Capable of Loop Mediated Isothermal Amplification (LAMP) for Detection of Hepatitis B
By: Mr. Nileththi Yasendra Jayanath
Supervisor: Dr. Loc Thai Nguyen

Resistant Starch-Soy Protein Isolate Conjugate Based Bionanoencapsultion System to Enhance Stability of Astaxanthin Oleoresins from Haematococcus pluvialis Enriched in Microalgae Oil
By: Ms. Smriti Shrestha
Supervisor: Dr. Anil Kumar Anal

Rice Bran Oil-based Emulsion for Substitution of Whipping Cream in Dairy-based Ice Cream and Its Feasibility Analysis to Reduce Saturated Fat
By: Ms. Piraya Lueprasitsakul
Supervisor: Dr. Anil Kumar Anal

Optimization of Ultrasonic Assisted Extraction (UAE) of Bioactive from Napier Grass (Pennisetum purpureum) and Evaluation of their Bioactivity, Antimutagenicity and Cytotoxicity
By: Ms. Konkanok Thaisungnoen
Supervisor: Dr. Anil Kumar Anal

Effects of Osmotic Pre-Treatment and Vacuum Frying Conditions on the Quality of Pumpkin Chips
By: Ms. Pattaraporn Piyalungka
Supervisor: Dr. Loc Thai Nguyen

Development of an Automatic Electrochemical Flow System for High Throughput Determination of Total Antioxidant Capacity of Biological Materials
By: Ms. Kornautchaya Veenuttranon
Supervisor: Dr. Loc Thai Nguyen

Utrasonic Assisted and Microwave Methods for Extraction of Bioactive from Pineapple Waste and Encapsulation of Bromelain
By: Ms. Kaavya Rathnakumar
Supervisor: Dr. Anil Kumar Anal

Investigating Synergistic Antimicrobial Effects of Selected Natural Photosensitizers and Blue Light Emitting Diode (LED) on the Surface of Food Materials
By: Mr. Fawzan Sigma Aurum
Supervisor: Dr. Loc Thai Nguyen

Optimization of Ultrasound Assisted Extraction (UAE) of Bioactive Compounds from Acacia nilotica and Lactobacillus plantarum and Evaluation of their Synergistic Bioactivity, Antimutagenicity and Cytotoxicity
By: Ms. Asha Kumari
Supervisor: Dr. Anil Kumar Anal

Improvement of Functional Properties of Protien Hydrolysate from Fish Waste by Protein-Carbohydrate Conjugation
By: Ms. Kamini Pandey
Supervisor: Dr. Loc Thai Nguyen

Optimization and Formulation of "Maseura" as Nutritionally Enriched Functional Food Product from Underutilized Crops Taro Tubers and Black Soybean
By: Ms. Anita Lamichhane
Supervisor: Dr. Anil Kumar Anal

4.2 : SERD – DEPARTMENTS 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 eco - nomically, 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 technolgies and management and address the burgeoning issue of climate change.
- To serve the society by creating and delivering new solutionoriented 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 chal - lenges once graduated. The students come from multiple Disciplines-Engineering, Science, Eco - nomics, 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 equipments 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 facilities include 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-m^2 outdoor research and demonstration facility 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-S/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, BE, Univ of Madras, India; MEng, AIT, Thailand; PhD, InstNatlPolytechnique, Toulouse,France.

Professor *[Renewable energy resources and technologies: Climate change and green house gas mitigation: energy and sustainable development]*

WEERAKORN ONGSAKUL, B. Eng, Chulalongkorn Univ, Thailand; MS, PhD, Texas A&M Univ, USA.

Associate Professor and Dean, School of Environment, Resources and Development *(Artificial Intelligence Applications to Power Systems; Parallel Processing Applications; Power System Operation & Control; Power System Deregulation & Restructuring)*

ABDUL SALAM PAKKEERTHAMBY, BSc.Eng (Hons.) Unversity of Peradeniya, Sri Lanka; M.Eng., D.Eng., AIT

Assistant Professor *(Bioenergy, Renewable energy; Energy conservation and efficiency); climate change mitigation)*

JAI GOVIND SINGH, Ph.D. in Electrical Engineering, Indian Institute of Technology, Kanpur, India

Assistant 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, B.e., nit, Surat; M.E., AIT, P.HD. Tokyo.

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, Ms.c, 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)

Ms. Sireesha Bantu, *Research Associate, EBARA & PM-EBM*

Ms. Pujan Shrestha, *Research Associate UPEA III Project*

4. Grants and Sponsored Research Completed in 2017

Foundations for climate resilient and

sustainable growing settlements (U-Res)
Duration: 1 Mar. 2017 - 30 Aug. 2017
Project Investigators: Dr. Sobhakar dhakal
Sponsor: Natural Environment Research Council - NERC, Tyndall CenterTotal Contracted Amount
(THB): 443,020

Global Science Technology and Innovation Conference series
Duration: 1 May 2017- 31 Dec. 2017
Project Investigators: Dr. Sobhakar dhakal
Sponsor: Vlaamse Instelling Voor Technologisch Onderzoek (VITO), Belgium
Contracted Amount
(THB): 383,400

Energy Publications Project
Duration: 01-01-2013 to 31-12-2017
Project Investigators: Dr. P. Abdul Salam, Prof. S. Kumar, Dr. Weerakorn Ongsakul, Dr. Jai Govind Singh, Dr. Charles O.P. Marpaung and Dr. Shobhakar Dhakal
Sponsor: AIT
Total Contracted Amount
(THB): 4,185,824

Energy Publications Project
Duration: 1-Jan-2013 to 31-Dec-2017
Investigator: Dr. P. Abdul Salam, Prof. S. Kumar, Dr. Weerakorn Ongsakul, Dr. Jai Govind Singh, Dr. Charles O.P. Marpaung and Dr. Shobhakar Dhakal
Sponsor: AIT
Total contracted amount:
(THB) 4,185,824.00

Technology needs assessment in Asia for climate change mitigation and adaptation Phase II Workshop
Duration: Jan 2015-Mar 2017
Project Investigators: Prof. S. Kumar, Dr. A. Salam and Prof. R.P. Shrestha
Sponsor: UNEP DTU Partnership, Denmark
Total Contracted Amount
(THB): 1,462,000.00

CTCN Technical Assistance Response plan for Nepal
Duration: 01-Nov-2016 to 30-Apr-2017
Project Investigators: Dr P. Salam, Dr Shobhakar Dhakal
Sponsor: CTCN UNEP/UNIDO
Total Contracted Amount
(THB): 207,000.00

ICUE 2016 Cogeneration Small Power Plants and District Energy International Conference
Duration: 01-Feb-2016 to 30-Jun-2017
Project Investigators: Dr P Abdul Salam, Dr Shobhakar Dhakal, Dr Weerakorn Ongsakul, Prof S. Kumar, Dr Jai Govind Singh
Sponsor: Multi Donors
Total Contracted Amount
(THB):1,670,000.00

5. On-going Grants and Sponsored Research

Technology Needs Assessment (Phase II) for Asia and CIS Region - Technical
Duration: 8 Jan. 2015 – 28 Feb. 2018
Investigator: Prof. S. Kumar, Prof. R. Shrestha and Dr. P. A. Salam
Sponsor: UNEP-DTU Partnership, Denmark
Total contracted amount:
(THB) 2,514,000.00

Technology Needs Assessment (Phase II) for Asia and CIS Region - Missions
Duration: 8 Jan. 2015 – 28 Feb. 2018
Investigator: Prof. S. Kumar, Prof. R. Shrestha and Dr. P. A. Salam
Sponsor: UNEP-DTU Partnership, Denmark
Total contracted amount:
(THB) 320,000.00

Technology Needs Assessment (Phase II) for Asia and CIS Region - Workshop
Duration: 8 Jan. 2015 – 28 Feb. 2018
Investigator: Prof. S. Kumar, Prof. R. Shrestha and Dr. P. A. Salam
Sponsor: UNEP-DTU Partnership, Denmark
Total contracted amount:
(THB) 1,744,000.00

Technology needs assessments (phase 2)-travel
Duration: 08-01-2015 to 28-02-2018
Project Investigators: Prof S kumar, Dr P Abdul Salam, Dr Rajendra shrestha
Sponsor: UNEP-DTU-Partnership, Denmark
Total Contracted Amount
(THB): 320,000

PEA - AIT Scholarship Program
Duration: 15-Feb-2016 to 14-Feb-2020
Project Investigators: Dr Weerakorn Ongsakul
Sponsor: Provincial Electricity Authority (PEA)
Total Contracted Amount
(THB):20,212,000.00

Solar Powered Plugged in Hybrid Electric Vehicle
Duration: 31 Aug. 2017 - 31 Dec. 2018
Project Investigator: Dr. Weerakorn Ongsakul
Sponsor: GMS Power PCL.
Total Contracted Amount
(THB): 1,000,000

Bangchak Initiative and Innovation Center at AIT
Duration: 25 Jul. 2017 - 24 Jul. 2022
Project Investigators: Dr. Weerakorn Ongsakul, Prof. Rajendra P. Shrestha, Dr. Jai G. Singh, Dr. P. Abdul Salama, Dr. Anil K. Anal, Dr. Thammarat Koottatep
Sponsor: Bangchak PCL.
Total Contracted Amount
(THB): 50,000,000

ICUE 2018-Green Energy for Sustainable Development International Conference
Duration: 1 Oct. 2017 - 31 Mar. 2019
Project Investigators: Dr. Jai Govind Singh, Dr. Shobhakar Dhakal, Dr. Weerakorn Ongsakul, Dr. P. Abdul Salama, Prof. S. Kumar
Sponsor: Registration revenues/ sponsorships/grants
Total Contracted Amount
(THB): 1,909,090

Solar Energy Sotorage in Nonomaterial Enhanced Batteries
Duration: 31 Aug. 2017 - 31 Dec. 2018
Project Investigators: Dr. Louis Hornyak, Dr. Weerakorn Ongsakul
Sponsor: White Group PCL.
Total Contracted Amount
(THB): 1,000,000

Energy Publications Project 2018

Duration: 1 Jan. 2018 - 31 Dec. 2020
Project Investigators: Dr. Weerakorn Ongsakul, Dr. Jai Govind Singh, Dr. Shobhakar Dhakal, Dr. P. Abdul Salama, Prof. S. Kumar
Sponsor: 'Annual Membership fees, Journal Subscription fees, etc.
Total Contracted Amount (THB): 1,914,400

6. Publications

Articles in Refereed International Journals

Khan Suan, Joseph Dal., Datta, Avishek., Abdul Salam, P. (2017). Effect of oil palm fly ash on soil properties and yield of sweet corn in the tropical zone of Thailand. Communications in Soil Science and Plant Analysis. Vol: 48, 236-244.

Rahaman, Sheikh Aminur., Abdul Salam, P. (2017). Characterization of cold densified rice straw briquettes and the potential use of sawdust as binder. Fuel Processing Technology. Vol: 158, 9-19.

Deepanraj, B., Srinivas, M., Arun, N., Sankaranarayanan, G., Abdul Salam, P. (2017). Comparison of Jatropha and Karanja biofuels on their combustion characteristics. International Journal of Green Energy. Vol: 14, 1231-1237.

Charoenkit S., Kumar S. (2017). A low carbon and disaster resilient assessment tool for self-help housing (LoDAT-SH). Journal of Mitigation and Adaptation Strategies for Global Change. Vol: 22, 695- 729.

Dhakal S. (2017). CO2 emission data for Chinese cities. Journal of Resources, Conservation and Recycling. Vol: 126, 198-208.

Chen Q., Cai B., Dhakal S. (2017). CO2 emission data for Chinese cities. Journal of Resources, Conservation and Recycling. Vol: 126, 198-208.

Gamonwet P., Dhakal S., Thammasiri K. (2017). The impact of renewable energy pricing incentive policies in Thailand. GMSARN International Journal. Vol: 11, 51-60.

Kunvitaya A., Dhakal S. (2017). Household energy requirements in two medium-sized Thai cities with different population densities. Environment and Urbanization. Vol: 29, 267-282.

Ngoc P., Singh J.C. (2017). Short Circuit Current Level Reduction in Power System by Optimal Placement of Fault Current Limiter. International Journal on Electrical Energy Systems. Vol: @7.

Ongsakul W., Singh J.C., Man-Im A. (2017). Multi-objective Economic Dispatch Considering Wind Power Penetration Using Stochastic Weight Trade-off Chaotic NSPSO. Journal of Electric Power Component and Systems.Vol: 45, 1525-1542.

Books and Monographs

Abdul Salam, P., Shrestha sangam., pandey, Vishnu prasad., Anal, anil. (2017). Water-Energy-Food Nexus: Principles and Practices. Wiley and American Geophysical Union.
ISBN: 978-1-119-24313-7.

Dhakal S., Ruth M. (2017). Creating Low Carbon Cities. London, U.K.
Publish: Springer.
ISBN 978-3-319-49729-7 ISBN 978-3-319-49730-3 (eBook) DOI 10.1007/978-3-319-49730-3 Library of Congress Control Number:2017930816
https://link.springer.com/book/10.1007%2F978-3-319-49730-3#about
--> 5500 times downloaded book

Book Chapters

Abdul Salam, P., Shrestha sangam., pandey, Vishnu prasad., Anal, anil. (2017). The Need for the Nexus Approach. Water-Energy-Food Nexus: Principles and Practices. Wiley and American Geophysical Union.

Dhakal S., Shrsetha A. (2017). Water-Energy-Carbon Nexus in Cities, Creating Low Carbon Cities. Publish: Springer International Publishing.

Kumar S., Anisuzzman Md., Das P. (2017). Estimating the Low-Carbon Technology Deployment Costs and INDC Targets. Globalization of Low-Carbon Technologies the Impact of the Paris Agreement.
Publisher: Springer 335-366

Papers in Conference Proceedings

Intharathirat, Rotchana., Abdul salam, P. (2017). Analytical hierarchy process-based decision making for sustainable MSW management systems in small systems. 7th International Conference on Solid Waste Management. Hyderabad, India. 15-17 December 2017.

Chaweewat P., Singh J.C.(2017). Effects of high penetration of solar rooftop PV on short-term electricity pricing forecasting. 6-7 Sept 2017, 1st International Conference on Large-Scale Grid Integration of Renewable Energy in India.

Worapipat, Boonyawee., Abdul salam, P. (2017). Assessment of energy consumption and GHG emissions of van fleet: case study of Plykeaw tour company, 12th GMSARN International Conference on Energy Connectivity, Environment and Development in GMS. Danang, Vietnam 28-30 November 2017.

Abdul Salam, P., Rahaman, Sheikh Aminur. (2017). Renewable Energy Systems for Sustainable Development of Rural Asia, International Forum on Education for Rural Transformation. AIT, Thailand. 13-15 November 2017.

Rathnayake, T., Saeteaw, N., Abdul Salam, P., Visvanathan, C. (2017). Characterization of food waste of Bangkok, Thailand as feedstock for mesophilic, wet anaerobic digestion, International Conference on the "Challenges in Environmental Science and Engineering" (CESE-2017). Kunming, China, 11-15 November 2017.

Abdul Salam, P., Visvanathan, C., Rahaman, Sheikh Aminur, Srinivas, R A., Radu, T. (2017). Food Waste based Anaerobic Digestion with Centralized Monitoring System, 7th International Symposium on Energy. Manchester, England. 13-17 August.

Joshi, P., Saeteaw, N., Abdul Salam, P., Visvanathan, C. (2017). Development of a CSTR System for Mesophilic Wet Anaerobic Digestion of Food Waste in Thailand, the 5th International Symposium onEnvironmental Analytical Chemistry (ISEAC 5 - Asia). Ho Chi Minh City, Viet Nam 16-20 May.

Kumar S. (2017). Energy Access: Solar technology applications using energy plus approach for the bottom of the pyra. 19-21 Jan 2017 Coimbatore, India. International Conference on Intelligent and Efficient Electrical Systems.

