

2019 2nd International Conference on Civil Engineering and Architecture (ICCEA 2019)

2019 International Conference on Engineering Education and Innovation (ICEEI 2019)

September 21-23, 2019 | Seoul, South Korea

Conference Venue: GECE (Global Education Center for Engineers), Seoul National University

Address: Bldg. 38, 1 Gwanak-ro, Gwanak-gu, Seoul, South Korea

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Welcoming Address

On behalf of the conference committees, I am pleased to welcome you to 2019 2nd International Conference on Civil Engineering and Architecture (ICCEA 2019) and 2019 International Conference on Engineering Education and Innovation (ICEEI 2019), which will be held jointly in Seoul, South Korea during September 21-23, 2019, sponsored by Seoul National University.

ICCEA is the premier forum for the presentation of new advances and research results in the fields of theoretical, experimental, and practical civil engineering and architecture. The conference will bring together leading researchers, engineers and architects in the domain of interest from around the world, while ICEEI is more focusing on providing an optimal platform for academic communications, exchange of ideas and inspirations between specialists and scholars in the fields of education and innovation, including the issues such as vocational education, applied psychology, innovation economy and innovative research.

2019 Seoul Conferences will be composed of 6 oral parallel sessions, 4 keynote speeches delivered respectively by Prof. Ashraf El Damatty, The University of Western Ontario, Canada; Prof. Youngjin Lee, Boston Architectural College & Sasaki Associates, Inc., USA; Prof. T.C. Pong, Hong Kong University of Science and Technology, Hong Kong; and finally, I would like say thank you to all of our conference committees and participants for always being supportive to the conferences and coming to Seoul during your busy schedule to share your knowledge with us. I hope the conferences will be proved to be intellectually stimulating to all of us.

“Seoul, officially the Seoul Special City, is the capital and largest metropolis of South Korea. With surrounding Incheon metropolis and Gyeonggi province, Seoul forms the heart of the Seoul Capital Area. Strategically situated along the Han River, Seoul's history stretches back over two thousand years, when it was founded in 18 BCE by the people of Baekje, one of the Three Kingdoms of Korea. The city was later designated the capital of Korea under the Joseon dynasty. More recently, Seoul has been a major site of modern architectural construction – major modern landmarks include the N Seoul Tower, the 63 Building, the Lotte World Tower, the Dongdaemun Design Plaza, Lotte World, Trade Tower, COEX, and the IFC Seoul. Seoul was named the 2010 World Design Capital.”

Hope you will enjoy the conferences, the food, the hospitality, as well as the beautiful and charming environment of Seoul!

Prof. Thomas Kang
Conference Chair
ICCEA 2019 & ICEEI 2019

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Conference Committees

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Hongzhi Ouyang, University of South China, China
Jaekyun Park, Dankook University, South Korea
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Varodom Suksawasdi, Thammasat University, Thailand
Ian F. Taberner, Boston Architectural College, USA
Sungho Tae, Hanyang University, South Korea
Faisal Talib, University Polytechnic, India
Wallapa Wassanasompong, Suan Sunandha Rajabhat University, Thailand
Xiang Guo Wu, Harbin Institute of Technology, China
Haryati Yaacob, Universiti Teknologi Malaysia, Malaysia
Xing-Gang Yan, University of Kent, United Kingdom

Junyan Yang, Southeast University, China

Keun-Hyeok Yang, Kyonggi University, South Korea

Qing Yang, University of Science and Technology Beijing, China

Se Hoon Yang, Seoul National University, South Korea

Yanto Yanto, Jenderal Soedirman University, Indonesia

Bongyoung Yoo, Hanyang University, South Korea

Nur Farhana Diyana Mohd Yunos, Universiti Malaysia Perlis, Malaysia

Wardah Fatimah Mohammad Yusoff, National University of Malaysia, Malaysia

Piotr Ziembicki, University of Zielona, Góra, Poland

Instructions

Registration Guide:

Arrive at the Conference Venue→Inform the conference staff of your paper ID→Sign your name on the Participants List→Check your conference kits.

Checklist:

1 receipt, 1 name tag, 1 printed conference abstract, 1 lunch coupon, 1 dinner coupon, 1 computer bag, 1 USB stick (paper collection).

Devices Provided by the Conference Organizers:

Laptops (with MS-Office & Adobe Reader)

Projectors & Screen

Laser Sticks

Materials Provided by the Presenters:

PowerPoint or PDF files

Duration of Each Presentation:

Regular Oral Session: 15 minutes of presentation including 2-3 minutes of Q&A

Notice:

*Certificate of Listener can be collected in the registration counter.

*Certificate of Presentation can be collected from the session chair after each session.

*The organizer will not provide accommodation, so we suggest you make an early reservation.

*One “Best Presentation” will be selected from each session, which will be announced at the end of each session and will be awarded by the session chair in the meeting room.

*Please take good care of your safety, as well as belongings during the business trip and convention time. Looking forward to meeting you soon in Seoul!

Contact Us:

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Venue Map

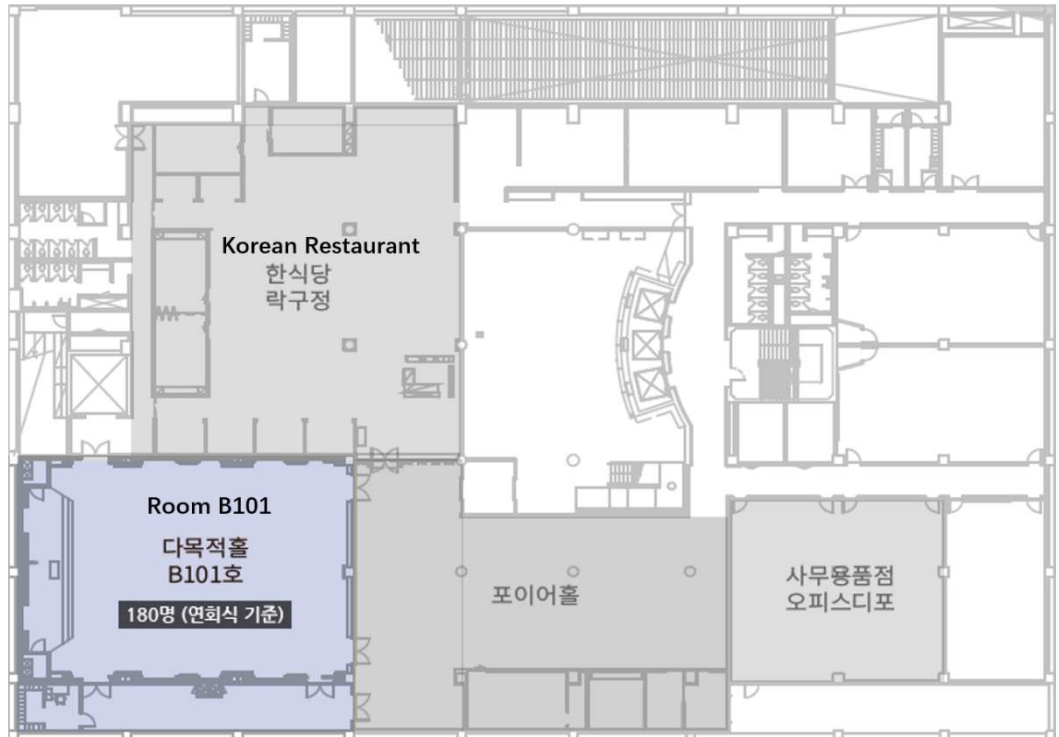
GECE ([Global Education Center for Engineers](#)), Seoul National University

Address: Bldg. 38, 1 Gwanak-ro, Gwanak-gu, Seoul, South Korea

Note: To view the specific location of Bldg. 38, please click [here](#) to download the campus map.

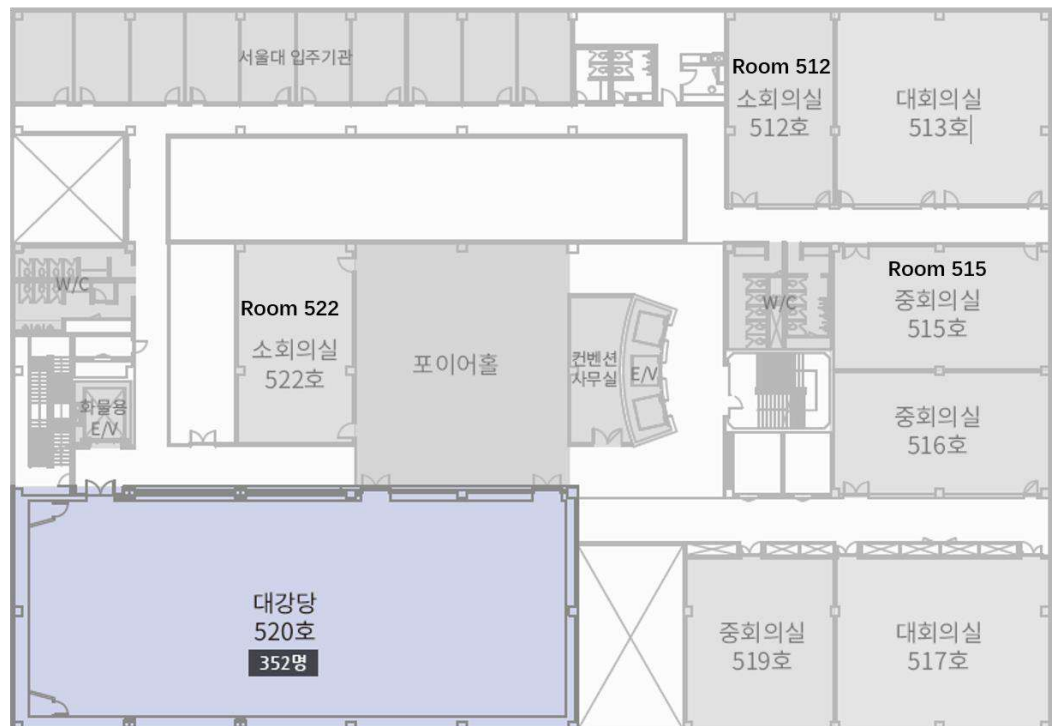
B1

VENUE
in the morning
of Sept 22nd



5F

VENUE
in the afternoon
of Sept 22nd



Meeting Agenda

REGISTRATION

September 21, 2019

[Time]	[Event]	[Location]
10:00-17:00	Registration & Conference Kits Collection	West Entrance Lobby--1F, GECE
14:00-15:00	Academic Visit- IDEA FACTORY Click here to check its official website.	Gather at West Entrance Lobby of GECE

MORNING MEETING

September 22, 2019

Venue: Room B101--B1 floor, GECE

[Time]	[Event]
09:00-09:05	Chairman / Opening Remarks Prof. Thomas Kang, Seoul National University, South Korea
09:05-09:45	Keynote Speech I Prof. Ashraf El Damatty, The University of Western Ontario, Canada <i>Speech Title: Transmission Line Structures under Tornadoes and Downbursts - Numerical Development, Testing and Code Implementation</i>
09:45-10:25	Keynote Speech II Prof. Patrick Safran, Incheon National University, South Korea <i>Speech Title: International Development and Engineering Education - A Brief Introduction to International Development Project</i>
10:25-10:50	Group Photo & Coffee Break
10:50-11:30	Keynote Speech III Prof. Youngjin Lee, Boston Architectural College & Sasaki Associates, Inc., USA <i>Speech Title: Algorithmic Paradigm for Design Innovation in Architecture</i>

