

Hong Kong Institute of Vocational Education
Construction Discipline
Department of Construction

Module Syllabus

Module Title

ENVIRONMENTAL ENGINEERING

Module Code

CSE2420

Formal Tuition Hours

30 hours

Module Value

0.5

Course Code/Year

51301, Higher Diploma in Civil Engineering, Year 2
53401 & 55401, Higher Certificate in Civil Engineering, Year 1
51201, Diploma in Civil Engineering, Year 2

Module Aims

On completion of this module, students should be able to:

- understand the common water quality parameters, water treatment processes and wastewater treatment processes;
- acquire the knowledge in the area of air and noise pollution.

Teaching & Learning Strategies

This module consists of 20 hours of formal lectures and 6 hours tutorials and 4 hours laboratory classes.

Teaching materials used will be of a practically nature, relevant to the practice in the civil engineering sector. Theoretical approach will be kept to the minimum.

Assessment Scheme

Course work	30%
Examination	70%

Syllabus

Topic Area	Principal Objectives plus Indicative Contents
1. Water Supply Engineering and Waste Water Engineering (7.5 hours)	<i>Understand the water supply and waste water system:</i> Description of Hydrologic Cycle. Water quality parameters. Description on the function of unit operations in water treatment processes. Description of the function of unit operations in waste water treatment processes. Handling of sludges. Strategic Sewage Disposal System and current sewerage issue.
2. Air Quality and Air Pollution (5.5 hours)	<i>Acquire the basic knowledge of air pollution:</i> Composition and structure of atmosphere. Types and sources of air pollutants. Effects of air pollutants Air quality Management. Illustration of current issues including Air pollution Index (API)
3. Solid Waste Management (9.5 hours)	<i>Study the solid waste management:</i> Quantities and composition of municipal and industrial solid waste. Refuse collection system, transfer stations, handling problems, bulk haulage. Describe operations of pre-treatment. Methods of disposal including landfill, incinerations and cost of treatment. Identify the statutory requirements for solid waste disposal. Solid waste management and Waste minimisation project.
4. Noise Pollution and Control (7.5 hours)	<i>Acquire the basic knowledge of noise pollution :</i> Analysis the basic nature of sound and sound intensity, terms and definition of SPL, SWL and SIL. Measurement of noise level by sound level meter and weighting networks. Noise rating system. Community noise sources and local statutory requirement on noise pollution. Effects of noise pollution.

Text/References

1. Davis & Cornwall (1998), *Introduction to Environmental Engineering*, McGraw-Hill.
2. Pcavy, Rowc & Tchobanoglous (1986), *Environmental Engineering*, McGraw-Hill.
3. *Environmental Hong Kong* – Environmental Protection Department, Hong Kong Government.
4. Tebbutt, T.H.Y. (1992), *Principles of Water Quality Control*, Pergamon Press.
5. Smith, B.J., Peters, R.J. & Owen, S. (1996) *Accoustics and Noise Control*, Longman.
6. Godish, T. (1991), *Air Quality*, Lewis.