Kumar S. (2017). Off-grid sustainable rural electrification in the developing Greater Mekong sub-region. 23-25 September 2017 Kunming, P R China. 2nd International Conference on New Energy and Future Energy System (NEFES 2017)

Kumar S., Das P. (2017). Towards sustainable energy development in the ASEAN. 19-20 Oct 2017 Nay Pyi Taw, Myanmar. ASEAN Science Technology and Innovation Conference

7. 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

8. Masters Students' Theses and Research Studies

Short-Run Electricity Generation Scheduling Considering Different Fossil and Rewable Supply Constraints
By: Mr. Pawarong Thepparat
Supervisor: Dr. Jai Govind Singh

Modeling and Placement of an Electric Spring in a Distribution System
By: Mr. Mrutyunjaya Nanda
Supervisor: Dr. Jai Govind Singh

Dew Point Evaporative Cooling System
By: Mr. Phyo Kyaw
Supervisor: Prof. Sivanappan Kumar

Probabilistic and Combinatorial Approaches for Power Loss Minimization in Distribution Systems
By: Mr. Sk. Md. Golam Mostafa
Supervisor: Dr. Jai Govind Singh

A Techno-Economic Feasibility Study of a Microgrid on the Coastal Area of Bangladesh: St. Martin's Island
By: Mr. Hasan Masrur
Supervisor: Prof. Weerakorn Ongsakul

The Cost of Electricity Not Served: An Analysis for the industrial Sector in Nepal
By: Ms. Shreeya Rana
Supervisor: Dr. Shobhakar Dhakal

Sustainable Energy Assessment: A Case of Rural Mon State, Myanmar
By: Mr. La Pyae
Supervisor: Prof. Sivanappan Kumar

Microalgae Based Biodiesel Production Using Coal Thermal Flue Gas and Wastewater in West Bengal: A Techno-Financial Analysis
By: Mr. Sitav Bhadra
Supervisor: Dr. P. Abdul Salam

An Approach to Enhance the Life of Transformer and the Battery of Gridable Vehicles in Active Distribution Systems
By: Ms. Menaka Karki
Supervisor: Dr. Jai Govind Singh

Life Cycle Analysis of a Residential Building: The Habitech Center
By: Mr. Amnaya Paudel
Supervisor; Prof. Sivanappan Kumar

A Study on the Geothermal Energy Utilization in Thailand
By: Mr. Piriya Paokorkeatikul
Supervisor: Prof. Sivanappan Kumar

Socio-economic Impacts of Solar Home System in Rural Myanmar

By: Mr. Wai Yan Aung
Supervisor: Dr. Shobhakar Dhakal

Wind Speed Forecasting Using Deep Learning Algorithm
By: Mr. Danupol Wetchasirikul
Supervisor: Dr. Weerakorn Ongsakul

Community Scale Food Waste-based Anaerobic Digester with Centralized Monitoring System
By: Mr. Ravipati Aditya Srinivas
Supervisor: Dr. P. Abdul Salam

CO2 Capture and Storage in Saline Aquifiers in Andhra Pradesh, India
By: Mr. Ganji Manoj Kumar
Supervisor: Dr. P. Abdul Salam

Barriers and Opportunities in Cross-border Electricity Trading for Nepal: A SWOT-AHP Analysis
By: Mr. Pratik Karki
Supervisor: Dr. Shobhakar Dhakal

Optimal Day-Ahead Generation Scheduling with Independent Slack Bus Loss Sensitivity in Vietnam's Wholesale Electricity Market
By: Mr. Nguyen Huy Phuoc
Supervisor: Prof. Weerakorn Ongsakul

Active Power Loss Reduction and Voltage Profile Enhancement in a Radial Distribution System
By: Mr. Soeun Sophanith
Supervisor: Prof. Weerakorn Ongsakul

Biodiesel Production from Jatropha in Kakinada, India
By: Mr. Gatti Chaitanya Mourya
Supervisor: Dr. P. Abdul Salam

Assessment of Agricultural Residues and Electricity Generation Potential of Rice Husk in Andhra Pradesh, India
By: Mr. Atmakuri Hari Hara Venkata Viswanath
Supervisor: Dr. P. Abdul Salam

Optional Scheduling of Customers' Demand by using Availability of Power and its Price in Smart Grid
By: Mr. Srikanth Reddy Mukkamalla
Supervisor: Dr. Jai Govind Singh

Status and Potential of Biogas from Selected Waste Sources in Andhra Pradesh, India
By: Mr. Naga Srikanth Midde
Supervisor: Dr. P. Abdul Salam

Hybrid Electricity Generation Systems: A Case Study of Mandaipalle Village, Telangana, India
By: Ms. Raagalipi Kattunga
Supervisor: Dr. P. Abdul Salam

A Study on the Performance of the Air Conditioning System at the Asian Institute of Technology
By: Mr. Chiranjeevi Chalamalasetty
Supervisor: Prof. Sivanappan Kumar

Coconut Residues to Energy and Value-Added Materials in Andhra Pradesh, India
By: Mr. Nedunuri Venkata Rajesh
Supervisor: Dr. P. Abdul Salam

4.2.2 : SERD – ENVIRONMENTAL ENGINEERING AND MANAGEMENT FIELD OF STUDY

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; Micros-cope; 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, 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, PhD, 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, Heriott 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 instrumenttation 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)

JIRAPA DATHONG, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

JIRARUT PHUANGNUI, 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

Secretary (Provide administrative support to faculty, staff and students through conducting and organizing administrative duties and activities)

MUNU PRADHAN, MBA

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 Specialist (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 KLUBBARNKOH, BSc

Senior Technician (Chemistry and environmental analysis for environmental samples as well as prepare for chemical and glassware for laboratory courses and research projects)

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 opera ting 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 opera ting 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)

SOMCHAI AREMSUM-ANG, BSc

Research Assistant (Wastewater and soil analysis, field survey and data collection, testing and other laboratory sessions)

SOMPOKE KINGKAEW, MSc

Research Associate (Manages research projects, prepares technical reports and presentations)

SUCHITRA PIEMPINSEST, BEd

Senior Administrative Officer (Overall strategy, planning, coordination and management of academic activities and overall administration of the program)

SUMETH WONGKIEW, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

SUPAPORN PIROMSRI, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

SUPUSANEE DULYAKASEM, MEng

Research Associate (Manages research projects, prepares technical reports and presentations)

SURADANAI AUNGSORNTUNG, BEng

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

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)

UNCHANA SUKJAROEN, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

VAIDEHI A. DEOSTHALI, MBA

Research Associate (Manages research projects, prepares technical reports and presentations)

WARAPHORN KHAJORNFUNG, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

WITCHUDA TASSANASUWAN, BSc

Research Assistant (Laboratory operating and sample analysis, prepares technical reports and presentations, collaborating with research partners)

4. Grants and Sponsored Research Completed in 2017

Test the efficacy of electrochemical (EC) control system
Duration: 1 Apr. 2017 - 30 Nov. 2017
Project Investigator: Dr. Thammarat Koottatep
Sponsor: Research Triangle Institute (RTI)
Total Contracted Amount (THB): 1,654,000

Exposure visit FSM in Thailand
Duration: 24 Oct. 2017 - 30 Nov. 2017
Project Investigator: Dr. Thammarat Koottatep

Sponsor East Meets Wst Foundation
Total Contracted Amount
(THB): 139,179

The National Centre of Competence in Research (NCCR) North-South
Duration: 2002 to 30-Jun-17
Project Investigator: Dr. Thammarat Koottatep
Sponsor: NCCR North-South Center for Development and Environment, Switzerland
Total Contracted Amount
(THB): 40,817,025.79

Reports on Drinking Water services and Technologies in Asian Countries Phase II
Duration: 01-Apr-2016 to 30-Sep-2017
Project Investigators: Prof C Visvanathan
Sponser: Japan Water Research Center
Total Contracted Amount
(THB): 280,000.00

A Study on Urban Air Pollution Improvement in Asia
Duration: 31-Mar-15 to 31-Mar-17
Project Investigator(s): Prof. Nguyen Thi Kim Oanh
Sponsor: Japan International Cooperation Agency (JICA)
Total Contracted Amount
(THB): 3,044,338.16

Development of water treatment equipment for high rate sedimentation filtration system suitable for Thailand water quality characterestics
Duration: 01-06-2015 to 31-05-2017
Project Investigators: Prof C Visvanathan
Sponser: Noxkorea co, Korea
Total Contracted Amount
(THB): 990,000.00

5. On-going Grants and Sponsored Research

Innovative Toilet City
Duration: 01-Sep-2016 to 28-Feb-2019
Project Investigators: Dr Thammarat Koottatep
Sponser: TRF
Total Contracted Amount
(THB): 5,044,150.00

Towards an open resource upon resources cloud computing on environmenttal data TORUS
Duration: 15-Oct-2015 to 14-Oct-2018
Project Investigators: Prof Nguyen Thi Kim Oanh
Sponser: EU Erasmus Capacity Building
Total Contracted Amount
(THB): 1,814,296.00

Community scale, decentralised Anaerobic Digestion for energy and resource recovery
Duration: 01-May-2016 to 31-Oct-2018
Project Investigators: Prof C Visvanathan, Dr P Abdul Salam
Sponser: The British Council
Total Contracted Amount
(THB): 12,430,000.00

Reports on drinking water services and technologies in Asian countries - Phase III
Duration: 01-05-2017 to 31-05-2018
Project Investigators: Prof C Visvanathan
Sponsor: 'Japan Water Research Center (JWRC)
Total Contracted Amount
(THB): 179,000

AIT - BORDA Collaboration, Regenerative Sanitation Hub
Duration: 1 Jan. 2017 - 30 Dec. 2019
Project Investigators: Dr. Thammarat Koottatep
Sponsor: Bremen Overseas Research Association
Total Contracted Amount
(THB): 5,550,000

Develop a comprehensive background paper on "Water quality and security in Asia-Pacific -What 3R and circular economy can offer?" and Substantive input to Eighth Regional 3R Forum in Asia and the Pacific.
Duration: 1 Aug 2017-31 Jul 2018
Project Investigators: Prof C Visvanathan
Sponser: United Nations
Total Contracted Amount
(THB): 465,000

Development of a Thermophilic Anaerobic Membrane Bioreactor by Using PTFE Membrane for Wastewater Treatment and Biogas Production
Duration: 1 Oct. 2017 - 30 Sep. 2018
Project Investigators: Prof C Visvanathan
Sponser: Sumitomo Electric Industries, Ltd. Japan
Total Contracted Amount
(THB): 225,000

Evaluating the Performance of Mitsubishi Membrane Aerated Biofilm Reactor (MABR) Lab Scale Membrane Modules
Duration: 1 Jun. 2017 - 31 May 2018
Project Investigators: Prof C Visvanathan
Sponser: Mitsubishi Chemical Aqua Solutions Co. Ltd.
Total Contracted Amount
(THB): 148,185

Biogeochemical changes and adaptation mechanisms in response to anthropogenic impacts in watersheds: A comparative study between Jiu long River (China) and Chao Phraya River (Thailand)
Duration: 13 Jun. 2017-12 Jun.2018
Project Investigator: Dr. Thammarat Koottatep
Sponsor: National Research Council of Thailand (NRCT)
Total Contracted Amount
(THB): 1,454,000

Knowledge and InnovationsSupport for ADB's Water Financing Program
Duration: 17 Jul. 2017 - 29 Jun. 2018
Project Investigator: Dr. Thammarat Koottatep
Sponsor: Asian Development Bank (ADB)
Total Contracted Amount
(THB): 2,038,634

Standard Methods for the Analysis of Faecal Sludge
Duration:
Project Investigator: Dr. Thammarat Koottatep
Sponsor: University of KwaZulu-Natal (UKZN) - BMGF Grant
Total Contracted Amount
(THB): 1,400,000

Establishment of Fecal Sludge Management Twinning Program
Duration: 7 Sep. 2017 - 31 Dec. 2018

Project Investigator: Dr. Thammarat Koottatep
Sponsor: Bill and Melinda Gates Foundation
Total Contracted Amount (THB): 29,957,970.61

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
Sponsor: Bill and Melinda Gates Foundation
Total Contracted Amount (THB): 51,283,398.95

6. Publications

Papers in Refereed Journal

Mukhtar, H. Lin, Yu-Pin., Shipin, O. V. (2017). Modeling Nitrogen Dynamics in a Waste Stabilization Pond System Using Flexible Modeling Environment with MCMC. Modeling Nitrogen Dynamics in a Waste Stabilization Pond System Using Flexible Modeling Environment with MCMC. Vol: 14, 765-776.

Heydarifard S., Nazhad M., Shipin O. (2017). Water-resistant cellulosic filter containing non-leaching antimicrobial starch for water purification and disinfection. Journal of Carbohydrate Polymers. Vol: 163, 146-152.

Visvanathan C., Li L. (2017). Performance evaluation of attached growth membrane bioreactor for treating polluted surface water. Journal of Bioresource Technology. Vol: 240, 3-8.

My Dinh L., Jacob P., Visvanathan C. (2017). Direct contact and sweeping gas membrane distillation for process intensification: A comparative study. Journal of Desalination and Water Treatment. Vol: 89, 53-64.

Visvanathan C., Li L. (2017). Effect of PVA-gel filling ratio in attached growth membrane bioreactor for treating polluted surface water. Journal of Environmental technology. Vol: 0, 1-19.

Papers in Conference Proceedings

Shipin O. (2017). Low Carbon strategy and Climate Finance in the African equatorial region. Environmental Policy, Strategy and Management in Equatorial Regions. Takua Pa, S. Thailand 19-24 March 2017. Publisher: MoNRE Thailand, Government of Sweden.

Visvanathan C. (2017). Combining advanced oxidation processes in attached growth membrane bioreactor for treating polluted, 16-20 May 2017. The 5th International Symposium on Environmental Analytical Chemistry (ISEAC 5 -Asia), Ho Chi Minh City.

Visvanathan C. (2017). Academic Curriculum on Holistic Waste Management. 17-19 Oct 2017 Osaka, Japan. Global Dialogue on Technology for Resilient Cities.

Visvanathan C., Li L. (2017). Performance Study of UV-O3/aMBR on Treating Polluted Surface Water. 5-9 Sep 2017 Singapore. 8th IWA Membran Technology Conference & Exhibition for Water and Wastewater Treatment and Reuse.

Shipin, Oleg. (2017). Climate technology priorities and Plans for implementation of Nationally Determined Contributions, 16-17 2017. Sub-Regional Conference on mainstreaming Technology in Climate Action Plans, Uncc Bangkok.

Shipin, Oleg. (2017). Low Carbon strategy and Climate Finance in the African equatorial region. 19-24 March, Environmental Policy, Strategy and Management in Equatorial Regions, S Thailand.

Shipin, Oleg. (2017). Strategic governance and environmental surveillance as international Climate Change response. 5-14 june Observation and Monitoring: Developing world and Climate Change, Phillipines.

Shipin, Oleg. (2017). Community-based monitoring of ecological health of Lower Songkhram River Basin, N.E. Thailand, 25-27 october Greater Mekong Forum on Water, Food and Energy, Myannmar.

7. Doctoral Students' Dissertation

Eco-Industrial Development Indicators for Assessing an Eco-Industrial Estate in Thailand
By: Ms. Somchint Pilouk
Supervisor: Dr. Thammarat Koottatep

Production of Refuse Derived Fuel and Its Effectiveness: A Case Study of India
By: Mr. Varun Gonemadatala
Supervisor: Prof. Ajit P. Annachhatre

Anaerobic Co-digestion of Cassava Pulp and Pig Manure
By: Ms. Naraporn Glanpracha
Supervisor: Prof. Ajit P. Annachhatre

Assessing Impact of Surface Ozone Exposure on Major Crops Production in Southern Vietnam and Mitigation Strategies
By: Mr. Ngo Thanh Danh
Supervisor: Prof. Nguyen Thi Kim Oanh

Development of a Membrane Bioreactor for Polluted Surface Water Treatment
By: Ms. Li Lu
Supervisor: Prof. Chettiyappan Visvanathan.

8. Masters Students' Theses

Production of Refuse Derived Fuel and Its Effectiveness: A Case Study of India By: Mr. Varun Gonemadatala
Supervisor: Prof. Ajit P. Annachhatre.