11:30-12:10 **Keynote Speech IV**
Prof. T.C. Pong, Hong Kong University of Science and Technology, Hong Kong
Speech Title: E-learning-based Engineering Education Innovations

12:10-13:30 Lunch at Korean Restaurant --B1 floor

AFTERNOON MEETING

September 22, 2019

Venue: Room 512, 515 and 522 –5F, GECE

[Time]	[Parallel Sessions & Presentations]	[Venue]
13:30-15:45	Session 1: Architecture and Built Environment Presentation: CEA074 CEA025 CEA044 CEA049 CEA067 CEA068 CEA070 CEA071 CEA026-A	Room 512
	Session 2: Education and Innovation in Engineering Presentation: CEA0001 CEA0012 CEA0003 CEA058-A CEA0005 CEA0016 CEA0018 CEA0023 CEA0031	Room 515
	Session 3: Architectural and Civil Engineering Presentation: CEA012-A CEA013-A CEA051 CEA057-A CEA085 CEA062-A CEA072 CEA1004 CEA042	Room 522
15:45-16:00	Coffee Break	
16:00-18:15	Session 4: Urban and Community Management Presentation: CEA0027-A CEA027 CEA028-A CEA075 CEA043 CEA048 CEA047 CEA077 CEA053	Room 512
	Session 5: Construction Materials and Geotechnical Engineering Presentation: CEA0011-A CEA008-A CEA017-A CEA021 CEA035 CEA052-A CEA063 CEA086 CEA083	Room 515
	Session 6: Global Engineering and Education Presentation: CEA078 CEA0006-A CEA0026 CEA0008 CEA0009 CEA2001 CEA0025-A CEA0028 CEA084	Room 522
18:15-19:30	Dinner at Korean Restaurant --B1 floor	

CITY TOUR IN SEOUL

September 23, 2019

Meeting Point: [WD Hotel](#) (349, Sillim-ro, Gwanak-gu, Gwanak-Gu, Seoul, 08760)

[Time]	[Event]
09:00	Pick-up at WD hotel
09:40-12:00	Royal Palace + Musuem (10AM Guard Change Show)
12:00-15:00	Bukchen Hanok Village + Samcheong Dong (Lunch time included)
15:00-16:30	Kwangjang Market (Korean Snack Tasting)
16:30-18:00	Myeong Dong
18:00	Back to the hotel

NOTE:

1. Tickets are included in the registration fee. But for lunch and other snacks, participants need to cover the fee by themselves.
2. We can provide the pick-up service at your hotel, if it's nearby the WD hotel. Please contact with the conference secretary for more information before the **15th** of September.
3. Registration is not acceptable after the **15th** of September.
4. Kindly take good care of your belongings throughout the visit.



Introduction of Keynote Speakers



Prof. Ashraf El Damatty, The University of Western Ontario, Canada

Speech Title: [Transmission Line Structures under Tornadoes and Downbursts - Numerical Development, Testing and Code Implementation](#)

Abstract: Downbursts and tornadoes belong to a category of windstorms called High Intensity Wind (HIW). It was reported that more than 80% of weather-related transmission line failures have been associated with HIW events. An extensive research program was initiated about 15 years ago at the University of Western Ontario, Canada, focusing on this problem. This research was triggered by the failure of a number of towers in the provinces of Manitoba and Ontario in Canada and was supported by the two major Canadian electrical utility companies Manitoba Hydro and Hydro One Ontario. The research covered various aspects related to this problem. These include the development and experimental validation of computational fluid dynamics models to simulate downbursts and tornadoes. The HIW wind fields were incorporated into a nonlinear finite element program developed in-house that is capable of simulating all components of a transmission line system including the towers, the conductors and the insulators. The localized nature of HIW events introduces more complications as the response of long structures, like transmission lines, will vary significantly depending on the location and size of the wind event. The developed numerical model was used to conduct extensive parametric studies to assess the behavior of various guyed and self-supported towers under downbursts and tornadoes. The numerical model was also used to conduct progressive failure analyses for transmission systems to predict failure loads and modes, which were shown to coincide with field observations. The first aero-elastic tests conducted in the world on multi-span transmission model under simulated downbursts and tornadoes were carried out in this research program at the unique WindEEE dome facility recently established at the University of Western Ontario. A major outcome of this research program was the development of a set of load cases simulating the critical effects of downbursts and tornadoes on transmission line structures, which are in the final stage of implementation in the ASCE-74 guidelines, representing the first specifications available in the world to account for the effect of localized wind storms on transmission line structures.

BIO: Dr. Ashraf El Damatty, Professor and Chair of the Department of Civil and Environmental Engineering at the University of Western Ontario, London, Ontario, Canada. He is a Fellow of the Canadian Society of Civil Engineering and Fellow of the Engineering Institute of Canada. He is a Research Director at the WindEEE Research Institute and Co-Editor-in-Chief of the Journal of Wind and Structures. He held the title of High End Expert at Tongji University, China. He obtained a BSc. and M.Sc. from Cairo University in 1986 and 1991 respectively, a Ph.D. in Structural Engineering from McMaster University, Canada in 1995, and an MBA in 2016 in Higher Education Management from University College, London, UK. He is the founder of the Canadian Society of Civil Engineering (CSCE) Steel Structures Committee and serves currently as the CSCE Structures Division. He has consulted on many projects in North America and the Middle East. He has written over 200 publications and has secured research funding exceeding \$20.0 M. He has supervised more than 30 Ph.D. and 20 M.Sc. students and has been invited as keynote speaker in many countries around the globe. He received several awards including the Alan Yorkdale Award by ASTM, Best Paper Award at the Canadian Conference on Effective Design of Structures, Honourable Mention in 2014 Casimir Gzowski Medal Competition, 2015 CSCE Whitman Wright Award, 2016 CSCE Horst Leipholz Medal, Western University Faculty Scholar Award, and the 2018 Professional Engineers of Ontario Research and Development Award. His research work has influenced the international codes and the engineering practice worldwide.



Prof. Patrick Safran, Incheon National University, South Korea

Speech Title: International Development and Engineering Education - A Brief Introduction to International Development Project

Abstract: WHAT IS ODA? Official development assistance (ODA) is defined by the OECD Development Assistance Committee (DAC) as government aid that promotes and specifically targets the economic development and welfare of developing countries. The DAC adopted ODA as the “gold standard” of foreign aid in 1969 and it remains the main source of financing for development aid. ODA Definition: Flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25% (using a fixed 10% rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries (“bilateral ODA”) and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions (OECD, Glossary of Statistical Terms). The main objective of ODA is the promotion of economic development and welfare of developing countries (as defined by the OECD-DAC). ODA excludes (i) military aid and promotion of donor’s security interests, and (ii) primarily commercial objectives (e.g. export credits). Governments in developing countries are continually short of resources and usually have difficulty meeting the resource requirements they promised at time of project planning and approval.

BIO: Dr. Patrick Safran is an experienced international development practitioner with 34 years of demonstrated history of working in the international trade and development industry. He is Expert for the European Commission–Education, Audiovisual & Culture Executive Agency (Erasmus+). He was adjunct Professor at Incheon National University (INU) and Head of International Relations of the International Center for Urban Water Hydroinformatics Research and Innovation, teaching climate-fragility risks and their potential implications on livelihoods and food security with strong focus on water resources management and planning (e.g., restoration and protection of aquatic ecosystems, resolution of water dispute and cooperation, disaster risk reduction), especially in the developing countries of Asia and the Pacific through an effective use of the official development assistance (ODA), the international cooperation and technical assistance.

Prior to joining INU, Dr. Safran worked 19 years at the Asian Development Bank (ADB) where he was the corporate focal point for fragile and conflict-affected countries supporting ADB operations in this context. Previously, he helped developed ADB’s strategic and results-oriented approach to fragile situations; principal author of the policy and focal point for disaster and emergency assistance; ICT coordinator; and project specialist and focal point for coastal and aquatic resources management. Prior to joining ADB, Dr. Safran was the Regional Manager for Asia-Pacific and Latin America at the French Agency for Agricultural Research for International Development (CIRAD).

Dr. Safran is the Honorary Theme Editor for Fisheries and Aquaculture of the UNESCO Encyclopedia of Life Support Systems and he has authored many papers covering his diverse career. He has also participated in many international symposiums and delivered many keynote/invited speeches.



Prof. Youngjin Lee, Boston Architectural College & Sasaki Associates, Inc., USA

Speech Title: Algorithmic Paradigm for Design Innovation in Architecture

Abstract: Lastly, we will discuss how to frame the pedagogical approach in order to foster students with the comprehensive knowledge encompassing computation intelligence and design sensibility to prepare for this paradigm shift. Digital-driven architecture has been raising new design possibilities. Advances in CAD/CAM technologies are radically changing the way of designing, constructing buildings and narrowing the gap between what can be designed, and what can be built. Among various types of digital architecture, an innovative approach is highlighted recently: algorithmic design. An algorithm is a procedure that receives data as input, processes them and returns a solution to a question. Algorithmic design is the process of creating design solution by utilization of mathematics and rule-based logic. It is not the exclusive possession of computer science anymore. It can generate various options with parameter(s) that designers define, evaluate quantitatively design elements such as geometrical form, performance aspects and others. The output inspires human mind to develop and expand design possibility beyond the predictable events. Computation within algorithmic is not just a design tool for virtual representation of one's design idea but rather design process in that it can offer the methods of exploration and experimentation. This keynote presentation will show the several case studies to illustrate how we can utilize the algorithmic design in both conceptual and practical levels. The first is to investigate using a Cellular Automata (CA) as a generative design strategy that creates a design framework for a contemporary Han-ok, the traditional Korean house. The second case introduces the process for Multi-objective Optimization Framework (MOF), which mediates multiple conflicting design targets by using Genetic algorithms, followed by the practical application to the façade design of a Recreation Center and a library at the University of Lima, Peru. The last two fabrication examples including the art wall installation in house and concrete shading screen will demonstrate how we can translate the virtual output of the algorithmic design into the tangible objects.

BIO: Prof. Lee is currently a faculty of the Boston Architectural College in Massachusetts, US, and a Senior Associate at Sasaki Associates, Inc. in Massachusetts, US as a licensed architect with 15 plus years of experience. He received a BS (1998) in Aeronautical Engineering from Seoul National University, Korea, a BS (2000) in Architecture from the same school, and an M.Arch (2007) from School of Architecture at Yale University, U.S.

