

RGC Ref. No.: UGC/IIDS13/E02/14 <hr/> (please insert ref. above)
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## RESEARCH GRANTS COUNCIL

### COMPETITIVE RESEARCH FUNDING SCHEMES FOR THE LOCAL SELF-FINANCING DEGREE SECTOR

#### INTER-INSTITUTIONAL DEVELOPMENT SCHEME (IIDS)

#### Completion Report

*(for completed projects only)*

<p><b><u>Submission Deadlines:</u></b></p> <ol style="list-style-type: none"> <li>1. <i>The unspent balance, if applicable, and auditor's report: within <u>six</u> months of the approved project completion date.</i></li> <li>2. <i>Completion report: within <u>twelve</u> months of the approved project completion date.</i></li> </ol>
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#### **Part A: The Project and Investigator(s)**

##### **1. Project Title**

Highway Development and the Environment

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##### **2. Investigator(s) and Academic Department/Units Involved**

Research Team	Name / Post	Unit / Department / Institution
Principal Investigator	Prof. Pun Kwok Leung / Head	Department of Civil Engineering / Chu Hai College of Higher Education
Co- Principal Investigators:	1. Prof. Wong Wing Gun, Alan / Adjunct Professor	1. Department of Civil Engineering / Chu Hai College of Higher Education
	2. Dr. Chen Borliang / Head and Associate Professor	2. Department of Civil and Disaster Prevention Engineering / National United University, Taiwan
	3. Prof. Hamid Nikraz / Professor	3. Department of Civil Engineering / Curtin University of Technology, Western Australia
	4. Dr. Leung Lai Ming, Gordon / Senior Lecturer	4. Department of Civil Engineering / Chu Hai College of Higher Education

Co-investigator(s)	1. Dr. Xu Dongsheng / Assistant Professor  2. Dr. Chiang Lichi / Assistant Professor  3. Dr. Peerapong Jitsangiam / Senior Lecturer	1. Department of Civil Engineering / Chu Hai College of Higher Education  2. Department of Civil and Disaster Prevention Engineering / National United University, Taiwan  3. Department of Civil Engineering / Curtin University of Technology, Western Australia
Others		

### 3. Project Duration

	Original	Revised	Date of RGC Approval ( <i>must be quoted</i> )
Project Start Date	1 October, 2014	1 November, 2014	30 October, 2014
Project Completion Date	30 September, 2015	31 March, 2016	12 October, 2015
Duration ( <i>in month</i> )	12	17	12 October, 2015
Deadline for Submission of Completion Report	31 <sup>st</sup> August, 2016	31 December, 2016	19 October, 2015

**Part B: The Final Report****5. Collaboration with other Self-financing Degree-awarding Institutions / Schools**

Collaborating self-financing institution / school	% of participation	Distinctive element(s) that the institution / school is responsible for the project
Nil	Nil	Nil

## 6. Project Objectives

### 6.1 Project delivery

Timing	Original Milestones	Revised Milestones	Date of RGC Approval ( <i>must be quoted</i> )
January to February	The first seminar on <i>Recent Development of Road Markings in Hong Kong</i> was planned to be held in January.	The first seminar on <i>Recent Development of Road Markings in Hong Kong</i> was held on 16 <sup>th</sup> February, 2015.	30 October, 2014
April to May	The second seminar on <i>Environmental Impacts of the Highway and Road Construction works</i> was scheduled to be held in April.	The seminar on <i>Development and Application of Fiber Optic Sensing Technology in Geotechnical Engineering in Hong Kong</i> was held on 8 <sup>th</sup> May, 2015.	30 October, 2014
June to July	The third seminar on <i>Potential Use of Fiber Optic in Health Monitoring and Performance Evaluation of the Highway Pavements</i> was planned to be held in June.	The seminar on <i>Environmental Impacts of the Highway and Road Construction Works</i> was held on 15 <sup>th</sup> July, 2015.	30 October, 2014
August	The short course on <i>Road Construction and Maintenance – Local and Overseas Experiences</i> was planned to be held in August, 2015.	The short course on <i>Road Construction and Maintenance – Local and Overseas Experiences</i> was held on 20 <sup>th</sup> August, 2015.	30 October, 2014
August	The conference on <i>Asia Pacific Conference on Highway Development and the Environment</i> was planned to be held in August, 2015.	The conference on <i>Asia Pacific Conference on Highway Development and the Environment</i> was held on 21 <sup>st</sup> August, 2015.	30 October, 2014

