



Sediment Transport: Principles & Applications

Date: 17 October 2024

INTRODUCTION

Sediment Transport is of fundamental importance to environmental, hydraulic & coastal engineering and deals with the study of sediment movements in a turbulent water stream, as bed load or suspended loads.

The main objective of sediment transport hydraulics is to predict whether erosion (scouring), deposition (silting) or an equilibrium condition will occur.

The rate of sediment transport can only be predicted with a low degree of accuracy so that the sensitivity of the design to possible variations of sediment transport must be considered.

This Course introduces the basic flow and sediment characteristics, initiation of motion, transport mechanisms, bed forms and roughness before estimating the sediment material transport in terms of bed load and suspended load. As regards applications, Self-cleansing velocity design of the sanitary sewer and the bank and bed protection of the stormwater drainage channel (mainly for currents and to a lesser extent waves) will be addressed.

The Trainer

Ir Professor CHAN Pak Keung

MHKIE (Civil & Structural Disciplines);

BSc (Eng) & MSc (Eng), HKU;

Postgraduate Diploma (Hydraulic Engineering), IHE Delft Institute for Water Education, Netherlands



Ir Professor CHAN Pak Keung is an Adjunct Professor of The University of Hong Kong (HKU) and an Honorary Fellow of The Hong Kong Chapter of The International Association of Hydro-environment Engineering and Research (IAHR-HK). He was former Professor of Practice (Infrastructure), Hong Kong Polytechnic University until mid 2018 and a former Assistant Director of Drainage Services Department (DSD) until end 2014.

Ir Professor CHAN has got BSc(Eng) and MSc(Eng) Degrees from HKU in 1977 and 1985 respectively and a Postgraduate Diploma in Hydraulic Engineering from IHE Delft (Institute for Water Education), The Netherlands in 1988.

Since 2015, Ir Professor CHAN has been active in water education in university programmes and continuous professional development courses for practising engineers.

COURSE OUTLINE

LECTURE 1 - Principles (1): Introduction

- * Water Density, Viscosity, Uniform Flow in Open Channel, Turbulence
- * Sediment Size, Density, Fall Velocity, Bulk Density and Porosity
- * Initiation of Particle Motion
- * Stability of Stones

LECTURE 2 - Principles (2): Sediment Transport

- * Transport Mechanism, Bed Forms, Alluvial Roughness
- * Bed Load
- * Suspended Load
- * Total Bed-Material Load

LECTURE 3 - Application (1): Self-Cleansing Velocity Design Design of the Sanitary Sewer

- * Gravity Sewers, Pumping Mains
- * Wastewater Treatment Plant Conduits
- * Sewage Tunnels of Harbour Area Treatment Scheme
- * CIRIA (1996), WEF/ASCE (2007)

LECTURE 4 - Application (2): Bed and Bank Protection of Drainage Channels

- * Stone Stability against Currents
- * Guidelines in Stormwater Drainage Manual
- * Alternative Guidelines in HR Wallingford (1992), Pilarcyk (1990), Maynord (1993)
- * Stone Stability against Waves

Programme

09:00 am - 09:15 am	Registration
09:15 am - 09:30 am	Opening
09:30 am - 10:45 am	Lecture 1 - Principles (1)
10:45 am - 11:00 am	Recess
11:00 am - 12:15 pm	Lecture 2 - Principles (2)
12:15 pm - 1:45 pm	Lunch Break
1:45 pm - 3:15 pm	Lecture 3 - Application (1)
3:15 pm - 3:30 pm	Recess
3:30 pm - 5:00 pm	Lecture 4 - Application (2)
5:00 pm - 5:15 pm	Questions & Answers
5:15 pm - 5:30 pm	Closing

Organizer: LNS Ltd



CIWEM Chartered Institution of
Water and Environmental
Management
Hong Kong Branch

Supporting Organisations

Date: 17 Oct 2024

Time: 9:00 a.m.-9:30 a.m. Registration
9:30 a.m.-5:30 p.m.

Venue Best Western Plus Hotel Hong Kong
308 Des Voeux Road West, Hong Kong
(MTR Exit B1, HKU Station)

Maximum Registrants: 30 per class

Working Language: English

Registration: Please send the registration form attached below by email
to: event@lns.com.hk

Early Bird Deadline: 19 September 2024

Application Deadline: 3 Oct 2024

Payment Methods: Cheques should be made payable to “LNS Limited.” Please
send the cheque to the following address and indicate the
name(s) of the participant(s) in the letter:

Room 1104, Crawford House,
70 Queen’s Road Central,
Central, Hong Kong.

Enquiry: Tel: 2376 4964
Email: event@lns.com.hk

Registration Form

Sediment Transport: Principles & Applications

Surname:	(Mr / Ms)	
First Name:		
Organization/Company:		
Position:		
Course Date	17 Oct 2024	
Course fee per head for professional member of supporting organisations IAHR- HK or CIWEM registered on or before 19 September 2024	HK\$2,800	(The registration fee is all inclusive of 1-day training, soft copy of course materials and soft copy of attendance certificates)
Early Bird Course Fee per head on or before 19 September 2024	HK\$2,900	(The registration fee is all inclusive of 1-day training, soft copy of course materials and soft copy of attendance certificates)
Course Fee per head	HK\$3,000	(The registration fee is all inclusive of 1-day training, an electronic course material and an electronic copy of attendance certificate.)
Email Address:		Tel:
Payment:	Bank Name:	Cheque No.:
Personal Data	<p>Reply slip from Personal Data Subject</p> <p>Yes, I (Name)_____agree to give consent to LNS to use my personal data above to receive email from LNS regarding this course and marketing information of future events e.g. conference, training course, seminars, forums and site visits.</p> <p>No, I (Name)_____do not want to receive any direct marketing information of LNS's training course and events.</p> <p>Date _____</p>	

Terms and Conditions

1. Registration is on a first-come, first-served basis.
2. All cheques shall be crossed and made payable to the Organizer “LNS Limited” to confirm registration and are subject to bank clearance.
3. The registrant shall not cancel the registration three days after the submission of the registration form and/or after the confirmation of the course. The course fee shall be made payable by the registrant.
4. There is no refund for cancellation of booking initiated by applicant. However, the registration may be transferred to another person from the same company or organisation at no extra charge by notifying the Organizer at least 3 days prior to the commencement of the course.
5. The Organizer reserves the right to cancel the courses should there be insufficient applicants or for other reasons. Course fee will then be refunded 100%.
6. All applicants will be informed well in advance should there be any change of course dates due to unforeseen circumstances.
7. Applicants will be notified by email to confirm successful registrations. An official receipt will be provided after receiving payment.
8. Applicants are expected to attend the course at the place and time notified by the Organizer.
9. Before the course commences, if Typhoon Signal No.8 or above/Black Rainstorm Warning is in force; or Typhoon Signal No. 8 or above will be hoisted within 2 hours, the course will be cancelled. The course will be held as scheduled if Typhoon Signal No.8 or above/Black Rainstorm Warning is lowered at or before 7:00 am. The afternoon session of the course will be held as scheduled if Typhoon Signal No. 8 or above/Black Rainstorm Warning is lowered at or before 12:00 p.m.