Prof. Lee is a member of the American Institute of Architects (AIA), a member of Boston Society of Architects (BSA), a member of U.S. Green Building Council (USGBC), and a member of Architectural Institute of Korea (AIK). He is also a peer reviewer of international journals including Nexus Network Journal and Architectural Research, and a research project reviewer of National Research Foundation of Korea. Prof. Lee has been teaching multiple Master's Thesis Studios and advanced architectural workshops of design computation and digital fabrication in the Boston Architectural College since 2011 with the unique pedagogy focusing on the integration digital design and between multiple disciplines.

Prof. Lee's research stems from his experience in both academia and practice, and efforts to improve design methodology, which offers design possibilities through integrative design media and generative algorithms. He has published in many journals including *Architectural Research*, *Journal of Journal of Asian Architecture* and *Building Engineering, Automation in Construction*, *Nexus Network Journal*, *Advances in Computational Design*, and presented his works at International Conference on Sustainable Building Asia 2016, AIA Conference on Architecture 2017, and ASHRAE 2017 Building Performance Analysis Conference.



Prof. T.C. Pong, Hong Kong University of Science and Technology, Hong Kong

Speech Title: E-learning-based Engineering Education Innovations

Abstract: The US National Academy of Engineering has called for a reengineering of the engineering education system in its report “Educating the Engineer of 2020”. It is recommended that the engineering process of designing, evaluating, building and testing should be introduced from the earliest stages of the curriculum, including the first year. Students should be engaged in team projects that connect engineering design with real-world problems. In this talk, I will present a cornerstone engineering design project course designed specifically for first year engineering students. This course aims at providing engineering students exposure to knowledge and skills from different engineering disciplines. Students will be divided into project teams and apply the acquired knowledge and skills to design and build engineering artifacts through experiential learning. In order to offer the course at scale, the fundamental engineering components will be delivered using e-learning. After students completed the e-learning modules, they will be engaged in experiential learning through working together in teams with senior engineering students. I will also discuss how learning analytics on data collected from the learning management system can be used to provide just-in-time feedback to the instructors and students.

BIO: Professor Ting-Chuen Pong is the Director of the Center for Engineering Education Innovation and Professor of Computer Science & Engineering at the Hong Kong University of Science & Technology (HKUST). He is a founding faculty member of HKUST, where he had served as a Senior Advisor to the Executive Vice-President and Provost, Associate Vice-President for Academic Affairs and Associate Dean of Engineering. Before joining HKUST, he was an Associate Professor of Computer Science at the University of Minnesota, Minneapolis, USA.

Prof. Pong is currently a member of the Quality Assurance Council and the Research Assessment Exercise Group of the Hong Kong University Grants Committee (UGC), as well as the Steering Committee on Research Themes and Topics of the Hong Kong Research Grants Council. He served as Academic Research Advisor for the UGC from 2010 to 2012. He is currently also serving as a member of the Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ) and Chair of the Qualifications and Accreditation Committee in HKCAAVQ.

Prof. Pong received his Ph.D. in Computer Science from Virginia Polytechnic Institute and State University in 1984. His research interests include Multimedia Computing, Computer Vision and E-learning. Prof. Pong is a recipient of the Pattern Recognition Society Award in 1990 and the HKUST Excellence in Teaching Innovation Award in 2001. In 2014, he led the HKUST team in the Wharton-QS Stars Awards Competition and was selected as Winner of the Natural Sciences Award and Runner-up of the Hybrid Learning Award.

Parallel Sessions and Abstract



- ✓ Please arrive at the session 15 minutes earlier to upload your files for presentation to conference computer.
- ✓ It is recommended bringing two versions of your presentation files on USB in case of any error.
- ✓ There will be a session group photo part at the end of each session.
- ✓ One best presentation will be selected from each session. The best one will be announced when each session ends and will be awarded by the session chair.

Session 1: Architecture and Built Environment

Chair: Dr. Chaiwat Riratanaphong, Thammasat University, Thailand

<Time: 13:30-15:45 | Venue: Room 512 >

13:30-13:45
CEA074

Research on Body and Architecture
Qi Zhang, Tongji University, China

Abstract: The topic of body is closely related to architecture. Based on the Anthony Vidler's and others' study on the relationship between body and architecture, this paper studies the relationship between body and architecture from a historical perspective, including the concept of body in philosophical context, the projection of body in classical architecture, and the metaphor of body in postmodern architecture. The theory of body has had an important influence on the architectural form at the beginning of the development of architecture, and then expanded the understanding of architecture at different stages. Recently, with the environmental issues and sustainable development getting more and more attention, the relationship between body theory and architecture will also face new development potentials and opportunities. Reconsidering architecture from the perspective of body perception and paying attention to the interaction between psychology and environment is an opportunity for the development of body and architecture, which may lead to theoretical and practical guidance of more contemporary significance.

13:45-14:00
CEA025

Artificial Land Concepts and the Architecture of Megastructure in Seoul
Dario Pedrabissi, University of Portsmouth, UK

Abstract: In this paper, I discuss the main arguments that deal with the issue of high density and utopian architectural projects to investigate the advance of megastructure buildings and artificial land concepts in Seoul during the 1960-70s. It is my purpose to highlight the architectural influences that have generated these ideas by pointing to the genesis and the evolution of critical projects in Seoul.

The paper is structured as follows. After giving an overview of the scope of the contemporary high-density urban factors, I review the particular evolution of the megastructure projects from the 1950s. This analysis creates the background to introduce South Korean projects that have been influenced by the international concepts of utopia. The main case study is the Sewoon Sangga building and its strictly related synergy with the highly productive surrounding area. The results of this research have advanced the ground for further investigations on the evolution of megastructure projects and their influence on the surrounding urban environment. The clash between formal and informal architecture is particularly accentuated in Seoul as the high-density condition of this megacity generates situations that reflect both the traditional milieu and the technologically advanced environment.

<p>14:00-14:15 CEA044</p>	<p>Thermodynamic Prototype Research of Vernacular Architecture Based on Climate Adaption Simin Tao, Tongji University, China</p> <p>Abstract: Climate adaptation represents the thermodynamic state of building systems by feedback of form, material and spatial organization. This article proposes a new method to research the climate adaptability of vernacular architecture. Taking Shentan Village settlement as a case study, we search for the architectural prototype from the perspective of thermodynamics by simulations of LADYBUG+HONEYBEE tools, extract the architectural elements related to the specific climate characteristics, and systematically analyse the internal logic of energy flow in vernacular buildings by energy systems language.</p>
<p>14:15-14:30 CEA049</p>	<p>A Study of Architectural Design of Thai Temples Influenced by Thai and Mon Ethnic in Sam-Khok District M. L. Varodom Suksawadi, Thammasat University, Thailand</p> <p>Abstract: This study aims to investigate and compare architectural design including layout planning and stupa design of Thai and Mon Buddhist temples in Sam-Khok district. The data collection is gained from literature reviews, field observation, and interview. It is found that the design of these two temples is slightly transformed from those of the royal temples in terms of the layout axis and size of stupa. The change of the main access from water-based to land-based approach effects the layout of Buddhavas and Sangkhawas zones. These findings can provide an understanding of influential factors on architectural design of Thai and Mon Temples. It is benefiting the cultural tourism development in Sam-Khok district.</p>
<p>14:30-14:45 CEA067</p>	<p>Reshaping Dormitory by Modular Steel Structure Hang Yu, Tongji University, China</p> <p>Abstract: Modular steel structure with a 100% assembly rate, is one of significant methods to realize building industrialization. It has an extensive application prospect due to the short construction cycle and small impact on the surrounding environment. Based on the characteristics of modular architecture, this paper takes the work of the 2018 Chinese College Students Steel Structure Innovation Competition as an example to discuss the design possibilities of student dormitories. However, due to production mode and transportation conditions, modular building also has some limitations for application. Through research on design, this paper makes the breakthroughs in the design limitations of modular building.</p>
<p>14:45-15:00 CEA068</p>	<p>The Origin and Development of Boxes in Sports Architecture Qiuju Mao, Tongji University, China</p> <p>Abstract: Since the 1990s, under the pressure of marketing, the box was set up in the NBA (National Basketball Association) arena in the United States, which made the application of the box in the stadium popular. The study of boxes is of far-reaching significance for stadiums and gymnasiums. It not only improves the current situation of poor operation and low utilization rate of stadiums and gymnasiums, but also responds to the needs of consumers for the commerciality and entertainment of stadiums and gymnasiums</p>
<p>15:00-15:15 CEA070</p>	<p>Adaptation of Apartments to Small Hotels: The Case of Nakhon Si Thammarat Thailand Chaiwat Riratanaphong, Thammasat University, Thailand</p> <p>Abstract: The support of tourism industry from Thai government leads to the increasing demand and development of accommodation in the less visited cities including Nakhon Si Thammarat, which has been mostly visited in comparison to the other less visited cities since 2017. There is a high demand in small hotel accommodation type in Nakhon Si Thammarat whereas apartment buildings are oversupplied and becoming obsolete. This study aims to propose a step-by-step process for the adaptation of apartments to small hotels in Nakhon Si Thammarat, Thailand. Research method includes interviews with tourists, small hotel developers, the apartment developer and the expert in the adaptation of buildings to small</p>

	<p>hotels. The findings show the alignments between data from the interviews and what have been found in the literature that were developed to a proposed step-by-step process on the adaptation of apartments to small hotels. This study provides the adaptation process based on the case of Nakhon Si Thammarat, Thailand. More cases are required to test the step-by-step process in order to increase the validity and to make further progress. Further study could focus on feasibility analysis and the implementation of the step-by-step process in other cities to find out the similarities and dissimilarities regarding the different contexts of the cases</p>
<p>15:15-15:30 CEA071</p>	<p>Death and Rebirth: Regional Renewal and Development of Industrial Architecture Heritages in Shanghai Dongwei Cheng, Tongji University, China</p> <p>Abstract: Lots of industrial architecture heritages which remain the utility and aesthetic values at the present times are preserved in Shanghai which is one of the earliest industrial cities in modern China. Shanghai as the most exoteric and cutting-edge city among other countries around the world, has the distinct regional feature of avant-garde. Based on the methodologies of field investigations and case studies, the utility and aesthetic value of industrial architectural heritages in Shanghai are integrated with avant-garde for the purpose of reshaping their physical and psychic space.</p>
<p>15:30-15:45 CEA026-A</p>	<p>In Search of Landscape Sustainability Assessment Framework for Landscape Development in Malaysia Nur Azemah Aminludin, University Putra Malaysia, Malaysia</p> <p>Abstract: The landscape development evolving and providing healthy ecosystems which support all life. Sustainable development fulfills the needs of the present without neglecting the ability for future generation's needs. Many initiatives assessment towards sustainability development have been published. It leads to a better living and more efficient use of natural resources sustaining long-term ecological, economics and social benefits. Recently in Malaysia is referring to the Green Building Index (GBI) practices that purposely established for green building assessment tool. It is also embedded the assessment for built environment in the third criteria; Sustainable Site Planning & Management (SM) with only 16 points. However, it is not thoroughly focusing on the landscape development itself. In this study, a globally and locally existing assessment tools for landscapes development are analyse. The aims towards sustainability, the integration with the surrounding environment, socially and economically will take into consideration. This paper will focus on the assessment criteria's for assessing the landscape sustainability developments. The review process adopts a criteria's which encompasses all features of landscape sustainability development into Malaysian context. Therefore, the tools for assessment on landscape sustainability development in Malaysia should be developed. A comprehensive documents analysis finally come out the conceptual framework as a reference in an appropriate future planning to take into consideration in the process of pre-design phase, development process and post development management towards sustainability.</p>

Session 2: Education and Innovation in Engineering

Chair: Asst. Prof. Songlak Sakulwichitsintu, Sukhothai Thammathirat Open University, Thailand

<Time: 13:30-15:45 | Venue: Room 515 >

13:30-13:45
CEA0001

Teaching Physics Using Equidistant AR/VR-Projections
Oleg Yavoruk, Yuga State University, Russia

Abstract: Modern augmented/virtual reality (AR/VR) technologies offer us new educational opportunities. They possess the immense untapped resources for significant improvements of the physics education. The transformation of the learning scene (or arena) to the abstract symbolic environment leads to the emergence of the new views at teaching. The AR/VR-glasses allow us to do this, changing, supplementing and augmenting the picture of the physical world around the observer (teacher or student) and even completely replacing it. The paper deals with the teaching experience of the equidistant (spherical) projection use in the physics classes. It describes the list of useful tools to facilitate the perception of AR/VR 360-panoramas, recommendations for the practical use, the students' opinion about this technology. It also presents the description of equidistant panoramic slides that are already available, tested in the practice, and ready for physics teaching. Here we consider the place of equidistant AR/VR-projections in the educational process, characteristics of the educationally tested AR/VR-devices, the most effective techniques of their use.