Sustainability of Household Water Treatment Methods for Arsenic Removal in Developing Countries
By: Mr. Abdul Wahed Ahmadi
Supervisor: Prof. Ajit P. Annachhatre

Integrating the UV/O3 Process Attached Growth Membrane Bioreactors to Treat Polluted Surface Water
By: Ms. Thanwarat Chan
Supervisor: Prof. Chettiyappan Visvanathan

Improvement of Methods for Dissolving Pulp and Nanofiber Production from Bamboo Biomass with regards to Environmental Friendliness
By: Ms. Shubhuti Kiran Ghimire
Supervisor: Dr. Oleg Shipin

Identifying the Water Footprint Reduction Opportunities in a Canned Pineapple Factory
By: Ms. Parichaya Sangworakan
Supervisor: Prof. Chettiyappan Visvanathan

Development of Fibrous and Non- Fibrous Micro-Nanostructured Superhydrophobic Surfaces Using ZnO Nanoparticles for Anti-Biofouling Applications in Marine Environments
By: Ms. Astha Upadhyay
Supervisor: Dr. Oleg Shipin

Nutrient Recovery from Process Water of Hydrothermal Carbonization Process By: Ms. Sama Suwal
Supervisor: Dr. Thammarat Koottatep

Monitoring and Source Apportionment of Particulate Matter Pollution in Bangkok Metropolitan Region by Receptor Modeling
By: Ms. Uaeaungkool Mahawong Supervisor: Prof. Nguyen Thi Kim Oanh

Improving Biogas Production from Spirulina platensis by Using Fungal Pre- treatment and Co-Digestion with Cassava Pulp
By: Ms. Rattanasri Khajeefa Supervisor: Prof. Ajit P. Annachhatre

Evaluation of Low-Cost Air Quality Sensors for Monitoring Biomass Burning-Induced Air Pollution
By: Ms. Sathita Fakprapai
Supervisor: Prof. Nguyen Thi Kim Oanh

An Assessment of Exposure to Biomass Burning Smoke for School Children in Chiangrai Province, Thailand
By: Ms. Sararat Nontachai
Supervisor: Prof. Nguyen Thi Kim Oanh

E. Coli Inactivation by Using Streptomycin Producing Organisms
By: Mr. Thanarat Theppharak
Supervisor: Dr. Thammarat Koottatep

Hybrid Constructed Wetlands for Phosphorus Removal and Purification of Eutrophic Pond Water
By: Mr. Sakkarin Meephon
Supervisor: Dr. Thammarat Koottatep

Evaluation of the Hydrochar Pellet Produced from the Hydrothermal Carbonization Treating Fecal Sludge
By: Ms. Suttinee Jairuang
Supervisor: Dr. Thammarat Koottatep

Analyzing Particulate Matter Air Quality in Bangkok Metropolitan Region Using a 3-Dimensional Modeling Tool
By: Ms. Pornsiri Rucksunchart
Supervisor: Prof. Nguyen Thi Kim Oanh

High Solid Anaerobic Digestion of Food Waste
By: Ms. Yarinee Jumpusri
Supervisor: Prof. Chettiyappan Visvanathan

Assessmet of Emissions and Treatment Cost of Different Control Technologies for VOCs Released from Petroleum Refinery Activities: A Case Study
By: Ms. Nattaphan Suksri
Supervisor: Prof. Nguyen Thi Kim Oanh

Assessment of Dry and Wet Deposition of Acidic Compounds in the Bangkok Metropolitan Region and the Potential Impacts on the Terrestial Ecosystem in Pathumthani Province
By: Ms. Metta Mettasitthikorn
Supervisor: Prof. Nguyen Thi Kim Oanh

Strengthening the Water Treatment System in the Paisadao Water Treatment Plant, Ratchaburi, Thailand by Incorporating a High-Rate Sedimentation Filtration System and a Water Safety Plan
By: Mr. Kiangdan Sripanya
Supervisor: Prof. Chettiyappan Visvanathan

Environmental Sustainability of Aerated Lagoons Treatment Processes for Community Wastewater
By: Ms. Lai Lai Win
Supervisor: Prof. Ajit P. Annachhatre

Zinc (II) Removal Through Adsorption Using Activated Carbon Produced from Agricultural Residue
By: Ms. Kittiya Tamrongterakul
Supervisor: Prof. Ajit P. Annachhatre

The Carbon Footprint of Golf Courses: A Case Study of AIT
By: Ms. Batsuren Sundui
Supervisor: Prof. Ajit P. Annachhatre

Development of a Novel Multi-soil Layering Based Constructed Wetland Treating Solar Septic Tank Effluent
By: Ms. Prattana Suksiri
Supervisor: Dr. Thammarat Koottatep

Assessment of Factors Influencing the Performance of Electrochemical Disinfection in Treating Liquid Effluent from On-site Sanitation Systems
By: Mr. Sitichok Tepin
Supervisor: Dr. Thammarat Koottatep

Biosorption of Arsenic (III) from Aqueous Solutions by Blue-Green Algae Spirulina sp.
By: Ms. Kannikar Khamsot
Supervisor: Prof. Ajit P. Annachhatre

An Assessment of Emission from Vehicle Fleets in the Bangkok Metropolitan Region under Various Scenarios
By: Ms. Rungtiwa Buadee
Supervisor: Prof. Nguyen Thi Kim Oanh

The Development of Emission Inventory for Major Anthropogenic Source Categories in Greater Yangon Area, Myanmar

By: Ms. Khine Mar Kyaw
Supervisor: Prof. Nguyen Thi Kim Oanh

An Evaluation of Pre-concentration Technologies for Domestic Sewage to Enhance the Performance of Anaerobic Digestion
By: Mr. Thusitha Dilruwan Wijewardhana Rathnayake
Supervisor: Prof. Chettiyappan Visvanathan

Analyzing the Opportunities and Barriers of Circular Economy in the Rice Milling Industry of Myanmar
By: Ms. June Khaing Wint Tun
Supervisor: Prof. Chettiyappan Visvanathan

A Study on the Environmental Impacts of Online Shopping and Consumer Behavior
By: Ms. Kunyarat Chueamuangphan
Supervisor: Prof. Chettiyappan Visvanathan

Sustainability of Constructed Wetlands in the Treatment of Domestic Wastewater
By: Ms. Judith Kiende Mugambi
Supervisor: Prof. Ajit P. Annachhatre

Eco-Service Quantification of Ecologically Engineered Urban Wetlands on the AIT Campus, Thailand
By: Mr. Takyi Isaac
Supervisor: Dr. Oleg Shipin

Hybrid Constructed Wetland for Phosphorus Removal in Eutrophicated Pond Water
By: Mr. Ismail Baba Ahmed
Suoervisor: Dr. Thammarat Koottatep

Assessment of the Potential Health Effects of Biomass Burning Emission in Chiang Rai Province, Thailand
By: Ms. Jutamas Kunphan
Supervisor: Prof. Nguyen Thi Kim Oanh

Performance Assessment of Continuous-Feeding UV-LED Disinfection Process Treating Domestic Wastewater
By: Ms. Nguyen Thi Minh Hong
Supervisor: Dr. Thammarat Koottatep

Anaerobic Digestion of Press-Mud from the Sugar Industry
By: Mr. Wattanapong Sangchun
Supervisor: Prof. Ajit P. Annachhatre

Sustainable Food Waste Management in Thailand Using Anaerobic Digestion
By: Ms. Nanthiya Saeteaw
Supervisor: Prof. Chettiyappan Visvanathan

Anaerobic Digestion of Spirulina platensis Using Cassava Pulp as Co-Substrate
By: Ms. Suparat Jampathong
Supervisor: Prof. Ajit P. Annachhatre

4.2.3 : SERD – CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

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. 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

5. 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

4.2.4 : SERD – ENERGY BUSINESS MANAGEMENT

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 abilty 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 Masters's and Doctoral

Programs Candidates seeking admission should have at least a bachelor's 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's 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 Entrepre-neurship
• Strategic Supply Chain Management
• Innovation Marketing and New Product Development
• Management Information Systems
• Corporate Social Responsibility and Ethics
• Project Finance and Rick 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

5. Masters Students' Theses

CO2e Emissions: A Clustering Analysis and Benchmarking of Global Cities
By: Mr. Mohaimin Sadat Samanoden
Supervisor: Dr. Shobhakar Dhakal

Barriers and Opportunities for Off-grid Solar Home System in Afghanistan Based on Stakeholders Perception: A SWOT-AHP Analysis
By: Mr. Wahidullah Kharotai
Supervisor: Dr. Shobhakar Dhakal

Policy Effectiveness and Upscaling Challenges: The Case of Renewable Energy Subsidy Policy in Nepal
By: Mr. Raunak Thapa
Supervisor: Dr. Shobhakar Dhakal

Evaluation of the Benefits of a Solar Home System in Laos: A Case Study in Phoukoud District Xiengkhouang Province
By: Ms. Laphongngern Thepphavong
Supervisor: Dr. Shobhakar Dhakal

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, economical, and political, who are equipped with knowledge and attitudes that can contribute to problem solving in practice.

- To serve the society by producing analysis and grounded knowledge that would contribute to improved practices for sustainable development.

Academic Programs

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. Regional & Rural Development Planning
4. Urban Environmental Management
5. Disaster Preparedness, Mitigation and Management

4.3.1 : SERD – GENDER AND DEVELOPMENT STUDIES

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.

Associate 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, Institutd' Etudes Politiques de Paris, France.

Assistant Professor *(New Technologies, Industrialization and Gender HIV/AIDS; Gender Politics, Civil Society and Human Rights; Gender, Migration and Trafficking in Asia)*

Visiting Faculty

BERNADETTE RESURRECCION, BSc, Assumption College, Philippines; MA, PhD, Inst of Social Studies, the Hague, the Netherlands.

Associate Professor *(Gender, natural resource management and climate change, multi-local livelihoods and migration, discourses and practices of gender mainstreaming*)

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

Senor 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)*

Research Staff
JULAIKHA BENTE HOSSAIN

Research Specialist and **Affiliated Faculty**, *Rockefeller Foundation*

DR DONNA L. DOANE

Senior Researcher, *AusAid funded project on women's economic empowerment and social protection in the Greater Mekong Sub-region*

MANRAJ GREWAL

Managing Editor, *of Gender, Technology and Development*

RUTMANEE ONGSAKUL

Programme Coordinator, *Adapting to Climate change in Peri-Urban Southeast Asia*

JHOZINE DAMASO,

Program Officer, *Adapting to Climate change in Peri-Urban Southeast Asia*

CHALISARA SUPARAT

Research Associate *Training Workshop Ochanomizu*

Administrative Staff

Ms Agnes Pardilla, Program Officer

3. Grants and Sponsored Research Completed in 2017

Human Trafficking and Labor Exploitation's Policies
Duration: 1 Jul. 2017 - 30 Oct. 2017
Project Investigator(s): Prof Kyoko Kusakabe
Sponsor: Gruppo di volontariato Civile (GVC)
Total Contracted Amount (THB): 159,000

Study on the utilization of Geographical indication in Asia
Duration: 15-Oct-2016 to 15-Feb-2017
Project Investigator(s): Prof Kyoko Kusakabe
Sponsor: Food marketing research and Information Center
Total Contracted Amount (THB): 412,080.00

Gender and Development Capacity Building Research Publication & Networking Project (Phase II)
Duration: 01-Aug-2016 to 30-Jul-2017
Project Investigator(s): Dr Julaikha B Hossain
Sponsor: Development Design Consultants Ltd (DDCL)
Total Contracted Amount (THB): 1,044,300.00

4. On-going Grants and Sponsored Research

Organizing expert consultation workshop 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
Sponsor: FAO
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
Sponsor: The Research Council of Norway
Total Contracted Amount (THB): 7,118,648.00

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
Sponsor: International Development Research Center (IDRC)
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
Sponsor: PLAN International
Total Contracted Amount (THB): 933188

5. Publications

Book Chapters

Sthapit L., Doneys P. (2017). Roles and experiences of female Maoist combatants during and after the Peoples War in Nepal. Women, Peace and Security in Nepal. London, uk.
Publisher: Routledge.

Kusakabe, Kyoko. (2017). Street vending in Phnom Penh: Flourishing but invisible, Routledge Handbook of Contemporary Cambodia.
Publisher: Routledge.

Papers in Refereed Journal

Parajuli R., Doneys P. (2017). Exploring the role of telemedicine in improving access to healthcare services by women and girls in rural Nepal. Journal of Telematics and Informatics. Vol: 34, 1166- 1176.

Kusakabe K., Doneys P., Chatterjee J. (2017). Looking Forward, Looking Back: Gender, Technology and Development in a Changing World. Journal of Gender, Technology and Development. Vol: 21, 1-4.

Naz Farha., Doneys P., Saqib S.E. (2017). Adaptation strategies to floods: A gender-based analysis of the farmingdependent char community in the Padma floodplain. International Journal of Disaster Risk Reduction.Vol: 0.

Kusakabe K., Myae A.C. (2017). Precarity and vulnerability under expansion of rubber plantation in Northern Laos and Northern Shan State. Journal of Contemporary Asia. Vol: 0.

Buranajaroenkij D., Doneys P., Kusakabe K. (2017). Expansion of women's political participation through social movements: The case of red and yellow shirts in Thailand. Journal of Asian and African Studies. Vol: 0.

Kusakabe K., Doneys p., Chatterjee J. (2017). Looking forward, looking back: Gender, technology and development in a changing world. Journal of Gender, technology and development. Vol: 21, 1-4.

Gopal N., Williams M., Kusakabe K. (2017). Engendering security in fisheries and aquaculture, Journal of Asian Fisheries Science. Vol: 30, 1-30.

Papers in the Conference

Kusakabe Kyoko., Myae, Aye Chan. (2017). Precarious lives with economic land concessions: Gendered vulnerability under expansion of rubber. 27-28 Feb 2017 Singapore. Living in an age of precarity: Living lives in 21st century Asia.

Kusakabe Kyoko (2017). Women migrant workers in enclaves: Special Economic Zones in the Mekong Region. 16-17 Dec 2017 Bangkok. SEASIA Conference 2017.

6. Masters Students' Theses and Research Studies

Living Arrangement and Social Support among Elderly Women Herders in Mongolia: A Case Study in Naran Soum, Sukhbaatar Province, Mongolia
By: Ms. Otgonsumiya Badmaa
Supervisor: Dr. Kyoko Kusakabe

Impact of the Prohibition of Push Nets in Response to EU Regulations on a Small-scale Fishing Community in Samut Sakhon Province, Thailand: A Gender Analysis
By: Mr. Khamnuan Kheuntha
Supervisor: Dr. Kyoko Kusakabe

Law and Intimate Partner Violence in India: Implications for Transgender Individuals
By: Ms. Chitrakshi Vashisht
Supervisor: Dr. Joyee S. Chatterjee

Social Enterprise and Women's Empowerment: A Case from Bangladesh
By: Ms. Mahmuda Sultana
Supervisor: Dr. Kyoko Kusakabe

Changes in Patterns of Access and Use of Healthcare System in Delhi among Migrant Construction Workers and their Families Due to the Establishment of Mohalla Clinics
By: Ms. Shalini Francisca

Supervisor: Dr. Joyee S. Chatterjee

LGBT Discrimination and Employment: A Case Study of Ho Chi Minh City
By: Ms. Vu Ngoc Lan Anh
Supervisor: Dr. Philippe Doneys

A Gender Analysis of Cambodian Migrant Children's Access to Education in Mueang Rayong District, Rayong Province, Thailand
By: Ms. Tiwaporn Hemsakul

Supervisor: Dr. Philippe Doneys

4.3.2 : SERD – NATURAL RESOURCES MANAGEMENT FIELD OF STUDY

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, EcolePolytechnique 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 2017

REDD+Training Series 2017"Forest Carbon Accounting Protocols and Methods for Estimating Emission Reductions and Removals"
Duration: 1 Jun. 2017-31 Aug. 2017
Project Investigator: Dr Nophea Sasaki

Sponsor: Self-generated incomes from the trainees
Total Contracted Amount (THB): 350,000

4. On-going Grants and Sponsored Research

REDD+ Training Series
Duration: 23 Mar. 2018 - 31 Mar. 2018
Project Investigator: Dr Nophea Sasaki
Sponsor: Self-generated incomes from the trainees
Total Contracted Amount (THB): 660,000

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
Sponsor: Swedish Research Council, Lund University
Total Contracted Amount (THB): 4,955,518.36

5. Publications

Book Chapters

Partoyo., Rajendra P. (2017). Modeling Effect of Conservation and Livelihood Policies on Community Land Use and Management in Yogy. Redefining Diversity and Dynamics of Natural Resources Management in Asia.
Publish: Elsevier.
p.67-90.
http://dx.doi.org/10.1016/B978-0-12-805454-3.00005-0

Phuong T. T., Shrestha, R. P., Chuong, H. V. (2017). Simulation of soil erosion risk in upstream area of the Bo river watershed, Redefining Diversity and Dynamics of Natural Resources Management in Asia.
Publish: Elsevier.
Vol. III., p.87-99

Papers in Refereed Journal

Faysse, Nicolas. (2017). Finding common ground between theories of collective action: the potential of analyses at a meso-scale. International Journal of the Commons. Vol: 11, 928-949

Faysse, Nicolas., Rinaudo J K., Sellika I. (2017). Participatory scenario planning for sustainable irrigated agriculture when actors seldom communicate: an experiment in Morocco. International Journal of Water Resource Development. Vol: 1, 1-19

Faysse Nicolas., Ras I., Xiaodong R. (2017). A multi-stakeholder platform involving a mining company and neighbouring villages in China: Back to development issues. Journal of Resources Policy. Vol: 51, 243-250.

Faysse, Nicolas. (2017). Dwindling or Thriving? Making Sense of the Diversity of Agricultural and Rural Dynamics in Thailand. NIDA development journal. Vol:57, 1-14.

Qian Cheng, Nophea S. (2017). Local Livelihood under Different Governances of Tourism Development in China - A Case study of Huangshan Mountain Area. Journal of Tourism Managament. Vol: 61, 221-233.

Md. Shariful A.N., Nophea S. (2017). Waterlogging, crop damage and adaptation interventions in the coastal region of Bangladesh: A perception analysis of local people. Journal of Environmental Development. Vol: 23, 22-32.