## 6.2 Speaker(s)

Title / Name (Surname in capital letters)	Post / Institution / School	Title / Topic of presentation / course	Previous research links with Hong Kong institutions / schools (Nature and Date (month/year))
Ir LIU Ho Hoi, Albert	Assistant Director, Highway Department (Development), HKSARG	Presentation for the Conference: The Hong Kong-Zhuhai -Macau Bridge (HZMB) Hong Kong Projects	Nil
Professor Jayantha KODIKARA	Professor, Monash University	Presentation for the Conference: Design of Stabilised Pavements and their Performance Evaluation	Nil
Ir CHAN Kar Lock, Eric	Director of Infrastructure, Ove Arup & Partners, Hong Kong	Presentation for the Conference: Highway Design and Construction in Hong Kong	Nil
Dr. XU Dongsheng	Assistant Professor, Chu Hai College of Higher Education	Presentation for the Conference: Strain Measurement in Pavements with Fiber Optic Sensors	Nil
Dr. Peerapong JITSANGIAM	Senior Lecturer, Curtin University of Technology, Western Australia	1. Presentation for the Conference: Characteristics and Performance of Cement Modified – Base Course Material in Western Australia 2. Presentation for the Short Course: Geosynthetics for Road and Highway Construction: Theoretical VS Construction Solutions	Nil
Ir K.T. CHEUNG, Mark	Managing Director, Mannings (Asia) Consultants Limited	Presentation for the Conference: Challenges to Modern Civil Engineers – Highway and Infrastructure Projects	Nil
Professor DONG Zejiao	Head, Department of Highways and Rail Transit Engineering, Harbin Institute of Technology, PRC	Presentation for the Conference: Dynamic Response of Asphalt Pavement	Nil
Dr. CHEN Borliang	Head, Department of Civil and Disaster Prevention	Presentation for the Conference: Evaluating the Risks of	Nil

	Engineering, National United University, Taiwan	Public Private Participation for Infrastructure Projects in Financial Plans	
Professor PUN Kwok Leung	Head, Department of Civil Engineering, Chu Hai College of Higher Education	Presentation for the Conference: Environmental Impacts of Urban Road Runoff in Hong Kong	Nil
Professor Arul ARULRAJAH	Professor, Swinburne University of Technology, Australia	Presentation for the Conference: Recycled Construction and Demolition Materials in Roads and Footpaths	Nil
Dr. CHIANG Lichi	Assistant Professor, National United University, Taiwan	1. Presentation for the Conference: Integration of Ecosystem Services and Ecohydrological Modeling on Watershed Management 2. Presentation for the Short Course: Ecological Engineering on Road Construction and The Impact of Road Tunnel Construction on the Water Resources in Taiwan	Nil
Dr. YEUNG Tak Chung, Albert	Associate Professor, The University of Hong Kong	Presentation for the Conference: Sustainable Operation and Maintenance of Highway Systems	Nil
Dr. HUNG Wing Tat	Associate Professor, The Hong Kong Polytechnic University	Presentation for the Conference: EIA Requirements for Highway Projects	Nil
Dr. CHIU Yungchia	Assistant Professor, National Taiwan Ocean University, Taiwan	Presentation for the Short Course: Ecological Engineering on Road Construction and The Impact of Road Tunnel Construction on the Water Resources in Taiwan	Nil
Professor WONG Wing Gun, Alan	Adjunct Professor, Chu Hai College of Higher Education	Presentation for the Short Course: Sustainable Construction – Perpetual Highway Pavements in Hong Kong	Nil
Ir LEUNG Lai Ming, Gordon	Senior Lecturer / Chu Hai College of Higher Education	Presentation for the Short Course: Sustainable Construction – Perpetual Highway Pavements in Hong Kong	Nil

Professor WONG Yuk Lung	Professor, Chu Hai College of Higher Education	Presentation for the Short Course: Materials and Methods of Concrete Pavement Repair	Nil
Ir YEUNG Sai Kit, Jaime	Board member, Hong Kong Concrete Institute	Presentation for the Short Course: Materials and Methods of Concrete Pavement Repair	Nil

6.3 Please provide copies of promotional materials, number of participants, survey/statistics on participants, e.g. country of origin, research background, etc., a copy of evaluation form/questionnaire and the consolidated feedback with response rate. Photos of the event(s) are preferred but optional.