13:45-14:00
CEA0012

Preparing for Education 4.0: Skills Facing Economic Social and Environmental Challenges
Maria do Rosário Cabrita, Universidade Nova de Lisboa, Portugal

Abstract: Increased digitation, automation, intelligent processes and global interconnectivity, are just some of the drivers reshaping how we think, we work, we learn, we organize in society. These drivers will entirely change the way we live and work, impacting directly the way we build education system for today's students. Education 4.0 emerges as a response to the challenges of Industry 4.0 that focuses on the intensive use of cyber-physical solutions and internet-based technologies across our lives. The very driver of education for the future should be aligned to these exponential technologies, not forgetting a social and environmental view in the refreshing curricula. Rapid technological breakthroughs are leading changes in our social, economic, ecological, and cultural lives, causing a great variety of challenges in the education system. Future skilled workers depend very much on the quality of education system, which is itself dependent upon a serious and responsible debate involving education, industry leaders and public politics. The literature reveals a lack of studies on this topic. This paper focuses on exploring skills in today's students need to seize opportunities and find solutions in the context of Industry 4.0. The study emphasizes the need for a full-scale transformation in technical, learning and citizen system.

14:00-14:15
CEA0003

Assessing Website Quality of Online Travel Agency: An Application of the Importance-Performance and Gap Analysis Model
Amanda Katia Khairunnisa, Diponegoro University, Indonesia

Abstract: Currently, online travel agencies (OTAs) are experiencing an increase in the number of customers. For gaining customer satisfaction, service providers have to improve their services to fulfil customer needs and demands. In this sense, service quality is considered as a vital aspect for the success of the service providers since it is tightly related to customer satisfaction. This research aims to assess website quality of OTA using the importance-performance and gap analysis model. Thirty-one attributes were employed in this research. A case study was conducted in an Indonesian-based OTA, namely, "OTA X". This study is believed to provide the management with valuable insights into the attributes that reflect the customers' perspectives.

<p>14:15-14:30 CEA058-A</p>	<p>Earthquake Response Using a Low Cost Arduino-based Device to Detect Earthquakes Suhyun Park, Seoul National University, South Korea</p> <p>Abstract: In this paper, a model is designed to detect earthquakes and developed to respond to earthquakes in a very short time. The developed earthquake detection device is equipped with an acceleration sensor used in combination with Arduino. To predict earthquakes, this model should detect P wave, the fastest wave. After sensing the P wave, the device calculates the intensity level by measuring PGA. According to its level, proper actions are taken automatically to decrease the whole damage of buildings and eventually save more human lives</p>
<p>14:30-14:45 CEA0005</p>	<p>New Innovation on Geographic Information System Onstratification of Flood-Prone Areas Using Spatial Method Kristoko Dwi Hartomo, Satya Wacana Christian University, Indonesia</p> <p>Abstract: Flood is one of the disasters that occur every year, especially in the area of Kudus Regency, Central Java Province, Indonesia. The flood that occur every year will certainly cause losses in various fields of life in flood-affected areas. Because of that, mapping of flood disaster risk areas is needed by analyzing rainfall data, land altitude, and river width, each of which has parameters, classes, scores, and weights to assess the level of flood risk in each sub-district. Disaster risk maps are manifested in the form of a Geographic Information System on Stratification of Flood-Prone Areas that can be used by local governments and communities to develop policies for mitigating and anticipating disasters, particularly floods in accordance with the conditions and needs of each region. The system was developed with spatial methods utilizing Google Maps so that flood disaster risk maps can be presented accurately, dynamically and informatively. The results of the study show that functionally the system can do all the processes of determining flood-prone areas correctly and can be applied in decision making to determine the location of flood-prone areas, evacuation sites, emergency response implementation, and flood monitoring.</p>
<p>14:45-15:00 CEA0016</p>	<p>Differences in Self-Regulated Learning (SRL) and Online Learning Satisfaction Across Academic Disciplines: A Study of a Private University in Malaysia Chee Leong Lim, Taylor's University Lakeside Campus, Malaysia</p> <p>Abstract: Students' online learning satisfaction is an important variable used to measure attainment of learning outcomes in blended learning courses. Previous studies found that learners who portray a high level of SRL contributed positively to online learning satisfaction. To date, research has also shown that students display different level of online learning satisfaction under different academic disciplines. Therefore, this quantitative research aims to investigate if students' SRL abilities significantly influence their online learning satisfaction in blended learning courses and if differences exist in online learning satisfaction across multiple academic disciplines. A set of online self-reported questionnaire was posted through the official LMS of the university to collect data from 497 undergraduate students in a private university in Malaysia. The results from the multiple regression analysis revealed that SRL explained 40.2% of the variability in online learning satisfaction (OLS). In addition, the results from one-way ANOVA with Tukey Post Hoc analysis revealed that OLS level was significantly different statistically between students in Health & Medical science discipline and Innovation & Technology discipline. The outcomes of this research provide insights as to where future efforts need to be directed, especially in the areas related to the development of students' self-regulated learning (SRL) abilities.</p>

<p>15:00-15:15 CEA0018</p>	<p>From Courses to Contests: A Full Levels Project-driven Innovative Education Curriculum Struct</p> <p>Zhengyuan Shi, Shandong University, China</p> <p>Abstract: Students' online learning satisfaction is an important variable used to measure attainment of learning outcomes in blended learning courses. Previous studies found that learners who portray a high level of SRL contributed positively to online learning satisfaction. To date, research has also shown that students display different level of online learning satisfaction under different academic disciplines. Therefore, this quantitative research aims to investigate if students' SRL abilities significantly influence their online learning satisfaction in blended learning courses and if differences exist in online learning satisfaction across multiple academic disciplines. A set of online self-reported questionnaire was posted through the official LMS of the university to collect data from 497 undergraduate students in a private university in Malaysia. The results from the multiple regression analysis revealed that SRL explained 40.2% of the variability in online learning satisfaction (OLS). In addition, the results from one-way ANOVA with Tukey Post Hoc analysis revealed that OLS level was significantly different statistically between students in Health & Medical science discipline and Innovation & Technology discipline. The outcomes of this research provide insights as to where future efforts need to be directed, especially in the areas related to the development of students' self-regulated learning (SRL) abilities.</p>
<p>15:15-15:30 CEA0023</p>	<p>Learner Behavior towards Mobile Learning at the Open University in Thailand</p> <p>Songlak Sakulwichitsintu, Sukhothai Thammathirat Open University, Thailand</p> <p>Abstract: A study was conducted to determine the behavior of learners at Sukhothai Thammathirat Open University (STOU) in Thailand before developing mobile learning. It attempted to determine the needs and conditions of mobile technology usage according to the perceptions about mobile learning. The sample consisted of 39 male and 112 female undergraduate students (totaling 151 students) studying at the School of Liberal Arts from 3 programs – Thai Studies (42 percent), Information Science (34 percent), and English (24 percent). Most of the respondents were between 31 and 35 years old and were largely working in government organizations. About 48 percent of learners spent time using their mobile phones between 5-11 pm. The findings indicated positive learner behaviors toward using mobile technology. Each of the following scores are ranked in ascending order: behavior in business for finance and online shopping (33 percent), behavior in entertainment for photo and video taking (42 percent), behavior in society for social networking (57 percent), and behavior in education for searching information (58 percent). Furthermore, all learners agreed on the benefits of mobile learning, including online learning anywhere and anytime, more understanding of lessons, self-learning assessment, easy user interface, and interaction among students and between students and teachers.</p>
<p>15:30-15:45 CEA0031</p>	<p>Exploring the Critical Emotion Attributes of Kidult Style Product Design</p> <p>Chunhieh Chen, National Kaohsiung Normal University, Taiwan</p> <p>Abstract: Because of market equivalence in product quality, the subjective emotion qualities of a product have become the critical determinant of customer satisfaction. The factors of a successful product were not only to meet the needs of function, but also to let them feel pleasant, excellent and personalized. Kidult style, expressing the playfulness, pleasure and surprising has become a popular trend, has being regarded as the symbol of fashion, it also creates the new opportunity for product niche market. To help designers to build the product of kidult style effectively, the consumers' cognition and preference for kidult design were discussed. The in-depth interview and questionnaire survey was used to discover consumers' "typicality effect" and emotion perception for kidult style. Kansei engineering then was used to explore the different effects of emotion factors on kidult style typicality and preference, identifying the critical emotions for better understanding consumer requirements and enhancing satisfaction.</p>

Session 3: Architectural and Civil Engineering

Chair: Asst. Prof. Wardah Fatimah Mohammad Yusoff, Universiti Kebangsaan, Malaysia

<Time: 13:30-15:45 | Venue: Room 522 >

13:30-13:45
CEA012-A

Space Configuration for Natural Ventilation in Institutional Buildings on a Tropical University Campus
Guodong Wu, Southeast University, China

Abstract: The building sector accounts for high responsibility for global climate change. There's a consensus that utilizing natural energy as an alternative to fossil fuel could mitigate the environmental load. Natural ventilation could substantially reduce cooling and ventilation energy consumption. This study analyzes 5 naturally ventilated institutional buildings in a Singapore university campus and summarizes the space configuration typology of these green buildings awarded BCA Green Mark Platinum. It's found that the main feature is the discretization of daily occupied spaces which generate wind corridors leading airflow inside the building to cool down the occupants in semi-outdoor spaces scattered in between the occupied spaces. Different from the daily working/learning spaces with air-conditioning, the semi-outdoor learning spaces equipped with ceiling fans generate encounters and foster interactions between students and professors from various disciplines. The comfortable outdoor temperature cooled down by surrounding greenery and airflow enhanced by prevailing winds or ceiling fans make these semi-outdoor spaces thermally comfortable. The courtyards/atria inserted in the floor and wind scoops along all façades feature these buildings porosity, ensuring the airflow inside the building and out. The discretized space configuration shows resilient design strategies which respond to both the tropical climate and contemporary learning mode in universities.