Derick T Adu., John K., Nophea S. (2017). Application of livelihood vulnerability index in assessing smallholder maize farming households' vulnerability to climate change in Brong-Ahafo region of Ghana. Kasetsart Journal of Social Sciences. Vol: 0 (published in July 2017).

Chuchir R., Nophea S. (2017). Influencing Factors of the Adoption of Agricultural Irrigation Technologies and the Economic Returns: A Case Study in Chaiyaphum Province, Thailand. Journal of sustainability. Vol: 9.

Ghimire B. Raj., Nophea S. (2017). Mapping of Shorea robusta Forest Using Time Series MODIS Data. Journal of foreest. Vol: 8, 384.

Prathumc K., Nophea S. (2017). Forecasting Transplanted Rice Yield at the Farm Scale Using Moderate-Resolution Satellite Imagery and the AquaCrop Model: A Case Study of a Rice Seed Production Community in Thailand. ISPRS International Journal of Geo-Information. Vol: 7, 73.

Qasim P., Qasim M., Rajendra P. (2017). An assessment of flood vulnerability in Khyber Pukhtunkhwa Province of Pakistan. Journal of AIMS Environmental Science. Vol: 4, 206-216.

Shrestha S., Babel M. S., Rajendra P. (2017). Evaluation of spatio-temporal variation to the hydrologic responses of mountainous forested watersheds in Thailand. Journal of Environmental Earth Sciences. Vol: 76.
DOI 10.1007/s12665-017-6764-9.

Shrestha R. P., Chaweewan N., Arunyawat S (2017). Adaptation to climate change by rural ethnic communities of Northern Thailand. Journal of Climate. Vol: 5. doi:10.3390/cli5030057.

Sakayarote K., Shrestha R. P. (2017). Policy-driven rubber plantation and its

driving factors: A case of smallholders in Northeast Thailand. International Journal of Sustainable Development and World Ecology. Vol: 24, 15-26.

Papers in Conference Proceedings

Shrestha R. P., Shrestha S.., Jourdain D. (2017). Stream discharge response to climate change and land use change in Tamor basin, Nepal. International Conference on Mountain Hydrology and Meteorology for the Sustainable Development. Kathmandu, 10-11 April 2017.

Sakarayote K., Shrestha R. P. (2017). Effect of Land-Use Change on Smallholders Livelihood in North-eastern Thailand. The IGU Commission Conference Global Rural Development and Land Capacity Building. 26-29 August 2017, China.

6. Doctoral Students' Dissertation

Hydrologic Responses to Land Management and Villagers' Willingness to Pay for Improved Watershed Management in the Chi River Sub-basin, Northeast Thailand
By: Mr. Yutthaphong Kheereemangkla
Supervisor: Prof. Rajendra Prasad Shrestha

Comparative Analysis on the Effects of Different Institutional Arrangement on Rural-Tourism Development in China: Case Study in Huangshan Mountain Area
By: Ms. Qian Cheng
Supervisor: Dr. Nophea Sasaki

Effect of Land-Use Change on Smallholders' Livelihood and Food Security in Northeastern Thailand
By: Ms. Kanda Sakayarote
Supervisor: Prof. Rajendra Prasad Shrestha

Local Perceptions on Polder Governance, Waterlogging and Salinity in Southwestern Coastal Region of Bangladesh: Implications for Adaptation Strategies
By: Mr. Md. Shariful Alam
Supervisor: Dr. Nophea Sasaki

Traditional Knowledge and Technological Choices for Agricultural Water Management in Chi River Basin, Northeast Thailand
By: Ms. Ratchaneewan Chuchird
Supervisor: Dr. Nophea Sasaki

7. Masters Students' Theses and Research Studies

Assessment of Local Understanding of Provisioning Services from Agroforestry Practices: A Case Study in Borabue District of Maha Sarakham Province
By: Ms. Pronphan Pathase
Supervisor: Dr. Nophea Sasaki

Variation of Carbon Stock in Oak Forest: A Case Study of Panchase Conservation Area, Nepal
By: Ms. Asmita Poudel
Supervisor: Dr. Nophea Sasaki

Impact of the Park Moon Dam Construction on Land Use and Land Cover Change in Ubon Ratchathani Province, Thailand Using Remote Sensing and GIS Techniques
By: Ms. Adchara Chinsorn
Supervisor: Prof. Rajendra Prasad Shrestha

Management University Campus Forest for Climate Change Mitigation: A Case Study of the AIT Campus
By: Mr. Vasan Narang
Supervisor: Dr. Nophea Sasaki

Estimation of Carbon-Based Incentives for Early Action Measures in Thailand's Forest Sector
By: Ms. Kanjana Bunviboolvat
Supervisor: Dr. Nophea Sasaki

An Evaluation of Carbon-Based Financial Incentives in Community Forest Management: A Case Study of Ban Nong Mek Pattana Community Forest
By: Ms. Usa Cherdchoo
Supervisor: Dr. Nophea Sasaki

An Assessment of Carbon Stock and the Economic Potential of Mangrove in Samuth Songkram, Thailand Using Remote Sensing and GIS Techniques
By: Ms. Kamonporn Upakankaew
Supervisor: Prof. Rajendra Prasad Shrestha

Managing University Campus Land for Bioenergy Production: A Case Study of AIT Campus
By: Mr. Wu Szu-Kuang
Supervisor: Dr. Nophea Sasaki

An Assessment of the Constraints Faced by Small-Scale Farmers in Achieving Organic Certification and of the Benefits Obtained: A Case Study in Chiang Mai Province
By: Ms. Kassirin Phiboon
Supervisor: Dr. Nicolas Faysse

Economic Value of Recreational Services: A Case of Cat Tien National Park, Vietnam
By: Ms. Le Truong Ngoc Han
Supervisor: Dr. Damien Jourdain

The Impact of Sea Level Rise on Agricultural Land Use in Giao Thuy District, Nam Dinh Province, Vietnam
By: Mr. Nguyen Quang Huy
Supervisor: Prof. Rajendra Prasad Shrestha

Local Perceptions toward Soil Salinity in Northeast Thailand
By: Ms. Suwannee Sala
Supervisor: Prof. Rajendra Prasad Shrestha

Villagers' Assessment of the Impacts of Eucalyptus Plantations in the Mandalay Region of Myanmar
By: Ms. Yadanar Swam Htet Kyaw
Supervisor: Dr. Nicolas Faysse

4.3.3: 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 MORSHED 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), MSc, PhD, Utkal University; MRP, Indian Institute of Technology, Kharagpur, 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)

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. Grants and Sponsored Research Completed in 2017

Emerging Trends in Multidisciplinary Research - ETMR 2017
Duration: 1 Jul. 2017 - 1 Sep. 2017
Project Investigator: Dr. Mokbul Morshed Ahmad
Sponsor: KS Global Research, Malaysia
Total Contracted Amount (THB): 92,692

Climate Sensitive Irrigation Management
Duration: 1 feb 2017-31 july.2017
Project Investigators: Prof. J.K. Routray
Sponsor: UNDP Sri Lanka
Total Contracted Amount: (THB): 507061.6

4. On-going Grants and Sponsored Research

Individual Behaviour Climate Change and Sustainabil
Duration: 01-Mar-2016 to 28-Feb- 2018
Project Investigator: Dr. Mokbul

Morshed Ahmad
Sponsor: MOFAID France/RFCC Funding
Total Contracted Amount
(THB): 1,350,000.00

5. Publications

Papers in Refereed Journal

Morshed A. M. (2017). Factors affecting access to primary health care services in Pakistan: a gender-based analysis. Journal of Development in Practice. Vol: 27, 813- 827.

Morshed A. M. (2017). Influence of climatic and non-climatic factors on sustainable food security in India: a statistical investigation. Journal of Sustainable Agricultural Management and Informatics. Vol: 3, 1-30.

Morshed A. M. (2017). Using selected global health indicators to assess public health status of population displaced by natural and man-made disasters. International Journal of Disaster Risk Reduction. Vol: 22, 228-237.

Morshed A. M. (2017). Mapping displaced populations with reference to social vulnerabilities for post-disaster public health Management. Journal of Geospatial Health. Vol: 12, 325-334.

Morshed A. M. (2017). Vulnerability of Fishing Communities from Sea-Level Change: A Study of Laemsing District in Chanthaburi Province, Thailand. Journal of Sustainability. Vol: 9, 1-9.

6. Doctoral Students' Dissertation

Access to and Utilization of Primary Health Care Services in Balochistan Province of Pakistan: A Gender-based Analysis
By: Mr. Sanaullah Panezai
Supervisor: Dr. Mokbul Morshed Ahmad

Access to and Utilization of Agricultural Information by Rice Farmers in Thailand
By: Mr. Kijsart Onngernthayakorn
Supervisor: Dr. Soparth Pongquan

Flood Risk Assessment in Urban Areas of Pakistan
By: Mr. Irfan Ahmad Rana
Supervisor: Prof. Jayant Kumar Routray

Effects of Biofuel Crop Production on Farmers' Income and Food Security in Northeast Thailand
By: Ms. Narinpat Lakapunrat
Supervisor: Prof. Gopal Bahadur Thapa

7. Masters Students' Theses and Research Studies

Impacts of Hydropower Development: A Case Study on Nam Theun 2 Project on the Villages in Na Kai Plateau, Lao PDR
By: Mr. Phonedalom Bounkham
Supervisor: Dr. Mokbul Morshed Ahmad

Farmer's Adaptation Strategies to Drought: A Case Study in Nong Ya Sai District of Thailand
By: Mr. Farhad Hamidi
Supervisor: Prof. Jayant Kumar Routray

Development Planning for Slums: A Case Study of Abbottabad City of Pakistan
By: Ms. Shahran Khattak
Supervisor: Prof. Jayant Kumar Routray

Inequality in Access to Healthcare between the Rural and Urban Poor in Bangladesh
By: Mr. Md Fazlul Haque
Supervisor: Dr. Mokbul Morshed Ahmad

Impacts of the 2015 Eartquake on the Tourism Industry in Kathmandu Valley, Nepal
By: Ms. Akriti Maskay
Supervisor: Dr. Mokbul Morshed Ahmad

Factors Influencing Participation in Youth Development Activities in Rural Thailand: A Case Study of Trang Province
By: Ms. Pichthida Boonwichai
Supervisor: Prof. Jayant Kumar Routray

An Assessment of the Socio-economic Contribution of Microfinance in the Central Region of Myanmar
By: Ms. Poe Zar Chi Win
Supervisor: Dr. Mokbul Morshed Ahmad

4.3.4 : SERD – URBAN ENVIRONMENTAL MANAGEMENT FIELD OF STUDY

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
PhD, University of Pittsburgh, USA.

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)*

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)

BHARAT DAHIYA, PhD, University of Cambridge, UK.

(Cities and Climate Change)

Research Staff

Dr. RUTMANEE ONGSAKUL

Project Manager

Mr. CLAUDIUS CAEZAR GABINETE

Research Associate

Ms. JHOZINE DAMASO

Program Officer

Administrative Staff

Ms. JITRA LUCKANAPITAK, Senior Administrative Officer

4. Grants and Sponsor-ed Research Completed in 2017

Management of Sustainable Tourism: Development of Education Curriculum for Accommodation Management
Duration: 28 Feb - 31 Nov 17
Sponsor: SIIT/DASTA
Total Contracted Amount
(THB): 375,000

Dissemination of Research Results on sustainable Low carbon Tourism Development 2016
Duration: 31-Jan-2016 to 02-Feb- 2017
Project Investigator: Dr Vilas Nitivattananon
Sponsor: SIIT/DASTA
Total Contracted Amount
(THB): 300,000.00

Non-Degree Training Program on Community Based Slum Upgrading
Duration: 1 Sep. 2017 - 31 Oct. 2017
Project Investigator: Dr Vilas Nitivattananon
Sponsor: Gadjah Mada University, Indonesia
Total Contracted Amount
(THB): 375,000

Low Carbon tourism training Workshop
Duration: 25-Oct-2016 to 25-Jan- 2017
Project Investigator: Dr Vilas Nitivattananon
Sponsor: DASTA
Total Contracted Amount
(THB): 80,000.00

Training workshop on Low carbon tourism planning at local level
Duration: 25-Oct-2016 to 25-Jan- 2017
Project Investigator: Dr Vilas Nitivattananon
Sponsor: DASTA
Total Contracted Amount
(THB): 80,000.00

5. On-going Grants and Sponsored Research

Coastal Areas governance in the context of rapid tourism urbanization and climate change in the South East Asia
Duration: 01-May-2016 to 31-Dec- 2018
Project Investigator: Dr Vilas Nitivattananon
Sponsor: RFCC / MOFAID France
Total Contracted Amount
(THB): 1,350,000.00

Coastal areas governance in he context of rapid tourism urbanization and climate change in Southeast Asia
Duration: 01-May-2016 to 31-Dec- 2018
Project Investigator: Dr Vilas Nitivattananon
Sponsor: MOFAID France/RFCC Funding
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
Sponsor: Tetra Pak
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
Sponsor: National Research Council (NRCT)
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
Sponsor: National Research Council (NRCT)
Total Contracted Amount
(THB): 151,720

6. Publications

Papers in Refereed Journal

Sohee. M.K. (2017). Achieving a Sustainable Urban Form through Land Use Optimisation: Insights from Bekasi City Land-Use Plan. Journal of Sustainability. Vol: 9, 221-232.

Sohee. M.K. (2017). Stakeholder perceptions and governance challenges in urban protected area management: The case of the Las Pinas - Paranaque critical habitat and ecotourism area, Philippines. Journal of Land Use Policy. Vol: 63, 470-480.

Wai A.T.P., Vilas N. (2017). Multi-stakeholder and multi-benefit approaches for enhanced utilization of public open spaces in Mandalay city, Myanmar. Journal of Sustainable Cities and Society. Vol: 37, 323-335.

Yin M.N., Vilas N. (2017). Green roof retrofitting: assessment of the potential for academic campus. Engineering Journal. Vol: 21, 57-74.

Papers in Conference Proceedings

Sohee. M.K. (2017). Adaptation strategies for water security in peri-urban Kathmandu Valley, Nepal. 13 Oct 2017. International Congress of Asian Planning Schools Association, Beijing.

7. Doctoral Students' Dissertation

Mainstreaming the Circular Economy Concept for Sustainable Resource Management: The Case of Packaging Waste in Thailand
By: Ms. Siwaporn Tangwanichagapong
Supervisor: Dr. Vilas Nitivattananon (Chairperson)

Assessment of Energy and Urban Infrastructure Costs Associated with Different Typologies of Urban Form: A Case Study in Thailand
By: Mr. Arkarlat Kunvitaya
Supervisor: Dr. Shobhakar Dhakal

Stormwater Governance for the Peri-urban Area of Bangkok Metropolitan Region, Thailand
By: Ms. Sani Limthongsakul
Supervisor: Dr. Vilas Nitivattananon

8. Masters Students' Theses

Adaptation to Flood Risk Under Growth and Climate Change in Mandalay City, Myanmar
By: Ms. Thi Da Kyaw
Supervisor: Dr. Vilas Nitivattananon

Integrating the Informal Waste Sector into the Municipal Solid Waste Management System: An Analysis of Opportunities and Barriers of a Transfer Station in Bangkok, Thailand
By: Ms. Nguyen Thi Trang
Supervisor: Dr. Vilas Nitivattananon

Promoting Community Participation in Household Waste Management in Nonthaburi Municipality, Thailand
By: Mr. Petch Watcharajit
Supervisor: Dr. Sohee Minsun Kim

Tourism Governance in the Context of Coastal Urbanization and Climate Change on Koh Chang Island, Thailand
By: Ms. Sirinapha Srinonil
Supervisor: Dr. Vilas Nitivattananon

Sustainability Assessment of Urban Transportation Systems in Mandalay City, Myanmar
By: Ms. Su Htet Ko
Supervisor: Dr. Sohee Minsun Kim

Capacity Assessment of Eco-Labelling Implementation: The Case of the Vietnam Green Label Program
By: Ms. Truong Thi Ai Nhi
Supervisor: Dr. Vilas Nitivattananon

Urban Wetlands Protection and Management Policy: A Case Study of Luang Prabang City, Lao PDR
By: Mr. Daovanh Sirivong
Supervisor: Dr. Sohee Minsun Kim

Analysis of Residents' Satisfaction on Resettlement Project in Binh Khanh Ward, Thu Thiem New Town Area, District 2, Ho Chi Minh City, Vietnam
By: Ms. Tran Thi Ky My
Supervisor: Dr. Sohee Minsun Kim

4.3.5 : DISASTER PREPAREDNESS, MITIGATION AND MANAGEMENT AREA OF STUDY

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. Kieo 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 Instituute 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 Baños; 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., 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, InstNatlPolytechnique, 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 Systems (RIMES) , *[Climate Prediction and Early Warning System]*

TAWATCHAI TINGSANCHALI B.Eng. (Hon) Chulalongkorn University, Thailand; M.Eng., Asian Institute of Technology, Thailand; D.Eng., Asian Institute of Technology, Thailand.