6.4 Objectives as per original application

1. To establish a platform to further enhance and encourage the exchange of knowledge and findings in highway engineering researches, practices and developments with National United University, Taiwan and Curtin University of Technology, Western Australia
2. To stimulate ideas amongst experts including speakers and practitioners in the field of highway engineering, and to convey the important messages in the researches of highway engineering to the industry as a whole
3. To carry out research on the environmental issues relating to the highway and road construction and operation
4. To carry out research on ecological effects of road construction
5. To study the newly developing fiber optic sensing technologies and their applications in health monitoring and performance evaluation of the highway pavements
6. To build up the research capability of the academic staff of Chu Hai College of Higher Education for conducting further research and studies in relevant fields
7. To initiate possibility of raising research funding from government departments, universities or industries for future research studies
8. To provide opportunities for students to participate in the conference and get them to know the advancement of highway research and development in the region

6.5 Revised objectives

Date of approval from the RGC: N/A

Reasons for the change: N/A

- 1.
- 2.
3. ....

## 6.6 Realisation of the objectives

*(Maximum 1 page; please state how and to what extent the project objectives have been achieved; give reasons for under-achievements and outline attempts to overcome problems, if any)*

## 6.7 Summary of objectives addressed to date

Objectives <i>(as per 5.1/5.2 above)</i>	Addressed <i>(please tick)</i>	Percentage achieved <i>(please estimate)</i>
1. To establish a platform to further enhance and encourage the exchange of knowledge and findings in highway engineering researches, practices and developments with National United University, Taiwan and Curtin University of Technology, Western Australia	√	100%
2. To stimulate ideas amongst experts including speakers and practitioners in the field of highway engineering, and to convey the important messages in the researches of highway engineering to the industry as a whole	√	100%
3. To carry out research on the environmental issues relating to the highway and road construction and operation	√	100%
4. To carry out research on ecological effects of road construction	√	100%
5. To study the newly developing fiber optic sensing technologies and their applications in health monitoring and performance evaluation of the highway pavements	√	100%
6. To build up the research capability of	√	100%



the academic staff of Chu Hai College of Higher Education for conducting further research and studies in relevant fields		
7. To initiate possibility of raising research funding from government departments, universities or industries for future research studies	√	100%
8. To provide opportunities for students to participate in the conference and get them to know the advancement of highway research and development in the region	√	100%

## 7. Research-related Outcome

### 7.1 Potential for further development of the research and the proposed course of action (Maximum half a page)

Most of the research areas presented in the “Asia Pacific Conference on Highway Development and the Environment” cover the latest advancement of highway development and the relevant environmental issues that need to be considered and addressed. These research areas include:

- Performance of stabilized pavements
- Advancement on the design and construction of roads and highways
- Application of fiber optic sensors in pavements
- Performance of cement modified base course material
- Dynamic behavior of asphalt pavement
- Road runoff quality and its impact on the environment
- Application of recycled construction and demolition materials in roads and footpaths
- Ecosystem services and eco-hydrological modeling on watershed management
- Sustainable operation and maintenance of highway systems

The above-listed research areas are closely related to the future development of roads and highways. All the project team members and the invited speakers involved in this project particularly in the short course and conference had established a closer link with each other, forming a group of professionals with a common interest in highway development and the associated environmental issues. This realized that the platform to enhance and encourage the exchange of knowledge and research findings had been successfully created through this project. Discussions were made between individual

members on research topics with common interest. It is anticipated that collaborative research will be generated in the coming future.