13:45-14:00
CEA013-A

Thermal Comfort at Semi-Open Atrium of Institutional Building: The Case Study of Academic Building at National University of Malaysia
Wardah Fatimah Mohammad Yusoff, Universiti Kebangsaan, Malaysia

Abstract: Atrium has been widely applied in buildings with the purpose of introducing daylighting to the indoor spaces especially for buildings with deep layout plan. The penetration of daylight into building normally brings together the solar heat. Therefore, the application of atrium in building must consider the local climate, whether the heat is required or not for the indoor spaces. Different climates require different approaches in atrium design and configuration. Nevertheless, the final aim is still similar which is to provide thermal comfort for the users. Hence, this study was executed to examine the thermal comfort inside the semi-open atrium at the academic building of National University of Malaysia. The atrium is designed to be semi-open, where it has openings at the top of the walls for the natural ventilation and daylighting. The methodologies conducted for the study were field measurement and questionnaire survey. They were executed concurrently for 5 days in March 2018, from 9 am to 6 pm. The questionnaire survey forms were distributed to 164 respondents who were the users of the atrium. Meanwhile, the indoor predicted comfort temperature was evaluated based on the adaptive thermal comfort model equation. The indoor and outdoor environmental data that were used in the thermal comfort evaluation were derived from the field measurement. The findings indicate that the indoor air temperatures were lower than the indoor predicted comfort temperatures at all times. In addition, the findings also demonstrate that most respondents felt neutral for the atrium's indoor air temperature at most of the times, except at 3 to 4 pm. Therefore, it shows that the configuration of semi-open atrium at the academic building of National University of Malaysia provides a thermal comfort indoor environment to the users.

<p>14:00-14:15 CEA051</p>	<p>Space Frame Optimisation with Spectral Clustering Xinwei Zhang, University College London, UK</p> <p>Abstract: This paper borrows the concept of spectral clustering in the computer vision field, proposes an alternative approach to optimise space frame structure. Spectral clustering was implemented to segment the whole structure into two subclusters. Then genetic algorithm was used to optimise member sizes of each subcluster separately. It is hypothesized that optimizing the structural stability for subassemblies will largely reduce the search space, which allows greater computational efficiency. The program has been developed in MATLAB and tested on differently shaped space frame structure under varied loading conditions. Results show that for a heterogeneous structure with high a level of complexity, the implementation of spectral clustering can separate the enormous search space of GA down to smaller search space, leading to faster convergence with increased the computational efficiency, while providing an equivalent or better optimisation solution.</p>
<p>14:15-14:30 CEA057-A</p>	<p>Seismic Performance Comparison of RC Shear Wall Buildings according to Presence of Diagonal Reinforcement of Coupling Beams Hyung Seok Oh, Seoul National University, South Korea</p> <p>Abstract: Currently, most residential buildings in Korea adopt RC shear wall structures. As the seismic resistance of coupled shear wall systems has recently emerged as one of the most important building design subjects in Korea, research on the seismic performance of coupling beams is being actively conducted. KBC 2016 suggests that if the aspect ratio of the coupling beam is very small or the factored shear force exceeds a certain standard, it should be designed with diagonal reinforcement. However, in part due to the fact that diagonally reinforced coupling beams are not easy to construct, only a few cases have been actually designed with diagonal reinforcement. The current study is conducted to better assess the seismic performance of reinforced coupling beams with and without diagonal reinforcement by comparing their seismic performances using nonlinear analysis.</p>
<p>14:30-14:45 CEA085</p>	<p>Validation of Bridge Scour HEC RAS Model Using Propagation Error Analysis Billy, Universitas Indonesia, Indonesia</p> <p>Abstract: The scouring phenomenon is one of the causes of bridge damage in the world. This scouring phenomenon has various kinds such as local scour and contraction scour. There are various equations for calculating pier scouring, including Colorado State University equations, Frochelin and others. A computer program is needed to facilitate the calculation of pier scouring, HEC-RAS based on Finite Difference Method was chosen to simulate pier scouring problem. Up until now, there has not been any research to quantify the uncertainty of bridge scour HEC RAS based of experiment. The objective of this study to validate the pier scouring calculation by comparing the expected value of pier scouring results of HEC-RAS with an experiment and CSU equation. The HEC-RAS was evaluated using experimental data that had been carried out by Shukri in 2017. Furthermore, purpose of this study is determining which the variable that is sensitive to the depth of scouring. The sensitive variables are determined by performing sensitivity analysis of the variables on HEC-RAS using the Pearson correlation coefficient method and regression analysis. Error propagation is done to get the uncertainty value from pier scouring due to the influence of sensitive variables.</p>
<p>14:45-15:00 CEA062-A</p>	<p>Comparative Analysis of Wind-induced Response by Plan Shape Using CFD Min Kyu Kim, Seoul National University, South Korea</p> <p>Abstract: In this presentation, a presentation regarding wind resistant design will be given. Especially, a correlation between plan shape and wind response of the building will be focused. For this, ANSYS, the Computational Fluid Dynamics program, was used. The basic model of research was selected as a Y shape building with an elevation of 200 meters. By</p>

	<p>changing an angle of floor shape and wind direction, shear force and overturning moment were determined. Ultimately, it is attempted to suggest the most effective floor plan of Y-shaped buildings against the wind.</p>
<p>15:00-15:15 CEA072</p>	<p>Research on Evaluation Index of Energy Efficiency Design of Multi-level Sports Complex Based on Synergistic Effect Siwen Guo, Tongji University, China; Shenyang Jianzhu University, China</p> <p>Abstract: Transforming the single-storey large space of traditional sports buildings into vertical extension space of multi-level venues, the multi-level sports complex achieves efficient use of resources by introducing a combination of recreation and social functions. Analyzing the key design points of the cascade-type gymnasium based on relevant criteria and standards of evaluating sports buildings, this paper establishes a multi-layer evaluation system to achieve synergistic energy efficiency design. It also provides a reference for expanding the efficient design of sports complexes.</p>
<p>15:15-15:30 CEA1004</p>	<p>Community-based Ecotourism Homestay: Designing Community's Settlement in Sumberwangi Hamlet, Mount Arjuno, East Java Novi Sunu Sri Giriwati, Brawijaya University, Indonesia</p> <p>Abstract: These instructions give you guidelines for preparing papers for the International Journal of Social Science and Humanity (IJSSH). Use this document as a template if you are using Microsoft Word 6.0 or later. Otherwise, use this document as an instruction set. The electronic file of your paper will be formatted further at International Journal of Social Science and Humanity. Define all symbols used in the abstract. Do not cite references in the abstract. Do not delete the blank line immediately above the abstract; it sets the footnote at the bottom of this column Ecotourism has important roles to conserve the natural resources while offers the benefit for the local community. Like other types of tourism, ecotourism needs a physical space to accommodate the tourist amenities, attractiveness, and accommodation. One of the important facility is tourist lodge. The tourist facility often brings damage to nature, and social problem for the local community. Consequently, community-based and ecologically sensitive facilities are in high demand that can be met with the tourist. Concerning this problem, a tourist lodge should be ecologically friendly and give the benefit to the community. Concerning tourist lodge planning and design, it is important to take into consideration the term participatory for the decision process in tourist lodge planning and design. This paper presents the investigation result for developing a tourist-lodge as an accommodation complex using a collaborative process through exploring the existing condition of the community's. The data were collected using field surveys and interviews and analyzed using descriptive analysis. The result indicated that the tourist lodge design and its site plan must consider the wind-proof construction. Through this research, Sumberwangi tourist lodge design occupies the local community house. Hopefully, lodge can represent local culture and give economy benefit for the community. The result of this study will contribute significantly to preliminary ecotourism planning in the case study.</p>
<p>15:30-15:45 CEA042</p>	<p>Assessment of Bending Reinforced Concrete Beams Crack Resistance Zhmagul Nuguzhinov, KazMIRR at Karaganda State Technical University, Kazakhstan</p> <p>Abstract: "The problem of determining the stress state in a section of bending reinforced concrete beams with an initial and operational crack has been solved analytically. To this end, a system of two nonlinear algebraic equations has been obtained from the equilibrium conditions of the part of the beam cut along the crack line. From this system, for a beam with an initial crack, the height of the compression zone and the nominal stress at the crack tip have been determined, and for the operational crack, the height of the compression zone and the crack length have been determined. The remaining parameters of the stress state are expressed in terms of these values. There has also been determined the value of the external moment above which increasing the initial length of the crack occurs.</p>

Determining the stress intensity factor (SIF) is based on the assumptions that the longitudinal forces are equal at the crack tip, with and without stress concentration. The size of the stress concentration zone is determined from the condition that the local stress is equal to the nominal stress. On this basis, a formula for determining the SIF has been obtained. The paper analyzes the SIF dependence on the crack length and the bending moment. The method of calculation is valid for beams of the arbitrary cross-section, but explicit dependencies are given for beams of the rectangular cross-section most frequently encountered in production. The obtained results allow estimating the bearing capacity of beams with cracks, as well as their crack resistance by the force criterion of fracture mechanics."

15:45-16:00 Coffee Break



Session 4: Urban and Community Management

Chair: Prof. Patrick Safran, Incheon National University, South Korea

<Time: 16:00-18:15 | Venue: Room 512 >

16:00-16:15
CEA0027-A

Risk Analysis in the Distribution Process of Frozen Shrimp
Ardaneswari Dyah Pitaloka Citraresmi, Brawijaya University, Indonesia

Abstract: Shrimp is a leading commodity of Indonesian fishery exports. Fresh shrimp is a perishable product due to the activity of certain enzymes contained in the body, the activity of bacteria and other microorganisms or because of the process of fat oxidation by air, so that the shelf life of fresh shrimp can only last less than 24 hours at room temperature. One option in increasing shelf life is in the form of frozen shrimp. Company X is one of the exporters of frozen shrimp. In distributing its products Company X faces several risks that can cause product damage. The purpose of this research is to identify potential risks in the distribution process of frozen shrimp so that the priority level of risk is obtained which must be prioritized. The steps taken in risk analysis are activity mapping, risk identification, risk analysis by using the Failure Mode Effect Analysis (FMEA) method, and the development of mitigation strategies. Based on the results of the risk analysis, five risks are detected and the risk that has the highest value is the risk of improper container temperature which has an impact on product damage. Therefore, Company X needs to periodically check when shipping frozen shrimp products and maintenance of container coolers is carried out when the container is to be used, so that the marketed product is maintained.