Chair Professor of Water Resources Engineering, Nakhon Pathom Rajabhat University *[Floods]*

Affiliated Faculty

AKIYUKI KAWASAKI PhD, Yokohama National University, Japan; M.S., Yokohama National University, Japan; B.S., Yokohama National University, Japan.

Visiting Faculty *[Geospatial Technologies for Multidisciplinary Disaster & Water research]*

A R SUBBIAH

Director, Regional Integrated Multi Hazard Early Warning Systems (RIMES), *[Climate Risk Management]*

LAL SAMARAKOON, B.Sc., University of Kelaniya, Sri Lanka; M.Sc., Saga University, Japan, PhD, Ehime University, Japan.
Director, Geoinformatics Center *[Geospatial Technology for Disaster Management]*

MANZUL KUMAR HAZARIKA, PhD, University of Tokyo, Japan; M.Eng., Asian Institute of Technology, Bangkok, Thailand; M.Tech., Indian Institute of Technology, Kharagpur; B.Tech., J N Krishi Vishwa Vidyalaya (J. N. Agriculture University), India.

Associate Director, Geoinformatics Center *[Disaster Risk Assessment, Managing Disasters and CBDRM]*

SUTAT WEESAKUL, D.Eng., M.Eng., Asian Institute of Technology; B.Eng., Chulalongkorn University, Thailand.

Affiliated Faculty *[Tsunami and Coastal Engineering]*

3. Grants and Sponsor-ed Research Completed in 2017

International Forum on Education for Rural Transformation (IFERT)
Duration: 1 july 2017-31 Dec.2017
Project Investigators: Prof. J.K. Routray, Dr. M.M. Ahmad.
Sponsor: ASEAN- Chaina Cooperation Fund (ACCF)
Total Contracted Amount:
(THB): 7,160,400

4. On-going Grants and Sponsored Research

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
Sponsor: University of New Castle, Australia
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
Sponsor: University of New Castle, Australia
Total Contracted Amount:
(THB) 149,110.00

5. Publications

Papers in Refereed Journal

Chandan G., Indrajit P. (2017). Enviro-geotechnical concern for Dam Safety posed by Uttarakhand Flash Flood-2013. Geotechnical Engineering, Journal of the SEAGS (Southeast Asian Geotechnical Society) & AGSSEA. Vol: 42.
ISSN: 0046-5828.

Tuhin G., Chandan G., Indrajit P. (2017). Institutional Framework and Administrative Systems for effective Disaster Risk Governance Perspectives of 2013 Cyclone Phailin in INDIA. International Journal of Disaster Risk Reduction. Vol: 21, 350-359.

Books and Monographs

Tuhin G., Indrajit P. (2017). Natural Hazards Management in Asia. Delhi, India.
Publisher: SAGE Publications.
ISBN:
978-938-66-0218-3.

Rajib S., Indrajit P. (2017). Disaster Risk Governance in India and Cross Cutting Issues. Singapore.
Publisher: Springer.
ISBN 978-981-10-3309-4
ISBN 978-981-10-3310-0
(eBook)
DOI
10.1007/978-981-10-3310-0.

Book Chapters

Sanjaya B., Indrajit P. (2017). Disaster Risk Governance and City resilience in Asia-Pacific region, Science and Technology in Disaster Risk Reduction: Potentials and Challenges.
Publisher: Elsevier.
ISBN:
978-0-12-812711-7

Tularug P., Indrajit P. (2017). Risk Assessment and Reduction Measures in Landslide and Flash Flood Prone Areas: A Case of Southern, Integrating Disaster Science and Management.
Publisher: Elsevier.
ISBN:
978-0-128-12056-9.

Rajib S., Indrajit P. (2017). Disaster Governance and Its Relevance, Disaster Risk Governance in India and Cross Cutting Issues.
Publisher: Springer.
ISBN 978-981-10-3309-4
ISBN 978-981-10-3310-0
(eBook) DOI
10.1007/978-981-10-3310-0.

Singh S., Indrajit P. (2017). Disaster Risk Governance and Response Management for Flood: A Case Study of Assam, India, Disaster Risk Governance in India and Cross Cutting Issues
Publisher: Springer.
ISBN 978-981-10-3309-4 ISBN 978-981-10-3310-0
(eBook) DOI
10.1007/978-981-10-3310-0.

Indrajit P., Tuhin G. (2017). Risk Governance Measures and Actions in Sundarbans Delta (India): A Holistic Analysis of Post-disaster, Disaster Risk Governance in India and Cross Cutting Issues
Publisher: Springer.
ISBN 978-981-10-3309-4
ISBN 978-981-10-3310-0
(eBook) DOI
10.1007/978-981-10-3310-0.

Indrajit P., Nakul T. (2017). National-Level Disaster Risk Governance for Rapid Response, Disaster Risk Governance in India and Cross
Cutting Issues.
Publisher: Springer.
ISBN 978-981-10-3309-4
ISBN 978-981-10-3310-0

(eBook) DOI 10.1007/978-981-10-3310-0.

Papers in Conference Proceedings

Sekac T., Jana, S. Kumar., Pal, Indrajit. (2017). Earthquake Risk Assessment in Momase Region of Papua New Guinea using GIS. 01 Dec 2017, Ait, International Expert Forum on Mainstreaming Resilience and Disaster Risk Reduction in Education

Indrajit P., Bui P.Q. (2017). Applying Integrated Coastal Management Process to Enhance Resilience and Disaster Risk Governance. 01 Dec 2017, Ait, International Expert Forum on Mainstreaming Resilience and Disaster Risk Reduction in Education

Indrajit P. (2017). Policies and Institutional Framework for Disaster Risk Governance: case of 2015 Myanmar Floods. 28 – 29 August 2017 Peking University, Beijing China. 13th Association of Pacific Rim Universities (APRU) Multi-Hazard Symposium 2017.

Indrajit P., Nawhath T. (2017). Land Use and Social Impact Assessment from Flooding in Heritage City, Ayutthaya. May 24-26, 2017 International Academic Conference on Social Sciences and Management. Bangkok, Thailand

Indrajit P., Sharma A. (2017). Challenges of reconstruction of Nepal's cultural heritages after 2015 Earthquake. 7-9 Nov 2017 7th International Conference on Building Resilience, Using scientific knowledge to inform policy. Bangkok Thailand.

Dilip K. P., Sekac T., Indrajit P. (2017). GIS and Remote Sensing Approach in Earthquake Hazard Assessment and Monitoring: A Case Study. Feb 16-17, 2017 London, U.K. 18th International Conference on Earthquake and Structural Engineering.

Raju S., Indrajit P. (2017). Risk identification, Assessment and Management of a Building Information Modelling (BIM) implemented. 1-2 Dec 2017, International Expert Forum on Mainstreaming Resilience and Disaster Risk Reduction in Education, Ait Bangkok.

6. Doctoral Students' Dissertation

Assessment and Strategies for Capacity Development of Flood Prone Communities in Delhi
By: Ms. Aditi Madan
Supervisor: Prof. Jayant Kumar Routray

Social Capital for Natural Disaster Preparedness and Response: A Study of Two Communities in the Sundarbans of India
By: Mr. Saswata Sanyal
Supervisor: Prof. Jayant Kumar Routray

7. Masters Students' Theses and Research Studies

Emergency Response and Disaster Recovery of Cyclone Phailin in Ganjam District, Odisha, India
By: Mr. Tejas Tamobhid Patnaik
Supervisor: Prof. Pennung Warnitchai

A Risk Analysis of River Bank Failure due to Floods of Jamuna, Ganges and Padma Rivers in Bangladesh
By: Mr. Md. Bayezid Islam
Supervisor: Prof. Tawatchai Tingsanchali

An Assessment of Flood Preparedness and Response Strategies in Ayutthaya: A Case Study of the Tourism Sector
By: Ms. Apinya Khumchart
Supervisor: Prof. Jayant Kumar Routray

An Agent-Based Simulation of Tsunami Evacuation for Disaster Management: A Case Study of Khao Lak, Thailand
By: Mr. Nattapon Trumikaborworn
Supervisor: Prof. Pennung Warnitchai

Cottage and Small Industries in Kathmandu District in the Aftermath of the 2015 Nepal Earthquake: Impact, Recovery and Lessons Learned
By: Ms. Asmita Khadka
Supervisor: Dr. Indrajit Pal

TC Winston: Window of Opportunity to Implement the Sendai Framework for Disaster Risk Reduction in Fiji
By: Ms. Litiana Naidoleca Bainimarama
Supervisor: Prof. Jayant Kumar Routray

Impact of Climate Change and Disaster on the Indigenous People in the Pacific and Ways to Build Community Resilience
By: Mr. Filimoni Taka Seru
Supervisor: Dr. Indrajit Pal

Chapter 5: SCHOOL OF MANAGEMENT

5.1 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.

5.2 Mission

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"

5.3 School Governance

Dean of School

DONYAPRUETH KRAIRIT, BS, Thammasat Univ, Thailand; MS, Univ of Colorado at Boulder; PhD, Massachusetts Inst of Tech, Cambridge, USA.

Associate Professor *(Technology, Management, Management of Telecommunications Technologies and Public Policy)*

5.4 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

5.5 SOM Research Focus

SOM primary area of research focuses, but not limited to,

"THE BUSINESS AND INNIVATION 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

5.6 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.

5.7 Faculty and Research Staff

Full-time Faculty

YUOSRE BADIR, M.S., The Swiss Federal Institute of Technology Lausanne (EPFL), M. ScUniversity of Putra Malaysia, Ph. D (MOT) EPFL

Assistant 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. Engineering, ChulalongkornUniv, 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, ThammasatUniv, Thailand; PhD, The Australian National University, Australia

Assistant Professor (International Economics, Multinational Enterprises, Managerial Economics and Business environment)

DONYAPRUETH KRAIRIT, BS, ThammasatUniv, Thailand; MS, 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, USA.

Associate Professor (Labor & Industrial Relations, HRM, Wages & Productivity)

VATCHARAPOL SUKHOTU, BEng, KasetsartUniv, 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 WONGSURAWAT, B.A.S (Econ & Math., Comp. Sc.) Stanford University USA PH. D (Managerial Econ and Strategy), Kellogg School of Management, Northwestern University, USA

Assistant Professor (Strategic Management)

Visiting and Adjunct Faculty

EVANGELOS ANGELOS AFENDRAS, B.A., M.A, Ph. D(Humanitites-Linguistics) The Johns Hopkins Univ., USA.

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; International Joint Ventures; Marketing; Negotiations; Strategic Management)

ILKKA KAURANEN, MS Engg, Lic Tech, 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)

ASHISH SADH, M.B.A., A.P.S. Univ., Rewa.Ph. D (Marketing) Devi Ahilya Univ., Indore.

Adjunct Faculty (Sales and Marketing)

RAGNAR THOR GRUNDTVIG SEGAARD, Ph. DLondon 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-SophiaAntipolis, France, M.A (Marketing), University of Sherbrooke, Canada, C.P.D., CornellUniversity, IthacaUSA
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)

5.8 Grants and Sponsored Research Completed 2017

International Executive MBA- Vietnam for Hanoi#13.1 & Hanoi#13.2 Group
Duration: 1-Aug-2012 to 31- Dec-2017
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 12,246,000.00

International Executive MBA- Vietnam for HCMC#9th Group
Duration: 1-Aug-2012 to 31- Dec-2017
Project Investigator(s): Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 10,332,562.50

International Executive MBA- Vietnam for Vung Tau#5Th Group
Duration: 01-01-2013 to 31- 12-2017
Project Investigators: Dr. Barbara Igel
Sponsor: AIT
Total Contracted Amount (THB): 8,511,000.00

International Executive MBA- Vietnam for Hanoi#13.1 & Hanoi#13.2 Group
Duration: 01-08-2012 to 31- 12-2017
Project Investigators: Dr. Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 12,246,000.00

International Executive MBA- Vietnam for HCMC#9th Group
Duration: 01-08-2012 to 31- 12-2017
Project Investigators: Dr. Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount (THB): 10,332,563.00

International Executive MBA Vietnam for Hanoi# 17
Duration: 15-08-2016 to 31- 12-2017
Project Investigators: Prof Lawrence

Stephen Ablen
Sponsor: Multi-donor
Total Contracted Amount
(THB): 6,125,000.00

International Executive MBA Vietnam for HCMC# 13
Duration: 01-08-2016 to 31- 12-2017
Project Investigators: Dr. Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount
(THB): 5,880,000.00

International Executive MBA Vietnam for VT# 8
Duration: 01-08-2012 to 31- 12-2017
Project Investigators: Dr. Barbara Igel
Sponsor: Multi-donor
Total Contracted Amount
(THB): 7,188,650.00

5.9 On-going Grants and Sponsored Research

Doctor of Business Administration
Duration: 1-Aug-2012 to 31- Jun-2019
Project Investigator(s): Winai Wongsurawat
Sponsor: -
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
Sponsor:
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
Sponsor:
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 Krairit
Sponsor: AIT
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 Krairit
Sponsor: AIT
Total Contracted Amount
(THB): 10,822,650.00

International Executive MBA- Vietnam for HCMC#10
Duration: 01-08-2013 to 31- 12-2018
Project Investigators: Dr. Donyaprueth Krairit
Sponsor: AIT
Total Contracted Amount
(THB): 8,820,000.00

5.10 Publications

International Journal Articles

Vimolwan Y., Nusrat L. (2017). Entrepreneurial Intention: A study of individual, situational and gender differences. Journal of Small Business and Enterprise Development. Vol: 14, 333-352.

Badir Y. F. (2017). The impact of a leadership technical competence on employeers innovation and learning. Journal of Engineering and Technology Management. Vol: 44, 44-57.

Papers in Conference Proceedings

Vimolwan Y. (2017). Motivational factors, facilitators, obstacles and gender differences: An exploratory study of Thai. 26-27 December 2017. The 28th InternationalConference on Social Science & Humanities (ICSSH), AIT Bangkok.

Jirakraisiri J., Badir Y.F. (2017). Implementing green innovation: Strategy, operation, and cooperation. 4-6 Dec 2017 Melbourne, Australia. Publish: ANZMAC (Best Article Award)

5.11 Doctoral Students' Dissertation

The Impact of Characteristics of Chinese Family Businesses on Business Performance in Thailand
By: Mr. Tossapon Luechapattanaporn
Supervisor: Dr. Barbara Igel (Chairperson), Dr. Winai Wongsurawat (Co-chairperson)

Impact of Environmental Change on Strategy and Management Control System in Public Organizations: The Case of Healthcare Reforms in Thailand
By: Ms. Dararat Rutanarugsa
Supervisor: Prof. Sununta Siengthai (Chairperson), Dr. Sundar Venkatesh (Co-chairperson)

Export Management Commitment, Promotion Strategy and Country-of-Origin Effect on Export Performance in the ASEAN Community: A Case Study of a Building Materials Firm in Thailand
By: Ms. Peachayanant Lorvoralak
Supervisor: Dr. Vatcharapol Sukhotu (Chairperson), Dr. Winai Wongsurawat (Co-chairperson)

Examining the Determinants of Tourist Destination Loyalty
By: Ms. Chartaya Nilplub
Supervisor: Dr. Do Ba Khang (Chairperson), Dr. Vimolwan Yukongdi (Co-chairperson)

Decision Making in the Pre-Development Stage of Residential Development
By: Mr. Satakhun Kosavinta
Supervisor: Dr. Donyaprueth Krairit

Business Responses to Climate Change in Developing Countries: Strategies for Reducing Greenhouse Gas Emissions in Vietnam
By: Mr. Hoang Duc Binh
Supervisor: Dr. Do Ba Khang (Chairperson), Dr. Yuosre Badir (Co-chairperson)

The Impact of Individuals' Psychological Safety on Their Knowledge Source Selection in Cross Functional New Product Development Teams
By: Mr. Umar Safdar
Supervisor: Dr. Yuosre Badir

The Role of Leader-member Exchange in Employees' Open Innovation Practices and Innovative Work Behaviour
By: Ms. Aungkhana Atitumpong
Supervisor: Dr. Yuosre Badir

Impact and Usage of ICT in Primary-School Students' Learning: A Case of Thai Primary Schools
By: Ms. Benjawan Arukaroon
Supervisor: Dr. Donyaprueth Krairit

Factors Influencing a Firm's Decision to Conduct Remanufacturing: Evidence from the Thai Industries
By: Ms. Jirapan Chaowanapong
Supervisor: Dr. Juthathip Jongwanich

Bangladeshi Consumers' Purchasing Intention Towards Organic Meat
By: Mr. Sheikh Ashiqurrahman Prince
Supervisor: Dr. Donyaprueth Krairit