The short course and conference organized by this project serve an important function to link up academics and professionals to continue exchanging knowledge and views on highway development and the related environmental problems. In the near-term, all the project team members and the invited speakers will be informed of a planned 21<sup>st</sup> *International Conference of Hong Kong Society for Transportation Studies* to be held in 2016 in Hong Kong. They will be invited to contribute papers and/or participate in the conference.

The key members of this project team will keep up with the momentum generated from this project by maintaining a close contact with this group of professionals to explore future research collaboration opportunities. This in turn establishes a strong research link amongst the group members. It is expected that the connection will be extended to cover more professionals and practitioners in the same field.

## 7.2 Research collaboration achieved

*(Please give details on the achievement and its relevant impact)*

This IIDS project aims to create a platform for academic scholars and practitioners to exchange knowledge and research findings. Through this project, academic staff of the Department of Civil Engineering, Chu Hai College of Higher Education collaborated with the professors from the Curtin University of Technology, Western Australia and the National United University, Taiwan to implement the project. Three seminars, one short-course and one conference were successfully conducted. Both the short-course and the conference were overwhelmed by more than 170 participants. This project has created a momentum for future research collaboration.

## 7.3 Any new development and/or challenging research topic has / have been identified and inspired the possible new initiative(s) in future research work.

One of the challenging research topics that has been identified in this project is the understanding of the high heavy metal concentrations in road runoff (zinc: 126 – 1,710 mg/L; lead: 4 – 169 mg/L; and copper: 15 – 178 mg/L) and in road gully sediment (zinc: 938 – 3,450 mg/kg; lead: 48 – 217 mg/kg; and copper: 80 – 203 mg/kg) collected in Tsuen Wan area. The zinc concentrations in the collected road runoff and gully sediment samples are the highest. The initial findings indicate that vehicle tires are likely a main source of zinc contained in road runoff and gully sediment. Future research work in this area is required.

These heavy metals in high concentrations would affect the nearshore water quality of the Hong Kong waters when rainstorms occur. The initial findings from this project will inspire the next stage of research work to investigate in detail the road runoff and gully sediment quality in a larger region covering the residential, commercial and industrial areas in Hong Kong. The investigation may include the temporal and spatial variations of heavy metal concentrations in road runoff and road gully sediment. For

example, variations in heavy metal levels in the dry and wet seasons, and decrease in heavy metal concentrations over the period of first flush. In addition, the potential water quality impacts on the coastal environment due to the contaminated first flush flow during rainstorm events would be a topic worth exploring.

With a better understanding of the road runoff quality, the commonly adopted runoff pollutant concentrations to estimate non-point source pollution in many environmental impact assessment studies may need to be reviewed and updated. This would contribute to the improvement of accuracy of water quality modelling and impact assessment in the environmental impact assessment studies.

Another challenging research topic is further development, implementation, and evaluation of Fiber Bragg Grating (FBG) and Brillouin Optical Time Domain Analysis (BOTDA) for applying in asphalt pavement. Laboratory results show that the fiber optic sensors have great potential to be used in asphalt pavement if protection of the sensors can be suitably designed. Cyclic loading test should be conducted to verify the performance of the sensors and suitable asphalt strain transducers need to be developed and evaluated to support the future development of the fiber optic sensors.

Development of perpetual pavement, which could last for more than 50 years without deterioration in the structural elements, is also an identified future research area. Investigation on the relationship between horizontal strains at the bottom of the asphalt based and fatigue cracking, limiting vertical strain, subgrade stress ratio, fatigue endurance limit, changing model of vertical crack, and foundation and base materials is essential to develop perpetual pavement suitable for the Hong Kong's environment. Accelerating pavement testing facilities, e.g. circular test track, should be established in Hong Kong in order to simulate the long-term impact of axle loads on pavement at different vehicle speeds.

## 8. The Layman's Summary

*(Describe in layman's language the nature, significance and value of the research project, in no more than 200 words)*

The nature of this project is to establish an inspiring platform for academics and professionals to exchange the most up-to-date knowledge and technological advancement in highway engineering and its associated environmental issues. This involves the participation from the local and overseas academic scholars, students and practitioners in the field of pavement engineering, civil engineering, environmental sustainability and material engineering. The research areas cover sustainable construction materials, design of pavement foundation, road marking system, environmental impacts due to construction and operation of highways and roads, and fiber optic sensing technologies.