16:15-16:30
CEA027

Effect of Street Canyon Geometries and Orientations on Urban Wind Velocity in Bangkok Suburb Areas
Daranee Jareemit, Thammasat University, Thailand

Abstract: Urban ventilation is considered as one parameter, which impacts on building energy consumption and outdoor living condition. This study primarily investigates the effect of street canyon characteristics as well as its orientations on wind pattern and velocity in street canyon via using urban microclimate simulation model, ENVI-met. The wind simulations are performed with four aspect ratios or height-to-width ratio (H/W), three canyon lengths, and four canyon orientations. Calculated wind velocity measured at 1.5 m height of the centre of the street and pedestrian on both sides of the street ranges from 0.2 to 0.97 m/s. N-S and NW-SE canyons, which oriented parallel to the prevailing wind has greater wind velocity than those oriented perpendicular to the wind. The wind velocity is sensitive to aspect ratio and canyon length. The wind velocity in shallow canyon is mostly higher than those in the deep canyon. However, increasing the canyon length considerably improves the low wind speed in the deep canyon up to twice.

16:30-16:45
CEA028-A

Research on the Internationalized Development Situation of Urban Planning Discipline—
—Taking China as an Example
Shiwen Qin, Southeast University, China

Abstract: Urban planning provides strategic layout of urban development, and it also involves the consideration and optimization of economic structure, spatial structure, and social structure of cities. The development of this discipline will directly affect the actual level, for urban planning to construction, and it's one of the most vital supportive disciplines in the process of urbanization development in these countries. In recent years, the researches on the development of urban planning discipline has gradually been paid attention by relevant scholars. With the improvement of national power and international status, a batch of emerging developing countries have become an important importing destination and main practice place for urban planning researches, whose researches achievements have also begun to actively seek international recognition and strive for

	<p>greater international discourse power. Publishing academic papers in international top journals of urban planning is considered the most representative. At present, the researches on the development trend of this discipline is often limited to illustrate the hotspots of country's own researches or international researches, but does not pay enough attention to the internationalized achievements, which is the gradually growing intersection. At the same time, for the scholars in this field, they shoulder the requirements of producing high-level researches achievements. But they are distressed by the lack of relevant researches, which leads to the failure to accurately grasp the hotspot of international achievements in the early stage of literature review, and to form the reference in valid.</p> <p>This paper attempts to propose a methodological framework to probe such topic. By using the bibliometric methods to analyze the text semantics of a large number of papers, and to study the internationalized development of urban planning discipline in these developing countries. In some western developed countries, whose urbanization rate has reached a high level, the lack of practical projects has gradually led to hollowness of its theory. Therefore, compared with foreign countries, China has an unparalleled development environment for the researches on urban planning. It is also necessary to internationalize the researches achievements, and generalize the domestic theories and experience abroad. On the method, based on the paper data in the web of science database, this article selects the papers published by Chinese scholars in the top ten international journals in urban planning research field from 1988 to 2018 and the remaining papers included in these journals. And we use bibliometric software (EndNote/VIEWER/CITES) to assist the artificial semantic analysis method to classify the titles, keywords, abstracts and other data of these papers into different types. From the perspective of the number of publications, the degree of influence, and the research hotspots, we conduct a comparative study of the two types of papers, so as to comprehensively judge the internationalized development of China's urban planning discipline. Furthermore, the article focuses on the similarities and differences of its research hotspots, and studies the evolution of its development, background causes and future trends.</p>
<p>16:45-17:00 CEA075</p>	<p>Gap Acceptance for Yangon Urban and Suburban Intersections Kyaw Nyein Nyein San, Mahidol University, Thailand</p> <p>Abstract: Gap acceptance plays an important role in intersection design and signal warrant. This study investigates gap acceptance of drivers in Yangon, Myanmar. Three T-intersections were selected for study sites; two intersections in the urban area and the other one in Yangon suburb. As Yangon drivers drove on the right-hand side, the key movements that defined the intersection capacity would include left-turn from the major stream (LT-major), right-turn from the minor stream (RT-minor), and left-turn from the minor stream (LT-minor). Raff's method was applied to determine the gap acceptance for these three conflicting movements. The result showed that the gap acceptance for LT-minor was the longest ranging between 7 to 15 seconds. The shortest gap acceptance belonged to the RT-minor for 4 to 8 seconds. The gap acceptance at urban sites was also shorter than that of suburban in all three movements. The drivers tended to decrease their gap acceptance when the traffic volume increased. However, the relationship between the gap acceptance and traffic flow was not significant</p>
<p>17:00-17:15 CEA043</p>	<p>Traditional Settlement Morphology from the Perspective of Thermodynamic Architecture Theory: taking Two villages in the Iberian Peninsula as examples Meiting He, Tongji University, China</p> <p>Abstract: The form of rural settlements is not determined by a single factor, but by various factors. With a particular focus on settlement morphology and natural energy, this study introduces thermodynamic architecture theory to discuss the relationship between rural settlement morphology and environmental energy, starting from the analysis of the relationship between rural settlement morphology and building density, building order and settlement boundary dispersion, trying to provide a reference for the updated design</p>

	<p>of traditional settlements. The first part of this paper explains the research method of settlement form based on thermodynamic architecture theory from the theoretical level trying to construct the analysis framework of settlement form typology based on energy concept. The second part introduces the coupling between thermodynamic energy concept and morphology from the methodological level. The relationship between the three energy correlation factors of intensity, order and dispersion and settlement morphology is studied. In this paper, two settlement cases are quantitatively analysed by simulation and mathematical analysis. In conclusion, it proposes a new perspective for the morphological analysis of rural settlements, which provides a feasible framework for further research on energy utilization and microclimate comfort of settlements. This study also provides a preliminary concept for the integration of the buildings type and thermodynamic study of vernacular architecture in the future.</p>
<p>17:15-17:30 CEA048</p>	<p>Assessment of Urban Green Space Structures and Its Effect on Land Surface Temperature in Chiang Mai City Area, Thailand Manat Srivanit, Thammasat University, Thailand</p> <p>Abstract: The structure of a landscape of green space can be described and quantified by the landscape metrics, which is determined by its structure, including: 1) the size, 2) shape and 3) core area of individual green patches. In this study, these metrics were calculated in the ArcGIS 10.0 platform using the Patch Analyst Tool. Then, the effect of green patches on surface temperature in Chiang Mai Metropolitan Area (CMMA) were identified from the satellite image. In this study we tried to explore the effects of landscape structure of green spaces on the land surface temperature (LST) were identified from Landsat 8-TIRS thermal imagery, which is an important parameter in identifying urban heat island (UHI) effects by using the representative patch level metrics to analyses using the Pearson's correlation. The results show that correlations for LST correspond closely with the spatial distribution of greenspace patterns. Most greenspace metrics show negative correlations with LST across all urban zones though this was not found to be the case for core metrics of urban cores. Regarding shape metrics correlated significantly with the LST value for all urban zones. These findings can help urban planners to balance green space in urban green infrastructure planning, and also improves the CMMA's urban climate.</p>
<p>17:30-17:45 CEA047</p>	<p>The Rules in Reconnecting the City Fabrics: A Morphological Study of the Regeneration Case Jiamin Zou, Tongji University, China</p> <p>Abstract: Abstract. In the recent 30 years, Shanghai experienced fast urbanization which landscape shows various types of conflicts among the modern forms and the traditional forms. The insertion of new typologies in the traditional district introduces new urban characteristics and dynamics, which are not typically associated with the traditionally framed cities. The constructions of substantial industrial and commercial projects have caused the demolition of traditional urban forms. Urban designers aspire to revitalize the traditional neighborhood by combining urban fabrics without destroying the structure of the historic neighborhood. This paper attempts to exam the effectiveness of the urban network, the continuity of public structures and operational interactions between new projects and the local context through the study of a “failed” regeneration project in Shanghai, China. Consequently, this paper raised rules in reconnecting the city fabrics towards differential urbanism.</p>
<p>17:45-18:00 CEA077</p>	<p>Evaluation of the Relationship between the Transit Ridership and Accessibility Variables: A Case Study of the Bangkok Metro Stations KhinThiri Kyaw Nyunt, Mahidol University, Thailand</p> <p>Abstract: Many studies and planning projects related to Thailand metro system is now highly concentrating on the improvements of Transit-Oriented Development (TOD) and the feeder system to ensure smooth transferring for users traveling from their origins to</p>

	<p>destinations. Leaving off policies related measures, improvements that could immediately focus in order to enhance the smooth transfer services are infrastructure and land-use developments. This study evaluates relationships of accessibility variables, focused on service design and land-usages, and demand of metro ridership. The objective is to improve the understanding of what types of expanding infrastructures or land deployments that could help to support the metro system and encouraging more transit ridership. The existing Bangkok metro stations are the case study area for this research. Gathered data are transport services, roadway infrastructures, and land use. These data are available in the Geographic Information System format and ready to extract as testing variables at each station. Relationship between the number of transit ridership and variables form transport services, network connectivities, and land use are explore based on the correlation analysis. Results from the study found that the number of bus lines, bus stops, and railway stations are associated with the transit ridership, while there is no relationship between ridership demands and ferry services. Further for land-use perspective, the commercial, industrial, and mixed-used area have a significant influence on the ridership demand while there is no signal from the Residential area.</p>
<p>18:00-18:15 CEA053</p>	<p>Waste Management System of Badung River in Bali Based on Community Behavior IGAI Mas Pertiwi, Bali State Polytechnic, Indonesia</p> <p>Abstract: The identification of garbage at several points along the Badung river shows a low level of public awareness of the environment. The origin of the contents of the garbage in the Badung river comes from various human activities such as industry, household and nature. Although there is a trash rack, but it is not optimal in reducing plastic waste carried on the river. There are several reasons that cause people to throw garbage into the river. Among other things, disposing of garbage into the river is considered more practical and freer, the lack of garbage disposal facilities around the river and has become a culture. Therefore, research was conducted on community behaviour in disposing of garbage along the Badung river. The results showed trigger factors variable with a very influential factor, namely the existence of a disease of 79%. And as many as 5% of the people feel that the availability of Temporary Disposal Site facilities has no effect. The waste management system will be managed directly by the Waste Self-Management Group in each village, as an effort to build an integrated system. It also educates the public how to sort, manage and utilize waste. With the proper governance, of course, it can reduce the volume of waste to landfill.</p>