5.12 Masters Students' Theses, Research Studies and Projects

Knowledge Sharing among Students in a Multicultural Environment
By: Mr. Arslan Ashraf
Supervisor: Dr. Vimolwan Yukongdi

Entrepreneurial Strategy: An Empirical Study of Coworking Space Business Success Factors of HUBBA Thailand
By: Ms. Phitsinee Sirisri
Supervisor: Prof. Barbara Igel

Employee Perception of Organizational Communication: A Study of Western Digital Corporation in Thailand
By: Mr. PVSA Tarun
Supervisor: Dr. Yuosre Badir

An Investigation of Driving Forces Affecting Mobile Commerce Adoption in Bangladesh
By: Mr. Mohammad Majedul Islam
Supervisor: Dr. Yuosre Badir

Evaluating Economic Value Added of the SFIs in Thailand Using CAMEL Model
By: Mr. Krittidech Wongpool
Supervisor: Dr. Supasith Chonglerttham

Employee Perception of Organizational Health Program Initiatives: A Case Study of Western Digital Corporation (Thailand)
By: Ms. Onanong Kampan
Supervisor: Prof. Sununta Siengthai

The Relationship between Working Capital Management and Corporate Performance of Property and the Construction Sector in Thailand
By: Ms. Chananant Kattiyavhat
Supervisor: Dr. Supasith Chonglerttham

Validity of PE, PEG and PERG to Predict Stock Performance in a Frontier Market: Evidence from Dhaka Stock Exchange
By: Mr. M. Shahin Sarwar
Supervisor: Dr. Supasith Chonglerttham

Users' View on Sharing Economy in China: A Case Study of the Dockless Bike Sharing Business Model
By: Ms. Weisi Zhao
Supervisor: Dr. Yuosre Badir

Impact of Societal Changes in an Environment of Real Estate Capitalization Rates: A Comparative Study of Paris and Bangkok
By: Mr. Alexandre Perret
Supervisor: Dr. Supasith Chonglerttham

Increasing Student Enrolment at Sonadezi College
By: Mr. Vu Ngoc Nam
Supervisor: Prof. Sununta Siengthai

Increasing Customer Loyalty to Bostik Vietnam Company
By: Mr. Doan Tan Hai
Supervisor: Dr. Vimolwan Yukongdi

Improving the Training and Human Resource Development in Bimson Cement Joint Stock Company
By: Mr. Do Quoc Huy
Supervisor: Dr. Fredric W. Swierczek

Solutions to Improve the Management of Resettlement in Hydropower Construction Projects in Vietnam
By: Mr. Do Minh Ha
Supervisor: Prof. Sununta Siengthai

Developing a Drilling Platform Export Strategy: The Case Study of Vietsovpetro's Offshore Construction Division
By: Ms. Ha Hai Huong Ly
Supervisor: Dr. Barbara Igel

Solutions to Improve Labor Productivity in the Mechanical and Energy Division - VIETSOVPETRO (VSP)
By: Mr. Dang Trong Phuong
Supervisor: Dr. Vimolwan Yukongdi

Designing a Customer Service Center (CSC) for Ho Chi Minh Power Company
By: Mr. Phan Hoang San
Supervisor: Dr. Fredric W. Swierczek

Application of the Smart City Model at the Provincial Level
By: Mr. Do Huy Hoang
Supervisor: Prof. Sununta Siengthai

Solutions for Voluntary Key Employee Turnover in Nhat Minh Joint Stock Company, Vung Tau, Vietnam
By: Mr. Doan Huu Ha An
Supervisor: Prof. Marie-Therese Claes

Solutions to Improve the Efficiency of Human Resources on Platforms of OGPE - Vietsovpetro
By: Mr. Vu Van Manh
Supervisor: Dr. Fredric W. Swierczek

Improving the Employee Productivity for Vietsovpetro
By: Ms. Nguyen Thi Huong Hoa
Supervisor: Dr. Fredric W. Swierczek

Developing a Human Resource Strategy for Petroleum Equipment Assembly and Metal JSC (PVC-MS)
By: Mr. Ho Phi Son
Supervisor: Dr. Vimolwan Yukongdi

Exploitation Strategy and Operation Management for Offshore Oil and Gas

Field in Declined Phase and Low Oil Price Period: A Case Study at Hoang Long JOC in TGT Field, Offshore Vietnam
By: Mr. Nguyen Van Hai
Supervisor: Dr. Huynh Trung Luong

Redesigning the Finance Function: A Case Study of Vietsovpetro
By: Ms. Pham Thi Mai
Supervisor: Dr. Fredric W. Swierczek

Improving the Competitive Competencies of PTSC Marine
By: Mr. Trinh Huu Duong
Supervisor: Dr. Barbara Igel

Increasing the Competitiveness of Petroleum Equipment Assembly and Metal Structure Joint Stock Company (PVC-MS) in Vung Tau, Vietnam
By: Mr. Pham Ngoc Tu
Supervisor: Dr. Vimolwan Yukongdi

Excellence Onboarding Framework for New Employee Engagement: A Case of Schindler Ltd. Company in Ho Chi Minh, Vietnam
By: Mr. Ta Huy Vu
Supervisor: Prof. Marie-Therese Claes

Understanding and Developing a Program to Drive Personnel Motivation in Alignment with Key Business Strategies
By: Ms. Doan Vu Uyen Duyen
Supervisor: Prof. Marie-Therese Claes

Application of Balance Score Card and Key Performance Indicators in the National Load Dispatch Center
By: Mr. Dinh Xuan Duc
Supervisor: Dr. Fredric W. Swierczek

Marketing Strategies for Printing and Writing Paper Products in Vietnam Paper Corporation
By: Mr. Nguyen Tien Vinh
Supervisor: Dr. Huynh Trung Luong

Differentiation Strategy for Non-life Insurance Enterprises in Vietnam: A Case Study of Global Insurance Corporation
By: Ms. Tran Thuy Anh
Supervisor: Dr. Barbara Igel

Project Management of Subsea Campaigns in Rosneft Vietnam B.V.
By: Mr. Nguyen Anh Tuan
Supervisor: Dr. Vimolwan Yukongdi

Operation Improvement to Adapt to a Raw Material Market Situation to Maintain the Yield of Kraft Paper Production: A Case Study of Vina Kraft Paper Co., Ltd.
By: Mr. Trinh Duc Nam
Supervisor: Dr. Barbara Igel

Solutions to Enhance the Cost Efficiency of the Drilling Rig Operation Management in Petro Vietnam Drilling and Well Services Joint Stock Corporation in Ho Chi Minh City, Vietnam
By: Mr. Nguyen Van Tho
Supervisor: Dr. Vimolwan Yukongdi

Improving Operation Factors to Enhance Company Performance: A Case Study of the Concrete Products and Aggregate (Vietnam) Company Limited
By: Ms. Lang Nhat Van
Supervisor: Dr. Barbara Igel

A Marketing Plan for JOTON in the Vietnamese Paint Market
By: Ms. Nguyen Thi Thao Huong
Supervisor: Dr. Vimolwan Yukongdi

Solutions to Improve the Profitability of Hanoi Construction Corporation
By: Mr. Cao Tien Trung
Supervisor: Dr. Fredric W. Swierczek

Training Effectiveness in the Vietnam Learning Center of Environmental and Social
By: Ms. Do Thi Lan Anh
Supervisor: Dr. Fredric W. Swierczek

Impact of R&D Spending on the Profits of Solar PV Firms
By: Mr. Watan Yar
Supervisor: Dr. Yuosre Badir

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

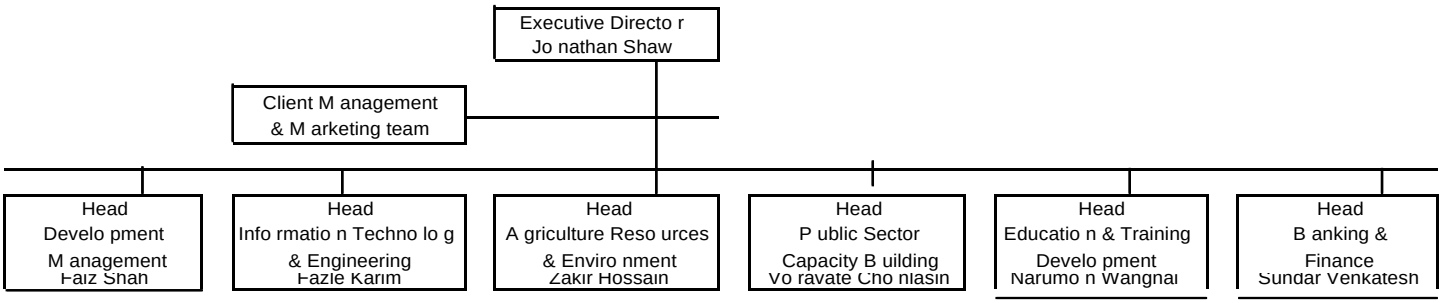
To design and deliver continuing, professional and executive education, and other capacity development services required by our clients by drawing on the expertise of AIT faculty and experts in AIT's network.

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; andchange 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 are 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 Grants and Sponsored Trainings Completed in 2017

Application of GIS Multi-User Geo-Database and Web-GIS
Duration: 9 – 20 January 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Central Statistical Agency, Ethiopia
Total contracted amount: THB 565,938.20

Remote Sensing Technology and Interpretation
Duration: 16 January 2017 – 23 January 2017
Project leader: Mr. Fazle Karim
Sponsor: Bangladesh Petroleum Exploration and Production Company Limited
Total contracted amount: THB 566,023.20

Innovative Irrigation Management (Batch 2)
Duration: 16 – 27 January 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Asian Development Bank
Total contracted amount: THB 1,223,000.25

Construction Supervision and Practices
Duration: 26 January 2017 – 1 February 2017

Project leader: Mr. Voravate Chonlasin
Sponsor: Construction Development Corporation Limited, Bhutan
Total contracted amount: THB 749,312.00

Innovative Irrigation Management
Duration: 30 January – 7 February 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Asian Development Bank
Total contracted amount: THB 747,398.65

Pre-stack and Post-stack Migration of Seismic Data
Duration: 30 January 2017 – 6 February 2017
Project Leader: Mr. Fazle Karim
Sponsor: Bangladesh Petroleum Exploration and Production Company Limited, Bangladesh
Total contracted amount: THB 668,026.05 THB

Emerging Issues on Micro-finance in Asian Countries
Duration: 6 – 8 February 2017
Project Leader: Dr. Faiz Shah
Sponsor: First Micro Finance, Nepal
Total contracted amount: THB 260,768.40

Governance & Anti-Corruption: The Methods & Tools behind an Effective Corruption – Eradication Strategy – (Batch 2)
Duration: 13 February – 23 February 2017
Project leader: Mr. Voravate Chonlasin
Sponsor: Commission for the Investigation of Abuse of Authority (CIAA), Nepal
Total contracted amount: THB 1,066,385.85

Sehat Mobile Master Training
Duration: 13 – 17 February 2017
Project Leader: Dr. Faiz Shah
Sponsor: Stora Enso Oyj, Finland
Total contracted amount: THB 693,100.71

Defence Policies, Governance, Administration and Management in Thailand
Duration: 20 – 24 February 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Defence Headquarters Training Institute
Total contracted amount: THB 1,017,192.30

Cleaner Production, CDM and MRV for Industrial Processes
Duration: 27 February 2017 – 3 March 2017
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Ministry of Economic Affairs, Bhutan
Total contracted amount: THB 476,092.90

Institutional Capacity Building for Public Works and Transport Training Institute (PTTI)
Duration: 27 February 2017 – 4 April 2017
Project Leader: Ms. Narumon Wangnai
Sponsor: Public Works and Transport Training Institute, Lao PDR
Total contracted amount: THB 223,042.00

Planning and Management of Successful Agribusiness Innovation
Duration: 1 – 10 March 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Project for Agriculture Commercialization and Trade (PACT), Nepal
Total contracted amount: THB 952,737.60

Leadership and Organization Renewal
Duration: 6 – 14 March 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Nepal Telecom Company Limited, Nepal
Total contracted amount: THB 476,391.80

Improvement and Management of National Accounts Statistics (Batch 2)
Duration: 13 – 24 March 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Central Statistical Agency, Ethiopia
Total contracted amount: THB 609,880.68

Negotiation Skills and Management
Duration: 20 – 24 March 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Finance, Nepal
Total contracted amount: THB 473,944.00

Advanced Leadership Development Program
Duration: 20 – 25 March 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Office of the Civil Service Commission (OCSC), Thailand
Total contracted amount: THB 1,000,000.00

Agriculture Commercialization and Marketing
Duration: 27 March – 4 April 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Project for Agriculture Commercialization and Trade (PACT), Nepal
Total contracted amount: THB 869,404.00

Project Management, Monitoring and Evaluation
Duration: 27 March – 7 April 2017
Project Leader: Dr. Faiz Shah
Sponsor: Multiple Donors
Total contracted amount: THB 287,079.73

Leadership Development for Public Service Delivery and Citizen Centric Government in Thailand and Vietnam
Duration: 24 April – 5 May 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: State Government of Manipur, India
Total contracted amount: THB 1,657,149.96

Natural Gas Contracts and Petroleum Fiscal Systems
Duration: 28 April – 7 May 2017
Project Leader: Mr. Fazle Karim
Sponsor: Petrobangla, Bangladesh
Total contracted amount: THB 706,182.20

Exposure Visit Program on Irrigation Management in Australia and Thailand
Duration: 4 - 14 May 2017
Project Leader: Mr. Fazle Karim
Sponsor: World Bank
Total contracted amount: THB 1,022,769.40

Management Development Workshop (Batch 1) for the Medical Supplies Department, Ministry of Health, Sri Lanka (65308)
Duration: 8 – 12 May 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Health, Sri Lanka
Total contracted amount: THB 968,900.40

Contract and Procurement Management in Oil & Gas
Duration: 10 – 17 May 2017
Project Leader: Mr. Fazle Karim
Sponsor: Petrobangla, Bangladesh
Total contracted amount: THB 1,097,197.10

Workshop for Life Insurance Professionals
Duration: 12 – 13 May 2017
Project Leader: Dr. Jonathan Shaw
Sponsor: Asia Pacific Centre of Management Education, Singapore
Total contracted amount: THB 202,260.00

International Financial Reporting Standards for Gas & Oil Companies

Duration: 22 – 29 May 2017
Project Leader: Mr. Fazle Karim
Sponsor Titas Gas Transmission & Distribution Company Limited, Bangladesh
Total contracted amount: THB 975,481.00

Energy Management System in the 21st Century
Duration: 23 – 29 May 2017
Project Leader: Mr. Fazle Karim
Sponsor Titas Gas Transmission & Distribution Company Limited, Bangladesh
Total contracted amount: THB 934,136.98

Modern Medical Treatment and Health Care in Public Hospital (Batch 1)
Duration: 28 May – 7 June 2017
Project Leader: Ms. Narumon Wangnai
Sponsor Ministry of Public Administration, Bangladesh
Total contracted amount: THB 847,481.65

Management Development Workshop (Batch 2) for the Medical Supplies Department, Ministry of Health, Sri Lanka
Duration: 27 May – 2 June 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Health, Sri Lanka
Total contracted amount: THB 959,385.50

Course Development Workshop (65309)
Duration: 5 – 9 June 2017
Project Leader: Ms. Narumon Wangnai
Sponsor: National Center for Education Development, Nepal
Total contracted amount: THB 1,071,645.20

Management Development Workshop (Batch 3) for the Medical Supplies Department, Ministry of Health, Sri Lanka
Duration: 5 – 9 June 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Health, Sri Lanka
Total contracted amount: THB 948,471.35

Corporate Innovation
Duration: 11 – 22 June 2017
Project Leader: Mr. Fazle Karim
Sponsor: **Jalalabad Gas Transmission & Distribution Systems Limited**
Total contracted amount: THB 834,776.05

Office Management for Effective Investigation and Public Grievance Service
Duration: 19 – 23 June 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Sponsor: Commission for the Investigation of Abuse of Authority (CIAA), Nepal
Total contracted amount: THB 954,517.60

Contract Management for Hydro Power Project
Duration: 19 – 24 June 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Sponsor: Nepal Electricity Authority, Nepal
Total contracted amount: THB 454,095.40

Management Development Workshop (Batch 4) for the Medical Supplies Department, Ministry of Health, Sri Lanka

Duration: 26 – 30 June 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Health, Sri Lanka
Total contracted amount: THB 946,401.70

Management Development Workshop (Batch 5) for the Medical Supplies Department, Ministry of Health, Sri Lanka
Duration: 3 – 7 July 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Health, Sri Lanka
Total contracted amount: THB 1,185,491.50

Aquaculture Development & Aquatic Resources Management in South & Southeast Asia
Duration: 16 July – 5 August 2017
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Shanghai Ocean University, PR China
Total contracted amount: THB 1,738,646.00