The academic staff of the College involved in the project can build up research capability and carry out further research studies in relevant fields through the implementation of the project. The students can also be benefited by getting involved in research work, short course and conference. The research work can benefit the relevant government departments and the industry in improving the quality of highway engineering work, and protecting the environment.

**Part C: Research Output****9. Recognized conference(s) paper(s) related to this project was/were delivered**  
(Please attach a copy of each conference abstract)

Month/Year/ Place	Title	Conference Name	Submitted to RGC (indicate the year ending of the relevant progress report)	Attached to this report (Yes or No)	Acknowledged the support of RGC (Yes or No)
Nil					

**10. Research Personnel trained**

Name	Capacity
LI Gang	Researcher, Chu Hai College of Higher Education
Xue Liang	Researcher, Chu Hai College of Higher Education

**11. Other impact***(e.g. prizes, collaboration with other research institutions, technology transfer, etc.)*



**Organizer:**



**珠海學院**  
CHU HAI COLLEGE  
OF HIGHER EDUCATION

Department of Civil Engineering

**Supporting Organizations of the Conference:**



偉金建築有限公司  
Welcome Construction Co., Ltd.



## Asia Pacific Conference on Highway Development and the Environment 21 August 2015

### Short Course on Road Construction and Maintenance - Local and Overseas Experiences 20 August 2015

**Speakers:** Academic and industry experts from local and overseas

**Venue:** Jao Tsung-I Academy 饒宗頤文化館

**Registration Fee:** Conference: HK\$280  
Short Course: HK\$150  
Conference and Short Course: HK\$400

*Registration fee includes conference/short course materials,  
tea refreshment, lunch and an attendance certificate.*

**Enquiries:** Ms Jenny Chau Tel. No.: 2408-9021 Email: [jennychau@chuhai.edu.hk](mailto:jennychau@chuhai.edu.hk)

**Registration Deadline:**  
7 August 2015

Project funded by the Research Grants Council under the Inter-Institutional Development Scheme (IIDS), Project Ref. No. UGC/IIDS13/E02/14





# Asia Pacific Conference on Highway Development and the Environment



珠海學院  
CHU HAI COLLEGE  
OF HIGHER EDUCATION

Department of Civil Engineering

**Date:** 21 August 2015 (Friday)

**Time:** 9:00 am to 6:00 pm

**Venue:** Jao Tsung-I Academy (饒宗頤文化館), 800 Castle Peak Road, Kowloon

**Speakers:** Academia and industry experts from local and overseas

## Background

The road network of Hong Kong is one of the high-density road systems in the world. Many highway and road infrastructure projects have been completed in the past decades and more are being planned and constructed. However, there are not many research studies to focus on the unique climate and geographical conditions of the Hong Kong's road system. Highway and road research is crucial to the advancement of the design and engineering work in this field. The research needs to integrate the concept of sustainable development, minimizing the short-term and long-term impacts to the environment.

The Conference aims to serve as an inspiring platform for an exchange of the most up-to-date knowledge and technological advancement relevant to the theme of the Conference among the local and overseas' academic scholars as well as professionals from the industry in the field of construction and civil engineering.

## Who should attend?

Engineers, researchers, scientists, academics, students, professionals from Government, consultants and contractors.

## Registration & Enquiries

Registration Fee: **HK\$280** per person (includes conference materials, attendance of all sessions, light refreshment for tea breaks, lunch on that day and an attendance certificate). Receipts will be distributed on the day of the conference.

No. of Participants: 80 (on first-come first-served basis)

Please send the completed registration form with a crossed cheque payable to **Chu Hai College of Higher Education Ltd.** to "Ms Jenny Chau, Department of Civil Engineering, Chu Hai College of Higher Education, Yi Lok Street, Tsuen Wan, N.T., Hong Kong", and email a copy of the form to [jennychau@chuhai.edu.hk](mailto:jennychau@chuhai.edu.hk).