Session 5: Construction Materials and Geotechnical Engineering

Chair: Prof. Ashraf El Damatty, The University of Western Ontario, Canada

Co-chair: Assoc. Prof. Allan R. Alzona, National University, Philippines

<Time: 16:00-18:15 | Venue: Room 515 >

16:00-16:15 CEA0011-A	<p>Strain Rate Effect on the Tensile Properties of Hybrid Fiber Reinforced Cementitious Composites by Fiber Blending Ratio Minjae Son, Chungnam National University, South Korea</p> <p>Abstract: The strain rate effect on the tensile properties of hybrid fiber reinforced cementitious composites was evaluated according to the blending ratio of hooked steel fiber (HSF) and polyvinyl alcohol fiber (PVA). The tensile strength, strain capacity, peak toughness, and softening toughness were considered. In the experimental result, the specimen with 1.5 vol% HSF and 0.5 vol% PVA (HSF1.5PVA0.5) exhibited the highest tensile strength and softening toughness. However, the strain capacity and peak toughness were less than those of the specimen with 2.0 vol% HSF (HSF2.0). Nevertheless, HSF1.5PVA0.5 exhibited the highest dynamic increase factors (DIFs) for the tensile strength, strain capacity, and softening toughness. HSF2.0 showed a higher DIF for the peak toughness than HSF1.5PVA0.5. But HSF1.5PVA0.5 is expected to exhibit a higher DIF for the peak toughness than HSF2.0 at high strain rates ($> 101/s$), because it has highest strain rate sensitivity of the tensile strength and strain capacity.</p>
16:15-16:30 CEA008-A	<p>Estimating Landslide Prone Area from Soil Depth to Hardpan Using Geostatistical Techniques Yanto, Jenderal Soedirman University, Indonesia</p> <p>Abstract: Initial assessment of landslide prone area is important in designing landslide mitigation measures. This study, a part of our study on developing landslide spatial model, presents initial signal of landslide prone area. In here, we use soil depth to hardpan to assess landslide prone area in Western Central Java, a relatively small region where 23% of Indonesian landslide occurs. To this end, we interpolated soil depth to hardpan in a regular grid from irregularly distributed data. To do this, we employed three different methods: Inverse Distance Weighting (IDW), Ordinary Kriging (OK) and Co-Kriging (CK). For the latter, we experimented with several potential covariates. To determine the best fitting model, several tests on model performance and its corresponding errors were done. Error measures used in this study are Mean Square Error (MSE), Root Mean Square Error (RMSE), Mean Absolute Error (MAE) and Mean Absolute Percentage Error (MAPE), while statistical measures employed are Standard Deviation, Variance, Interquartile Range (IQR), Mean Absolute Deviation and Median Absolute Deviation. The result shows that CK with covariate of slope and soil cohesion is the best fitting model and exhibits clear pattern related to recorded landslide disaster sites. We found that 64% of landslide disaster events occur in the area having soil depth to hardpan of 5 – 10 m. Moreover, 84% of landslide occurrences happen in regions where soil depth to hardpan ranges from 5 to 15 m. Hence, we suggest that landslide prone area is an area possessing soil depth to hardpan of 5-15 m. This finding is advantageous for policy makers in planning and designing efforts for landslide mitigation.</p>
16:30-16:45 CEA017-A	<p>Bond of FRP Reinforcements with Different Surface Profiles and Moduli of Elasticity Sandor Solyom, Budapest University of Technology and Economics, Hungary</p> <p>Abstract: Application of Fibre Reinforced Polymer (FRP) bars as internal reinforcement for concrete structures is increasing in civil engineering, due to its advantageous properties, e.g. insensitivity against electrolytic corrosion, high tensile strength, low density, electromagnetic neutrality etc. To ensure composite behavior of FRP reinforced concrete elements, adequate interaction</p>

	<p>must be mobilized. Bond behavior of FRP bars in concrete can be considerably different than that of steel due to the different mechanical and physical material properties. Transfer of stresses between FRP bars and concrete can mobilize different mechanisms compared to that of steel bars. Furthermore, bond failure modes can vary as well owing to the substantial differences between the surface profiles of FRP and steel bars, respectively. An extensive experimental work has been carried out concerning the influence of several factors on the bond behavior of FRP bars, including: compressive strength of concrete; modulus of elasticity, surface profile and diameter of FRP bars, among many others. In this paper the focus is given to the effect of the FRP bar surface profile and modulus of elasticity on the bond behavior in concrete. Furthermore, to be able to have an overview of this behavior in different practical situation, various test methods have been applied. Namely: traditional pull-out test, bending beam pull-out test and a modified —so called— direct pull-out test.</p> <p>The availability of design codes are essential for any new construction material to facilitate the widespread application. For FRP bars, only a few design codes are available worldwide. However, they present lack of information in some areas. One of them is the bond behavior of FRP bars in concrete. Based on literature data and authors' previous studies, it can be concluded that there are either no explicit factors (i.e. ACI 440.1R) to take into account the effect of surface profile and modulus of elasticity of FRP bars, either the factors seem to be not appropriate for all FRP types (i.e. CSA S806).</p> <p>Present study is directed to verify the bond behavior of FRP bars with different surfaces and moduli of elasticity and if needed propose new values of relevant factors, based on an extensive experimental work. Conclusions are drawn about the effect of the studied parameters on bond behavior of FRP bars in concrete and about the proposed factors.</p>
<p>16:45-17:00 CEA021</p>	<p>Behaviour of the Undrained Shear Strength of Soft Clay Reinforced with Natural Fibre Nurafiqah Suffri, Universiti Teknologi Brunei, Brunei Darussalam</p> <p>Abstract: The term soil reinforcement is conventional since decades ago for the stabilization of soft ground such as of clay and peat. Numerous research has arisen in the utilization of natural fibres as the reinforcement materials. Cost reduction, increment of sustainability awareness and eco-friendly environment are some of the advantages when using natural fibres to stabilize soft ground. A research study was carried out to evaluate the strength of the soft soil when unreinforced and reinforced using natural fibres. The findings on the experimental investigation of the study will be presented in this paper. Crushed coir fibres were used to reinforce an intermediate plasticity soft clay where both materials were collected locally in Brunei Darussalam. The crushed coir fibres were added at 0.5%, 1.0%, 1.5% and 2.0% to the dry weight of the sample. A series of an unconsolidated undrained Tri-axial test was conducted on the unreinforced and reinforced samples where the behaviour of the samples were observed and compared. The results indicated that inclusion of fibres affects the soil's undrained shear strength. It was observed that increasing the percentage inclusion increases the undrained shear strength of the soil, up to a certain amount. Further increment of fibres, however, does not show further improvement in the undrained shear strength.</p>
<p>17:00-17:15 CEA035</p>	<p>Utilization of Recycled Concrete Aggregate for High Performance Alkali Activated Concrete: Towards a Sustainable Building Solution Mitiku Damtie Yehualaw, National Taiwan University of Science and Technology, Taiwan</p> <p>Abstract: The purpose of this study is to prepare environmentally friendly and highly sustainable concrete for an ever-increasing demand of concrete in the construction industry. In the study both natural coarse and fine aggregates were partially replaced by recycled concrete aggregate from construction and demolition wastes. High performance alkali activated concrete was prepared by utilizing pozzolanic industrial wastes as a binder which fully replaced cement powder. High volume of fly ash with 30%, 40% and 50% replacement of slag was used as a main binder. NaOH and Na₂SiO₃ with an alkali</p>

	<p>modulus of 0.6 were used as an alkali activator solution. The findings of this research revealed that alkali activated recycled aggregate concrete have competitive engineering properties with respect to cement concrete with natural aggregate. The UPV and thermal conductivity test results were found to be 4302 m/s and 1.425 W· m-1·K-1 respectively. The results of this study will pave the way towards the better practice of sustainable concrete construction by replacing the cement and natural aggregate in one concrete mix.</p>
<p>17:15-17:30 CEA052-A</p>	<p>On the Causes Behind Recent Korean Earthquakes and Preventive Measures Against Them Junhyuk Kwak, Hankuk Academy of Foreign Studies, South Korea</p> <p>Abstract: In response to a recent increase in seismicity of the Korean Peninsula, this study focuses on five major earthquakes for the past ten years and carefully analyzes them in attempt to address their causes. Though the research does not succeed in fully and specifically determining the causes of the five earthquakes, it enumerates several possibilities to which the quakes might be attributed. Thus it is clearly proven that earthquakes are inevitable even for Koreans. In light of this intimidating fact, the present study seeks for an appropriate countermeasure in terms of civil engineering in order to minimize future casualties due to earthquakes. It discovers various seismic retrofitting techniques for bridges through a literature review and theoretically applies them to bridges of the Han River. This opens a vast possibility for future studies to repeat procedures similar to this on other bridges and structures in order to secure the safety of citizens from earthquakes.</p>
<p>17:30-17:45 CEA063</p>	<p>Behaviour of PSC Railway Sleepers Using Next Generation Nano Based Carbon Fiber Reinforced Concrete Ashutosh Ranjan, UVCE Bangalore University, India</p> <p>Abstract: This research paper presents a detailed experimental study and finite element modelling (3D-FEM) of Prestressed Concrete railway sleepers using Ansys V16. The increasing demand of high speed trains and axle loads has resulted in the modification of existing railway prestressed concrete (PSC) sleepers and their rail components which in turn is demanding increased static and impact load capacity on rails and sleepers. Present experimental investigation consists of use of innovative new advanced materials such as integration of Carbon Nanotubes (CNTs), Carbon fibers(CF) and polypropylene fibers(PF) with High Performance Concrete of a design mix of M60 grade. Five different concrete mixes of PSC railway sleeper specimens viz. M60, M60+CNT, M60+CNT+PF, M60+CNT+CF, M60+CNT+PF+CF were studied. The emphasis of this paper is on load-deflection aspect of new advanced materials over conventional material used in the manufacture of railway PSC sleepers. From the experimental result it is evident that, there is enhancement in first crack load and ultimate load and decrease in deflection when compared to conventional materials of PSC railway sleepers and the same has been validated with Nonlinear modal analysis.</p>
<p>17:45-18:00 CEA086</p>	<p>Assessment on the Effect of Polyethylene Terephthalate and Low-Density Polyethylene Plastic Waste as an Additive in Bituminous Paving Mixes Franz Santos, National University - Manila, Philippines</p> <p>Abstract: The continuous growth of the population also brings about an increase in traffic that traverse our roads. Due to this increase in the volume of traffic, pavements are subjected to more distress which can lead to its failure. Studies have been performed in order to address these issues on material properties. At present time, waste disposal has been a challenge for various industries. And of the wastes that are abundant in our surroundings, plastic is proving to be a major problem because it poses a major threat to the environment. As a possible solution to the growing problem of the disposal of plastic wastes as well as the constant pursuit to improve the properties of materials, recycling and incorporating plastic to construction materials has been explored in various studies. This</p>

	<p>study aims to assess the effects of Low-Density Polyethylene (LDPE) and Polyethylene Terephthalate (PET) as an additive to Hot Mix Asphalt (HMA) on the stability, flow and bulk specific gravity of the paving mix. A parametric study was conducted in order to investigate the effect of additive concentration (4%, 7% and 10% by weight of asphalt binder), particle size (2.36 mm, 4.57 mm, and 9.5 mm) and mixing temperature (145°C, 160 °C, and 175 °C) on the stability, flow and bulk specific gravity of Plastic Waste Bitumen Binder (PWBB). Results show that adding PET and LDPE as additive increases the stability by 36.82%, improves the flow by 22% and it also increases the bulk specific gravity by 2.36% compared to a traditional bituminous mixture.</p>
<p>18:00-18:15 CEA083</p>	<p>Analyzing Organization-to-project Interfaces in the Integration Management of Engineering Projects Jialu Yu, University of Science & Technology Beijing, China</p> <p>Abstract: To carry out the construction project management work effectively, the organization interface management in the workflow is a fundamental challenge. In the ongoing project, multiple project teams need to cooperate multi-party and complete project product delivery in different work interfaces. Organizational interface within work flow will help system planning and management in the engineering field. In this study, we first propose the evaluation indicators of engineering participants and tie strength between different organizations using the design structure matrix (DSM). Then we construct a multi-domain matrix (MDM) based on organization-to-project by correlating multiple participants in the project with the workload completion degree and present a comprehensive strength between the organization and the project to identify the crucial project interface. Finally, we give an engineering case to illustrate the proposed method and discuss its practical value. The proposed methods reinforce several managerial practices for the construction organization and project arrangement.</p>