Post-Harvest Management and Processing of Rice and Other Agro-Commodities
Duration: 24 – 30 July 2017
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Ministry of Agriculture and Development, Nepal
Total contracted amount: THB 675,575.40

ELLTA 2017 Conference: Perspectives on Leadership, Learning and Social Enterprise in Asia: Sharpening Focus on Research Collaboration and Publications
Duration: 25 – 27 July 2017
Project Leader: Dr. Faiz Shah
Sponsor: Multiple Donors
Total contracted amount: THB 1,668,555.85

Environment Health & Safety for Oil and Gas Sector
Duration: 24 July – 2 August 2017
Project Leader: Mr. Fazle Karim
Sponsor: Petrobangla, Bangladesh

Total contracted amount: THB 875,733.32

Gas Pricing, Accounting & Auditing
Duration: 24 July – 2 August 2017
Project Leader: Mr. Fazle Karim
Sponsor: Petrobangla, Bangladesh
Total contracted amount: THB 702,665.00

Business Competency Development Program for Food Product Industries
Duration: 4 – 9 August 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Sri Lanka Thriposha Limited, Sri Lanka
Total contracted amount: THB 294,131.70

Professional Development Course for the Academic Members of Eastern University, Sri Lanka

Duration: 7 – 15 August 2017
Project Leader: Mr. Fazle Karim
Sponsor: Eastern University, Sri Lanka
Total contracted amount: THB 771,929.20

PSC Accounting, Auditing and Oil/Gas Exploitation Contract
Duration: 7 – 16 August 2017
Project Leader: Mr. Fazle Karim
Sponsor: Petrobangla, Bangladesh
Total contracted amount: THB 859,769.00

Accounting: Significant Aspects in Power Utilities Companies ()
Duration: 7 – 18 August 2017
Project Leader: Mr. Fazle Karim
Sponsor: Government of Sri Lanka
Total contracted amount: THB 1,503,162.92

Public Procurement and Contract Administration
Duration: 7 – 18 August 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: World Bank
Total contracted amount: THB 958,387.45

Dam Safety Planning & Implementation
Duration: 14 – 18 August 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Ministry of Energy & Mines, Lao PDR
Total contracted amount: THB 638,411.64

Advanced Public-Sector Management Strategies and tools for Administrators and Decision Makers
Duration: 13 – 19 August 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Sri Lanka Institute of Development Administration, Sri Lanka
Total contracted amount: THB 1,121,432.35

Pump Technology for Waterworks
Duration: 24 – 30 August 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: EBARA Corporation, Japan
Total contracted amount: THB 509,427.35

Professional Study Visit Program on Agricultural Cooperatives Marketing Management
Duration: 25 August – 1 September 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Agriculture and Ministry of Cooperatives, Sri Lanka
Total contracted amount: THB 503,467.20

Social Enterprise Field Visit Program
Duration: 26 August – 2 September 2017
Project Leader: Dr. Faiz Shah
Sponsor: Kyushu University, Sri Lanka
Total contracted amount: THB 273,123.90

12th and 13th Policy, Planning and Management Course
Duration: 11 – 17 September 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Ministry of Public Administration, Bangladesh
Total contracted amount: THB 1,072,461.00

Best Practices in Managing State-owned Water Supply Organizations
Duration: 11 – 17 September 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Asian Development Bank
Total contracted amount: THB 646,596.85

Delivering Quality Extension Services
Duration: 17 – 30 September 2017
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Indonesian Agency for Agricultural Research and Development (IAARD), Indonesia
Total contracted amount: THB 1,293,815.35

Disaster Risk Reduction and Management
Duration: 18 – 27 September 2017
Project Leader: Mr. Fazle Karim
Sponsor: Ministry of Disaster Management and Relief, Bangladesh
Total contracted amount: THB 2,508,689.80

Vehicle Emission Testing and Management
Duration: 25 September – 3 October 2017
Project Leader: Mr. Fazle Karim
Sponsor: Department of Motor and Traffic, Sri Lanka
Total contracted amount: THB 852,618.00

River Basin Management by Using Integrated Flood Analysis System
Duration: 25 September – 8 October 2017
Project Leader: Mr. Fazle Karim
Sponsor: Sponsor: Irrigation Department, Government of Sindh
Total contracted amount: THB 2,185,855.00

Project Management, Monitoring and Evaluation
Duration: 25 September – 6 October 2017
Project Leader: Dr. Faiz Shah
Sponsor: Multiple Donors
Total contracted amount: THB 502,715.55

Bangchak Cooperative Service Stations Case Study
Duration: 1 October – 31 December 2017
Project Leader: Dr. Faiz Shah
Sponsor: Bangchak Cooperative Public Company Limited, Thailand
Total contracted amount: THB 350,000.00

14th Policy, Planning and Management Course
Duration: 30 October – 3 November 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Ministry of Public Administration, Bangladesh
Total contracted amount: THB 510,572.80

Strategic Planning and Management of Sustainable Agricultural Technology Transfer
Duration: 30 October – 10 November 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Indonesian Agency for Agricultural Research and Development (IAARD), Indonesia
Total contracted amount: THB 887,819.50

Innovative Irrigation Management (Batch III)
Duration: 30 October – 10 November 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Bangladesh Water Development Board (BWDB), Bangladesh
Total contracted amount: THB 1,326,350.03

Comprehensive Financial Solutions for City Resilience Conference
Duration: 6 – 10 November 2017
Project Leader: Dr. Faiz Shah
Sponsor: World Bank
Total contracted amount: THB1,496,915.00

Smart Grid
Duration: 13 - 17 November 2017
Project Leader: Mr. Fazle Karim
Sponsor: World Bank
Total contracted amount: THB 367,200

Gas Production Engineering (65341)
Duration: 16 – 25 November 2017
Project Leader: Mr. Fazle Karim
Sponsor: Sylhet Gas Fields Company Limited (SGFL), Bangladesh
Total contracted amount: THB 954,381.10

Professional Development Short Training Program on GESI and GRB for Nepal
Duration: 19 – 28 November 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: Nepal Administrative Staff College, Nepal
Total contracted amount: THB 344,725.90

Sustainable Strategies for Water Scarcity Management & Effective Management of Water Resources
Duration: 19 - 28 November 2017
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Water Resources Planning Organization (WARPO), Bangladesh
Total contracted amount: THB 1,099,817.10

Income Tax Management and Administration
Duration: 20 - 24 November 2017
Project Leader: Mr. Fazle Karim
Sponsor: Bangladesh Bank, Bangladesh
Total contracted amount: THB 557,174.71

Management Development Workshop (Batch 6) for the Medical Supplies Department, Ministry of Health, Sri Lanka
Duration: 20 – 24 November 2017
Project Leader: Dr. Faiz Shah
Sponsor: Ministry of Health, Sri Lanka
Total contracted amount: THB 1,154,155.86

Advanced University Leadership in Afghanistan
Duration: 22 – 29 November 2017
Project Leader: Dr. Faiz Shah
Sponsor: World Bank
Total contracted amount: THB 3,892,420.53

Financial Management, Accounting & Auditing for Gas and Oil Company
Duration: 27 November – 6 December 2017
Project Leader: Mr. Fazle Karim
Sponsor: Sylhet Gas Fields Limited
Total contracted amount: THB 888,062.40

Essential Management Skills using IT
Duration: 4 – 8 December 2017
Project Leader: Mr. Fazle Karim
Sponsor: Karachi Port Trust
Total contracted amount: THB 414,701.62

Roles and Functions of Port
Duration: 4 – 9 December 2017
Project Leader: Mr. Fazle Karim
Sponsor: Karachi Port Trust
Total contracted amount: THB 529,247.50

Project Management
Duration: 4 – 9 December 2017
Project Leader: Mr. Fazle Karim
Sponsor: Karachi Port Trust
Total contracted amount: THB 461,315.30

Vehicle Emission Testing and Management
Duration: 4 – 9 December 2017
Project Leader: Mr. Fazle Karim
Sponsor: Department of Motor & Traffic, Sri Lanka
Total contracted amount: THB 1,584,804.60

Public Finance and Risk Management
Duration: 10 – 16 December 2017
Project Leader: Mr. Voravate Chonlasin
Sponsor: State Accountability Revitalization (STAR), Indonesia
Total contracted amount: THB 1,019,675.77

Measures of Port Productivity /Planning & Operation – Conventional Cargo Terminal
Duration: 11 – 15 December 2017
Project Leader: Mr. Fazle Karim
Sponsor: Karachi Port Trust
Total contracted amount: THB 1,094,975

Technical Officers of Eastern University, Sri Lanka
Duration: 12 – 19 December 2017
Project Leader: Mr. Fazle Karim
Sponsor: Eastern University, Sri Lanka
Total contracted amount: THB 619,902.40

Project and Finance Management
Duration: 17 – 23 December 2017
Project Leader: Ms. Narumon Wangnai
Sponsor: Ministry of Public Works and Transport, Lao PDR

Total contracted amount: THB 673,301.35

Planning & Management for Health Sectors
Duration: 18 – 22 December 2017
Project Leader: Dr. Pradeep Kumar Dash
Sponsor: Ministry of Health, Nutrition & Indigenous Medicine, Sri Lanka
Total contracted amount: THB 396,000.00

Public Housing, Water Supply and Estate Infrastructure Development
Duration: 23 - 29 December 2017
Project Leader: Dr. Faiz Shah
Sponsor: UVA Provincial Ministry of Road Development, Housing & Water Supply, Estate Infrastructure & Cooperatives, Sri Lanka
Total contracted amount: THB 542,884.30

6.7 Ongoing Grant and Sponsored Trainings

Scoping Workshop for Developing a Post-Secondary Professional Development Program in Agriculture for Timor-Leste (Postponed to 2018)
Duration: 5 – 9 March 2018
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Deutsche Gesellschaft fur Internationale Zusammenarbeit (GTZ)
Total contracted amount: THB 901,866.21

Geotechnical Investigation, Engineering Geology and Power Potential Studies and Optimization (Postponed to 2018)
Duration: 14 – 28 May 2018
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Ministry of Economic Affairs, Bhutan
Total contracted amount: THB 477,525.80

Procurement and Contract Management FIDIC Batch 1 (Postponed to 2018)
Duration: 8 – 25 March 2018
Project Leader: Dr. Faiz Shah
Sponsor: Pakistan WAPDA
Total contracted amount: THB 4,678,076.45

Project Planning and Management
Duration: 24 – 31 January 2018
Project Leader: Dr. Md. Zakir Hossain
Sponsor: Ministry of Commerce, Bangladesh
Total contracted amount: THB 235,270.00

Human Resource Management
Duration: 16 May 2016 – 31 December 2018
Project Leader: Mr. Fazle Karim
Sponsor: Dhaka Electric Supply Company Limited
Total contracted amount: THB 4,577,562.68

Budget and Cost Control
Duration: 18 July 2016 – 31 December 2019
Project Leader: Mr. Fazle Karim
Sponsor: Bhutan Power Corporation, Bhutan
Total contracted amount: THB 8,141,627.11

Professional Training on Banking and Finance Batch 3
Duration: 1 September 2016 – 26 December 2018
Project Leader: Dr. Sundar Venkatesh
Sponsor: Multiple-donors
Total contracted amount: THB 9,855,391.73

Impact Evaluation of Social Inclusion of Children with Special Needs Projects (Bangladesh, India, Pakistan and Thailand)
Duration: 1 Jun 2017 – 3 December 2019
Project Leader: Mr. Voravate Chonlasin
Sponsor: Special Olympic International
Total contracted amount: THB 2,408,808.85

PIPIP-International HEIS Program (65289)
Duration: 9 January 2017 – 27 December 2020
Project Leader: Dr. Faiz Shah
Sponsor: World Bank
Total contracted amount: THB 26,175,678.34

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; establish-hing 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]

TEERAPAT SANGUANKOTCHAKO-RN, D. Eng in Information Processing, Tokyo Institute of Technology, Japan. M.Eng in Information Processing, Tokyo Institute of Technology, Japan. Certificate in Japanese Language, Osaka University of Foreign Study, Japan. B.Eng. in Electrical Engineering, Chulalongkorn University, Thailand.

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 Electro-nics and Computer Technology Center (NECTEC) [Network management; Network engineering; Ad hoc Network]

AIMASCHANA NIRUNTASUKRAT, Ph.D. in Electrical Engineering, Univer-sity 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 (NEC-TEC) [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 Univer-sity 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 Uversity, 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 Grants and Sponsored Research Completed in 2017

IT Infrastructure Consultancy
Duration: 01-Jan-2017 to 31-Dec-2017
Project Investigators: Prof Kanchana Kanchanasut
Sponsor: THNIC foundation
Total Contracted Amount (THB): 2,000,000.00

Dumbo VII
Duration: 16-Jan-2017 to 31-Dec-2017
Project Investigator(s): Prof. Kanchana Kanchanasut
Sponsor: THNIC Foundation/NECTEC
Total Contracted Amount (THB): 2,000,000.00

AIT IDM 2017
Duration: 16-Jan-2017 to 31-Dec-2017
Project Investigator(s): Viraphan Samadi
Sponsor: Multi Donor
Total Contracted Amount (THB): 2,000,000.00

InterLab IT services 2017
Duration: 16-Jan-2017 to 31-Dec-2017
Project Investigator(s): Viraphan Samadi
Sponsor: Multi Donor
Total Contracted Amount (THB): 7,506,200.00

Low-cost Real-time Monitoring of Haze Air Quality Disasters in Rural Communities in Thailand and Southeast Asia
Duration: 01-Jan-2016 to 31-Dec-2017
Project Investigators: Dr. Mongkol Ekpanyapong
Sponsor: STIC-ASIE
Total Contracted Amount (THB): 1,398,540.00

IntERLab Trainings 2017
Duration: 01-Jan-2017 to 31-Dec-2017
Project Investigators: Viraphan Samadi
Sponsor: Multi Donors
Total Contracted Amount (THB): 10,00,000.00

7.7 On-going Grants and Sponsored Research

Asian Internet Engineering conference 2017
Duration: 01-Feb-2017 to 31-jan-2018
Project Investigators: Prof Kanchana Kanchanasut
Sponsor: Multi Donor
Total Contracted Amount (THB): 700,000

Automatic illegal parking dectection using unmanned aerial vechicle
Duration: 01-Jul-2017 to 31-Dec-2018
Project Investigators: Dr Mongkol Ekpanypong, Dr Mattew Dalley
Sponsor: Thailand Research Fund
Total Contracted Amount (THB): 382,001.00

Development Of UAV Based Tree Farm Inventory Monitoring System
Duration: 01-Aug-2017 to 31-Mar-2018
Project Investigators: Dr Mattew Dalley
Sponsor: Nation Research council of Thailand
Total Contracted Amount (THB): 416,00.00

The practical development and performance improvement of automatic helmet wearing detection in real scenarios
Duration: 01-Sep-2017 to 31-Dec-2018
Project Investigators: Dr Mongkol Ekpanypong
Sponsor: Thailand Research Fund
Total Contracted Amount (THB): 4,970,800.00

Automatic empty parking lot detection
Duration: 22-Sep-2017 to 21-Sep-2018
Project Investigators: Dr Mongkol Ekpanypong
Sponsor: Encond Fund
Total Contracted Amount (THB): 35,10,000.00

Pile Driving Monitoring Device Phase II
Duration: 15-Jul-2017 to 15-Jan-2018
Project Investigators: Dr Mattew Dalley
Sponsor: Pruksa Real Estate Public Co Ltd
Total Contracted Amount (THB): 9,40,000.00

Automatic Image Enhancement with Super Resolution using Deep Learning for Suspect Detection
Duration: 6-Sep-2017 to 5-Sep-2018
Project Investigators: Dr Mattew Dalley
Sponsor: NSTDA
Total Contracted Amount (THB): 19,91,000.00

Chapter 8: INSTITUTE-WIDE SPONSORED AND CONTRACTED PROJECTS

8.1 Grants and Sponsored Research Completed in 2017

GIS and Remote sensing Capacity Building and development of Web based systems
Duration: 1-Jan-2016 to 31-Dec-2017
Project Investigator(s): Dr Lal Samarakoon
Sponsor: UNESCAP Thailand
Total Contracted Amount
(THB): 3,258,400.00

Waste Management
Duration: 1-Mar-2016 to 30-Jun-2017
Project Investigator(s): Mr Guilberto Borongan
Sponsor: UNEP
Total Contracted Amount
(THB): 1,56,20,000.00

Acid Deposition Monitoring Network in East Asia 2016
Duration: 1-May-2016 to 30-Apr-2017
Project Investigator(s): Dr Supat Wangwongwatana
Sponsor: UNEP ROAP
Total Contracted Amount
(THB): 67,01,903.00

Atmospheric Brown Cloud Activities at the Maldives Climate Observatories
Duration: 1-Jul-2016 to 30-Sep-2017
Project Investigator(s): Dr Ramlal Verma
Sponsor: Stocholm University (SU ACES)
Total Contracted Amount
(THB): 1,690,930.50