Enquiries: Ms Jenny Chau, Tel. No.: 2408-9021; Email: [jennychau@chuhai.edu.hk](mailto:jennychau@chuhai.edu.hk)

*The Conference is supported by the project entitled "Highway Development and the Environment" under the Inter-Institutional Development Scheme by the Research Grants Council (Reference number: UGC/IIDS13/E02/14)*



# Asia Pacific Conference on Highway Development and the Environment

## Conference Programme

08:30 – 09:00	<b>Registration</b>		Venue: Theatre
09:00 – 09:15	<b>Welcoming Speech</b> <i>Prof. PUN Kwok Leung</i> Chu Hai College of Higher Education, Hong Kong		
09:15 – 10:05	<b>Opening Speech – Guest of Honour</b> <b>The Hong Kong-Zhuhai-Macao Bridge (HZMB)</b> <b>Hong Kong Projects</b> <i>Ir LIU Ho-Hoi, Albert</i> Highways Department (Development), HKSARG		
10:05 – 10:20	<b>Group Photo Taking Session</b>		
10:20 – 10:45	<b>Tea Break</b>		
<b>Parallel Session I</b>	<b>Theme: Highway Development</b>	<b>Theme: Environment</b>	
	Venue: Theatre Chair: Prof. WONG Wing Gun, Alan	Venue: Lecture Hall Chair: Dr. CHIANG Lichi	
10:45 – 11:35	<b>Session 1A</b> <b>Design of Stabilised Pavements and Their Performance Evaluation</b> <i>Prof. Jayantha KODIKARA</i> Monash University, Australia	<b>Session 1B</b> <b>Evaluating the Risks of Public Private Participation for Infrastructure Projects in Financial Plans</b> <i>Dr. CHEN Borliang</i> National United University, Taiwan	
11:35 – 12:25	<b>Session 2A</b> <b>Highways Design and Construction in Hong Kong</b> <i>Ir CHAN Kar Lock, Eric</i> Ove Arup & Partners, Hong Kong	<b>Session 2B</b> <b>Environmental Impacts of Urban Road Runoff in Hong Kong</b> <i>Prof. PUN Kwok Leung</i> Chu Hai College of Higher Education, Hong Kong	
12:25 – 13:45	<b>Lunch Break (Venue: Gingko House)</b>		
<b>Parallel Session II</b>	Venue: Theatre Chair: Dr. LEUNG Lai Ming, Gordon	Venue: Lecture Hall Chair: Prof. PUN Kwok Leung	
	<b>Session 3A</b> <b>Strain Measurement in Pavements with Fiber Optic Sensors</b> <i>Dr. XU Dongsheng</i> Chu Hai College of Higher Education, Hong Kong	<b>Session 3B</b> <b>Recycled Construction and Demolition Materials in Roads and Footpaths</b> <i>Prof. Arul ARULRAJAH</i> Swinburne University of Technology, Australia	
13:45 – 14:35			

## Conference Programme (Cont'd)

14:35 – 15:25	<b>Session 4A</b> <b>Characteristics and Performance of Cement Modified – Base Course Material in Western Australia</b> <i>Dr. Peerapong JITSANGLAM</i> Curtin University of Technology, Western Australia	<b>Session 4B</b> <b>Integration of Ecosystem Services and Ecohydrological Modeling on Watershed Management</b> <i>Dr. CHIANG Lichi</i> National United University, Taiwan
15:25 – 15:50	<b>Tea Break</b>	
<b>Parallel Session III</b>	Venue: Theatre Chair: Dr. LEUNG Lai Ming, Gordon	Venue: Lecture Hall Chair: Prof. PUN Kwok Leung
15:50 – 16:40	<b>Session 5A</b> <b>Challenges to Modern Civil Engineers - Highway and Infrastructure Projects</b> <i>Ir Mark K. T. CHEUNG</i> Mannings (Asia) Consultants Limited, Hong Kong	<b>Session 5B</b> <b>Highways and Air Pollution</b> <i>Prof. PARK Chan Jin</i> University of Incheon, South Korea
16:40 – 17:30	<b>Session 6A</b> <b>Dynamic Response of Asphalt Pavement</b> <i>Prof. DONG Zejiao</i> Harbin Institute of Technology, PRC	<b>Session 6B</b> <b>EIA Requirements for Highway Projects</b> <i>Prof. HUNG Wing Tat</i> Hong Kong Polytechnic University, Hong Kong
17:30 – 18:00	<b>Closing Remarks &amp; End of Programme</b>	-