Session 6: Global Engineering and Education

Chair: Dr. Wike Agustin Prima Dania, University of Brawijaya, Indonesia

<Time: 16:00-18:15 | Venue: Room 522 >

16:00-16:15
CEA078

Interior Living Space Preferences in the Early Housing Career of Low-Income People in DKI Jakarta, Indonesia

Coriesta Dian Sulistiani, Universitas Indonesia, Indonesia

Abstract: DKI Jakarta has been the most prospective destination for Indonesian low-income urban migrants to find jobs. The need for affordable housing for low-income people increase along with the rise of low-income urban migrants' number. Providing houses for Indonesian low-income people has become the Indonesian government's concern as the housing providers for many years. There were unmatched between the housing government-supplied and the demands of the low-income people. Low-income people have unique preferences in choosing their residences. Moreover, the previous studies show one's preferences on housing develop over one's lifecycle, namely housing career. The preferences for living space is one of the house attribute importance that considered in choosing a residence. This paper will discuss the low-income people preferences on the living spaces and the changes of these preferences over their lifecycle, especially in their early housing career. The research method used distribution of living space preference changes by selected independent variables and bivariate statistical analysis with Pearson Contingency Coefficient. The study took five of the most populated districts in DKI Jakarta and used snowball sampling on 420 respondents. The paper discussion only focuses on 369 of 420 respondents who have at least 2-residence-career, while the other respondents have never moved out from their first residence. This study found that the majority of respondents consider living space when choosing their residence, and almost half of the preferences change along with the changes in the lifecycle. The results of this study are expected to be a consideration for the Indonesian government in providing affordable housing for Indonesian low-income people.

16:15-16:30
CEA006-A

Spatial and Kinetic Reasoning Skills in School Aged Students

Mark Butler, Australian Council for Educational Research, Australia

Abstract: Higher Order Thinking" seems to be a buzz word in educational circles. Lecturers, employers and educational leaders complain that students lack the appropriate HOT skills and critical reasoning skills to succeed in the workplace. But not all reasoning skills are the same. In this presentation we look at the different types of reasoning skills that we have measured in school aged students, and how this research can be used to identify the engineers of the future!

16:30-16:45
CEA0026

Probabilistic Economic Order Quantity (EOQ) for the Flour Inventory Control (Case Study in Company Z)

Wike Agustin Prima Dania, University of Brawijaya, Indonesia

Abstract: Inventory control is one of the critical activities in the industries in order to minimize the total inventory cost while fulfilling customer demand on time. Company Z is one of the companies which produce bread in Indonesia. The main problem in the company is the shortage of material due to no systematic inventory control system. To solve this problem, probabilistic economic order quantity (EOQ) was applied as a solution to eliminating the stock shortage in the storage. The objective of this paper was to determine the optimum order quantity for each type of flour in minimizing the total inventory cost. The result showed that by using the probabilistic EOQ, the optimum order quantity, reorder point, and the safety stock varied for five types of flour. This system resulted in the reduction of the ordering cost and the stock shortage cost up to 15.62% and 99.82% respectively. This model provided the saving for the total inventory cost up to

	0.14% compared to the company's inventory system.
16:45-17:00 CEA0008	<p>Assessment of Global Competencies for The Development of Global Engineering Education Khwanruethai Rawboon, Shibaura Institute of Technology, Japan</p> <p>Abstract: Flood is one of the disasters that occur every year, especially in the area of Kudus Regency, Central Java Province, Indonesia. The flood that occur every year will certainly cause losses in various fields of life in flood-affected areas. Because of that, mapping of flood disaster risk areas is needed by analyzing rainfall data, land altitude, and river width, each of which has parameters, classes, scores, and weights to assess the level of flood risk in each sub-district. Disaster risk maps are manifested in the form of a Geographic Information System on Stratification of Flood-Prone Areas that can be used by local governments and communities to develop policies for mitigating and anticipating disasters, particularly floods in accordance with the conditions and needs of each region. The system was developed with spatial methods utilizing Google Maps so that flood disaster risk maps can be presented accurately, dynamically and informatively. The results of the study show that functionally the system can do all the processes of determining flood-prone areas correctly and can be applied in decision making to determine the location of flood-prone areas, evacuation sites, emergency response implementation, and flood monitoring.</p>
17:00-17:15 CEA0009	<p>Effects of an Integrated Learning Approach on Students' Outcomes in St. Petersburg Polytechnic University Elena Tokareva and Aleksandra Kobicheva, Peter the Great St.Petersburg Polytechnic University, Russia</p> <p>Abstract: To improve the learning outcomes of students and adjust the professional competences of the future specialists to the current labor market demands we designed an integrated methodology for CLIL learners and implemented it in the course of International Business. The suggested methodology involves flipped classroom activities, online resource for self-directed study and project-based learning practices. Russian high schools are quite reluctant to student-centered approach to delivery of professional disciplines due to their traditional systems of education that are focused on the formation of theoretical knowledge as the basis of professional competences. To prove efficiency of the suggested methodology we designed and carried out the assessment of students' performance and achievements. The set of tests on English proficiency, knowledge obtained in the course of the discipline was conducted to identify the level of professional skills development. Course satisfaction was measured, results were analyzed and then the correlation with students' achievements was done. Positive outcomes of students' academic performance prove the necessity of refocusing professional disciplines at Russian high schools from teacher-centered approach to new learning and teaching practices.</p>
17:15-17:30 CEA2001	<p>The Effects of Health Education Instruction Using Problem-Based Learning on Knowledge and Critical Thinking about Cyberbullying of Junior High School Students Wallapa wassanasompong, Suan Sunandha Rajabhat University, Thailand</p> <p>Abstract: This quasi-experimental research, a two group pretest-posttest design, aimed to study the effects of problem-based learning approach for developing knowledge and critical thinking skills on Cyber bullying. The sample consisted of 28 8th grade students in a school, Samutsongkharm divided into 12 students in experimental group and 12 students in control group. Data were collected before and after the intervention by using a set of multiple choice tests on knowledge and critical thinking. Descriptive statistics in regard to frequency, percentage, arithmetic mean, and standard deviation were used to describe the general data of the samples. Analytical statistics in regard to Wilcoxon signed rank Test and Mann-Whitney U – Test was employed for testing research hypotheses.</p>

	<p>The research results showed that after the intervention there was a significantly higher mean score of knowledge and critical thinking on Cyber bullying. When compared to before the experimentation ($p < 0.05$) and more than control groups ($p < 0.05$). These finding showed that problem-based learning approach was effective in enhancing critical thinking skills and knowledge of Cyber bullying. The recommendation is that the teaching method should be applied for developing high order thinking skill and other health issues.</p>
<p>17:30-17:45 CEA0025-A</p>	<p>Consumer Preferences toward Inovation of Handmade Art-Paper from Areca-Palm Fiber Using Conjoint Method Azimmatul Ihwah, University of Brawijaya, Indonesia</p> <p>Abstract: Preference analysis is necessary to test the new products of areca nut and used cardboard art products to determine the level of people's preference for the product to be marketed since different consumer will have different preferences for product characteristics. This study aims to determine the value of the attributes which are mostly preferred by consumers for art paper products. The researched attributes in this study include 7 attributes such as: tensile strength (weak, medium, strong), tear resistance (weak, strong), grammature / paper density (low, high), water absorption (low, high), color (dark brown, light brown), fiber appearance (invisible, visible), and surface texture (rough, smooth). The results of this research indicated that surface textures become the most preferred attributes of respondents with relative importance weights of 28.24%, followed by color (27.62%), tensile strength (16.51%), tear resistance (14.84%), fiber appearance (9.48%), grammature (3.09%), and water absorption (0.21%). The combination of attributes that have the highest utilization value is high grammature, low water absorption, strong tensile strength, strong tear resistance, light brown color, smooth surface texture, and invisible fiber appearance. The authors performed treatment to optimize product by bleaching process in a total sample mass of 15 g with a ratio of 55.74% areca nut: 50% cardboard, plastic coated printing technique, and small cut of areca nut (blended longer). The product was tested with the results of 261 g / m², water absorption of 192%, tensile strength of 16.23 kN/m, and tear resistance of 370.2 gF. These art paper products can support the agro-industry product development sector, meeting the demand in accordance with consumer preferences, as well as developing competitiveness with art paper on the market.</p>
<p>17:45-18:00 CEA0028</p>	<p>Identifying Online Profiles of Distance Learning Students Using Data Mining Techniques Osama Islam, King Abdulaziz University, Saudi Arabia</p> <p>Abstract: Educational data has grown over the years with the increased use of technology within educational environments. This has led to a huge amount of data being stored in various data sources representing the student, his/her activities, and other aspects relevant to the learning process. To meet this analytical need, Educational Data Mining (EDM) has emerged to assist educational institutions in identifying key benefits such as students at risk, the level of student engagement or predicting student performance. The aim of this research was to explore the various aspects of student interaction data using data mining techniques to identify relevant patterns of behaviors and possible key attributes that have higher degrees of influence on distance learning students. The main findings identified several patterns of user online profiles based on a set of adopted learning strategies, the research proposed a framework for analyzing such interaction data based on R and Hadoop platforms to correlate online profiles with student performance.</p>
<p>18:00-18:15 CEA084</p>	<p>Jakarta Groundwater Basin Recharge - Discharge Boundary Area Map: A Preliminary Study Horas Yosua, University of Indonesia, Indonesia</p> <p>Abstract: The most important component in groundwater basin are recharge and discharge area. The direction of recharge component is downward while discharge is upward. To discover local recharge and discharge boundary area of the Jakarta</p>

groundwater basin, this experimental research is using many cross sections and some hydraulic parameters of many studies that has been conducted before, then simulated it in finite element program SEEP2D (GMS) and finally validated it with bore log and monitoring wells. Ten cross sections selected from 3 studies based on head contour, stratigraphy and groundwater river interaction to be simulated in finite element method SEEP2D (GMS) then the result is validated. Since the result of the investigation is not finished yet, this paper wants to demonstrate the methodology that being conducted in the research with the horizontal map hypothesis. The map hypothesis is evident compare to the real situation of Jakarta groundwater basin today and it is approved that the method that is being used in this research is eligible and appropriate to find the boundary area of recharge and discharge. In the future this recharge and discharge boundary area horizontal map of Jakarta groundwater basin result will encourage many practical solutions in supporting Jakarta groundwater basin management.

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18:15-19:30 Dinner at Korean Restaurant --B1 floor

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Memo

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