A Short Training Course and Interaction program
Duration: 1-Jul-2016 to 30-Sep-2017
Project Investigator(s): Dr Ramlal Verma
Sponsor: Stocholm University (SU ACES)
Total Contracted Amount
(THB): 1,690,930.50

A Short Training Course and Interaction program
Duration: 30-Jun-2017 to 31-Mar-2017
Project Investigator(s): Dr Abha Mishra
Sponsor: FAO India
Total Contracted Amount
(THB): 1,22,760.00

Low-Cost Real-Time Monitoring of Haze Air Quality Disasters in Rural Communities in Thailand and Southeast Asia
Duration: 1-Jan-2016 to 31-Dec-2017
Project Investigator(s): Dr Mongkol Ekpanyapong & Prof Nguyen Thi Kim Oanh
Sponsor: MOFAID
Total Contracted Amount
(THB): 1,398,540.00

8.2 On-going Grants and Sponsored Research

Assessment of Dioxin Emissions from point sources in Thailand
Duration: 1 Nov. 2017 - 30 Jun. 2018
Project Investigator(s): Prof Nguyen Thi Kim Oanh
Sponsor: IEDA Consultants, Inc.
Total Contracted Amount
(THB): 865,500

Applying space-based technology and information and communication technolgy to strengthen disaster resilience
Duration: 01-Oct-2015 to 30-Oct-2018
Project Investigators: Dr Manzul k Hazarika
Sponsor: ADB
Total Contracted Amount
(THB): 38,327,520.00

Sustaining and Enhancing the Momentum for Innovation and earning Around System of Rice Intensification (SRI) in the Lower Mekong River Basin
Duration: 01-Jan-2013 to 31-Jan-2018
Project Investigators: Dr. Abha Mishra
Sponser: The European Union represnetd by European Commission
Total Contracted Amount
(THB): 112,703,266.00

Disaster risk assessment at Uttarakhand
Duration: 01-Jun-2016 to 31-Dec-2018
Project Investigator(s): Dr Manzul Hazarika
Sponsor: World Bank
Total Contracted Amount
(THB): 7,650,000.00

National Adaptation Planning in the Asia Pacific
Duration: 1-Jan-2015 to 31-Dec-2018
Project Investigator(s): Osamu Mizono
Sponsor: MoE Government of Japan
Total Contracted Amount
(THB): 15,109,245.00

Low Carbon Technology Assessment
Duration: 01-Jun-2016 to 31-Dec-2018
Project Investigator(s): Dr Mara Regina Mendes
Sponsor: The Institute for Global Environmental Strategies (IGES)
Total Contracted Amount
(THB): 17,056,596.00

QZSS/GNSS monitoring station maintenance research and training activities
Duration: 01-May-2017 to 30-May-2022
Project Investigator(s): Dr Lal Samarakoon, Dr Kavinda Gunasekara
Sponsor: Multi donors
Total Contracted Amount
(THB): 5,00,001.00

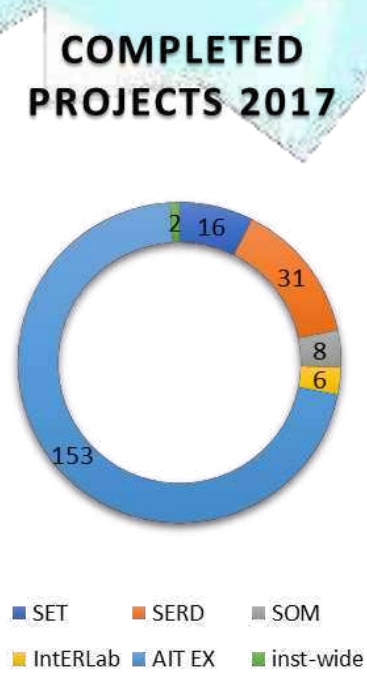
Training Program on Developing Project Proposal For Climate Change
Duration: 01-Jun-2017 to 31-May-2018
Project Investigator(s): Prof. Mukand S Babel
Sponsor: UNEP
Total Contracted Amount
(THB): 2,449,580.00

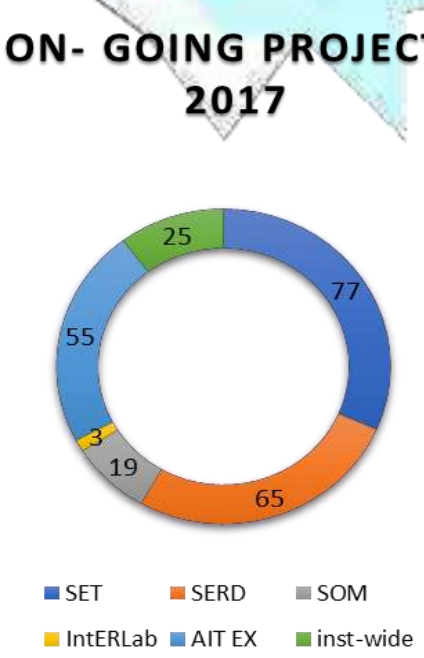
Solar Energy Stotrage In Nanomaterial Enchance Batteries
Duration: 31-Aug-2017 to 31-Dec-2018
Project Investigator(s): Dr Louis Hornyak & Dr Weerakorn Ongsakul
Sponsor: White Group Public Co Ltd
Total Contracted Amount (THB): 1,000,000.00

Promoting Data for Climate Change Drought and Flood Management In Myanmar
Duration: 01-Sep-2017 to 31-Aug-2018
Project Investigator(s): Prof. Mukand S Babel
Sponsor: UNEP
Total Contracted Amount (THB): 70,000.00

Developing Policy Framework and Business Model To Promote Sustainable Us Of Biomass Briquettes In Nepal
Duration: 01-Sep-2017 to 31-Dec-2018
Project Investigator(s): Dr P. Abdul Salam, Dr Shobhakar Dhakal
Sponsor: UNEP
Total Contracted Amount (THB): 1,650,000.00

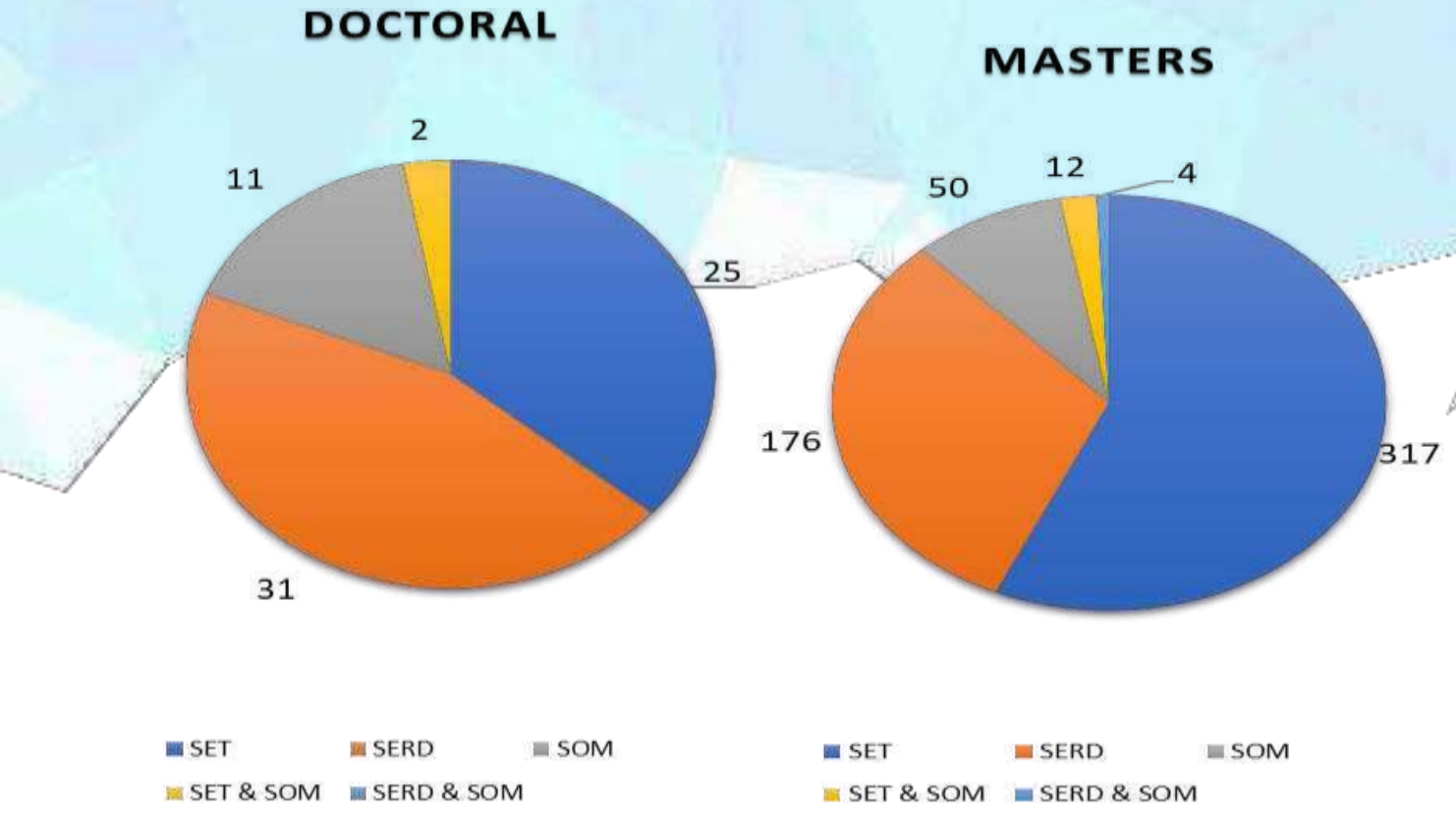
Chapter 9: OVERVIEW OF RESEARCH ACTIVITES FOR 2017





***O**verall During the period Jan to Dec of 2017 there were **406** sponsored and contracted projects which were conducted by the faculty and the staff from within the fields of study (FoS). Of the thress schools, SERD, SET, SOM, as well in AIT Extension, IntERLab and Institute wide projects. The total Publications for the same period stood at from across AIT.*

For the period January to December of 2017 there was a total of **69** Doctoral Dissertations which were undertaken by the faculty from within the Fields Study (FoS) of the three schools, SET, SERD and SOM. The total master's Student Research for the same period stood at **555** from within the three schools. The breakdown of which is indicated in the table below.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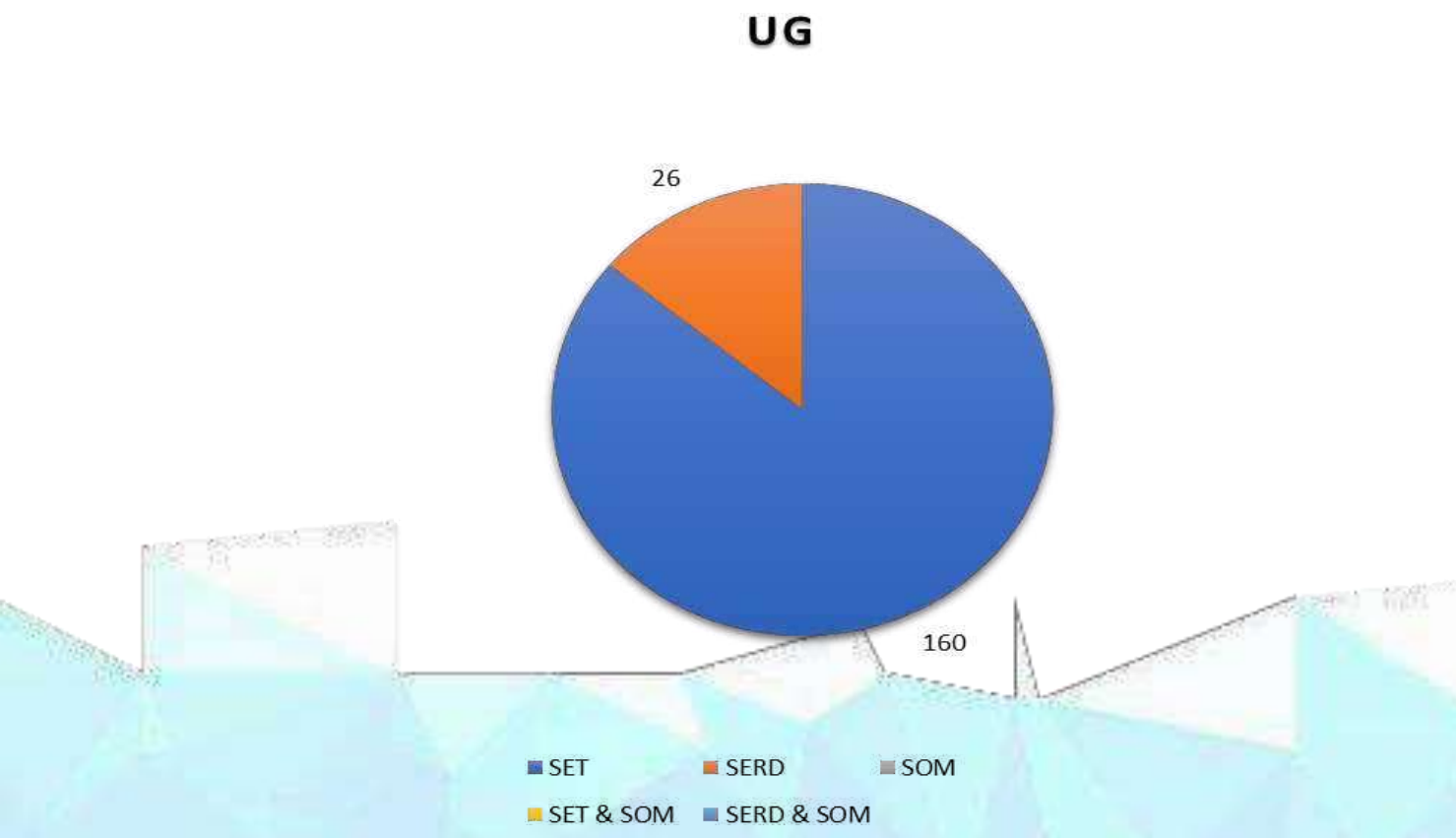
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SCHOOL/FoS	DOCTORAL STUDENTS DISSERTATION	MASTERS STUDENTS RESEARCH			TOTAL MASTERS STUDENTS RESEARCH	UG STUDENTS CAPSTONE PROJECT	TOTAL
		Thesis	*Research Studies*	*Projects*			
SET	**25**	**202**	**49**	**40**	**317**	**160**	**477**
CEIM	**3**	34	1	38	**76**	-	-
CS	**1**	6	12	-	**19**	-	-
GTE	**2**	19	5	-	**26**	-	-
ICT	**2**	2	3	-	**7**	-	-
IM	**1**	2	12	-	**15**	-	-
IME	**3**	16	1	2	**22**	-	-
ME	**3**	4	1	-	**18**	-	-
MES	**-**	7	-	-	**7**	-	-
NT	**-**	1	-	-	**1**	-	-
OTM	**-**	5	-	-	**6**	-	-
RSGIS	**5**	31	2	-	**38**	-	-
STE	**3**	31	3	-	**37**	-	-
TC	**-**	2	7	-	**9**	-	-
TE	**-**	7	1	-	**8**	-	-
WEM	**2**	25	1	-	**28**	-	-
SERD	**31**	**135**	**9**	**1**	**176**	**26**	**202**
AARM	**1**	10	-	-	**11**	-	-
ABM	**4**	10	-	-	**14**	-	-
ASE	**7**	13	-	-	**20**	-	-
CCSD	**-**	2	-	-	**2**	-	-
E	**2**	19	6	-	**27**	-	-
PPT	**-**		-	-		-	-
EEM	**4**	36	2	-	**42**	-	-
FBT	**1**	12	-	-	**13**	-	-
GDS	**-**	7	-	-	**7**	-	-
NRM	**5**	13	-	-	**18**	-	-
RRDP	**4**	6	1	-	**11**	-	-
UEM	**3**	7	-	-	**10**	-	-
UM	**-**	-	-	1	**1**	-	-
SOM	**11**	**-**	**7**	**32**	**50**	**-**	**50**
BA	-	-	-	4	11	-	-
BF	-	-		-		-	-
IB	-	-		-		-	-
EMBA(V)	-	-		28	28	-	
MOT	-	-		-		-	
DBA	3	-		-		-	
SM-PHD	8	-		-		-	
SET&SERD	**2**	**12**		**-**	**1**	**-**	**16**
DPMM	2	5		-		-	-
UWEM	-	7		-		-	-
SERD&SOM	**-**	**-**		**-**		**-**	**4**
EBM	-	-		-		-	
TOTAL	**69**	**345**	**69**	**73**	**555**	**186**	**745**


SET PUBLICATIONS
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