### Conference Venue:

**Theatre and Lecture Hall**  
**Jao Tsung-I Academy (饒宗頤文化館)**  
**800 Castle Peak Road**  
**Kowloon**



# Short Course on Road Construction and Maintenance - Local and Overseas Experiences



珠海學院  
CHU HAI COLLEGE  
OF HIGHER EDUCATION

Department of Civil Engineering

**Date:** 20 August 2015 (Thursday)

**Time:** 9:00am to 6:00pm

**Venue:** Jao Tsung-I Academy (饒宗頤文化館), 800 Castle Peak Road, Kowloon

The short course aims to introduce the most updated knowledge and technology on road/highway construction and maintenance. Local and overseas' academic scholars and experts in the field of pavement engineering, environmental sustainability and material engineering are invited to share their experience.

## Topics

- Geosynthetics for Road and Highway Construction: Theoretical vs Construction Solutions
- Ecological Engineering on Road Construction
- Sustainable Construction - Perpetual Highway Pavements in Hong Kong
- Materials and Methods of Concrete Pavement Repair

## Speakers

- Dr. Peerapong JITSANGIAM, Curtin University of Technology, Western Australia
- Ir Prof. Alan WONG Wing Gun, Chu Hai College of Higher Education, Hong Kong
- Ir Prof. WONG Yuk Lung, Chu Hai College of Higher Education, Hong Kong
- Ir Dr. LEUNG Lai Ming, Gordon, Chu Hai College of Higher Education, Hong Kong
- Ir Dr. Jaime YEUNG Sai Kit, Hong Kong Polytechnic University, Hong Kong
- Dr. CHIANG Lichi, National United University, Taiwan
- Dr. CHIU Yungchia, National Taiwan Ocean University, Taiwan

## Registration & Enquiries

Registration Fee: **HK\$150** per person (include course materials, light refreshment for tea breaks, lunch on that day and an attendance certificate). Receipts will be distributed on the day of the short course.

No. of Participants: 40 (on first-come first-served basis)

Please send the completed registration form with a crossed cheque payable to **Chu Hai College of Higher Education Ltd.** to "Ms Jenny Chau, Department of Civil Engineering, Chu Hai College of Higher Education, Yi Lok Street, Tsuen Wan, N.T., Hong Kong", and email a copy of the form to [jennychau@chuhai.edu.hk](mailto:jennychau@chuhai.edu.hk).

Enquiries: Ms Jenny Chau, Tel. No.: 2408-9021; Email: [jennychau@chuhai.edu.hk](mailto:jennychau@chuhai.edu.hk)

*The short course is supported by the project entitled "Highway Development and the Environment" under the Inter-Institutional Development Scheme by the Research Grants Council (Reference number: UGC/IIDS13/E02/14)*

## Short Course on Road Construction and Maintenance - Local and Overseas Experiences

### Short Course Programme

<b>08:30 – 09:00</b>	<b>Registration</b>
<b>09:00 – 10:45</b>	<b>Session 1:</b> <b>Geosynthetics for Road and Highway Construction: Theoretical VS Construction Solutions</b> <i>Dr. Peerapong JITSANGLAM</i> Curtin University of Technology, Western Australia
<b>10:45 – 11:05</b>	<b>Tea Break</b>
<b>11:05 – 12:50</b>	<b>Session 2:</b> <b>Ecological Engineering on Road Construction</b> <i>Dr. CHIANG Lichi</i> National United University, Taiwan <i>Dr. CHIU Yungchia</i> National Taiwan Ocean University, Taiwan
<b>12:50 – 14:10</b>	<b>Lunch Break</b>
<b>14:10 – 15:55</b>	<b>Session 3:</b> <b>Sustainable Construction - Perpetual Highway Pavements in Hong Kong</b> <i>Ir Prof. Alan WONG Wing Gun</i> Chu Hai College of Higher Education, Hong Kong <i>Ir Dr. LEUNG Lai Ming, Gordon</i> Chu Hai College of Higher Education, Hong Kong
<b>15:55 – 16:15</b>	<b>Tea Break</b>
<b>16:15 – 18:00</b>	<b>Session 4:</b> <b>Materials and Methods of Concrete Pavement Repair</b> <i>Ir Prof. WONG Yuk Lung</i> Chu Hai College of Higher Education, Hong Kong <i>Ir Dr. YEUNG Sai Kit, Jaime</i> Hong Kong Polytechnic University, Hong Kong

### Short Course Venue:

**Theatre**  
**Jao Tsung-I Academy (饒宗頤文化館)**  
**800 Castle Peak Road**  
**Kowloon**



## REGISTRATION FORM

### SHORT COURSE ON ROAD CONSTRUCTION AND MAINTENANCE – LOCAL AND OVERSEAS EXPERIENCES – 20 August 2015

### ASIA PACIFIC CONFERENCE ON HIGHWAY DEVELOPMENT AND THE ENVIRONMENT – 21 August 2015

#### Personal Particulars

English Name (Prof./Dr./Ir/Mr./Mrs./Ms.): \_\_\_\_\_ Chinese Name: \_\_\_\_\_

City: \_\_\_\_\_ Country: \_\_\_\_\_

Company / Organization: \_\_\_\_\_

Position: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_ Fax: \_\_\_\_\_

#### Registration Fees (Deadline for Registration: 7 August 2015)

*Please tick where appropriate*

	Event	Fee (Per Person)
<input type="checkbox"/>	<b>Short Course on Road Construction and Maintenance - Local and Overseas Experiences 20 August 2015, Thursday</b>	<b>HK\$ 150</b>
<input type="checkbox"/>	<b>Asia Pacific Conference on Highway Development and the Environment 21 August 2015, Friday</b>	<b>HK\$ 280</b>
<input type="checkbox"/>	<b>Short Course on Road Construction and Maintenance - Local and Overseas Experiences 20 August 2015, Thursday</b>  <b>AND</b>  <b>Asia Pacific Conference on Highway Development and the Environment 21 August 2015, Friday</b>	<b>Special Rate: HK\$ 400</b>

#### **Payment Methods**

Please send the completed registration form with a crossed cheque payable to **Chu Hai College of Higher Education Ltd.** to “Ms Jenny Chau, Department of Civil Engineering, Chu Hai College of Higher Education, Yi Lok Street, Tsuen Wan, N.T., Hong Kong”, and email a copy of the form to [jennychau@chuhai.edu.hk](mailto:jennychau@chuhai.edu.hk).

#### **Enquiry**

Ms Jenny Chau, Tel. No.: 2408-9021; Email: [jennychau@chuhai.edu.hk](mailto:jennychau@chuhai.edu.hk)

## Notes:

1. A confirmation email will be sent to the successful registrants.
2. The personal data provided in the registration form will be used only for registration for the event(s).
3. The registration fee is non-refundable in any event.
4. The Organizer is not responsible for any loss or claims caused.
5. The Organizer reserves the right for interpretation of all the terms.
6. The conference / short course will be postponed if the Tropical Cyclone Signal No. 8 or above or Black Rainstorm Warning is hoisted 3 hours before the event(s). The Organizer will inform the participants by email or telephone for any new arrangement subsequently.

## Location Map



**Address: 800 Castle Peak Road, Kowloon (九龍青山道 800 號) – Near Mei Foo MTR Station**

## Supporting Organizations of the Conference

- American Society of Civil Engineers, Hong Kong Section
- Canadian Society for Civil Engineering – Hong Kong Branch (加拿大土木工程師協會)
- CHIU HING Construction & Transportation Co. Ltd. (昭興建築運輸有限公司)
- Hong Kong Concrete Institute (香港混凝土學會)
- Hong Kong Road Research Laboratory (香港道路研究所)
- Institution of Civil Engineers, Hong Kong Association (英國土木工程師學會，香港分會)
- The Hong Kong Institution of Engineers, Civil Division (香港工程師學會，土木分部)
- The Chartered Institution of Highways and Transportation, Hong Kong Branch
- Welcome Construction Company Limited (偉金建築有限公司)

