SUBJECT DESCRIPTION FORM

Subject title: Maintenance Management and Operation

Subject code: BRE532

Credit value: 3

Responsible staff and department:
Mr. K.K. Lo and Dr. Steven Tsang (BRE)

Pre-requisite: Nil

Recommended background knowledge:
Students are expected to possess knowledge of the construction and real estate industries such as those which would have been acquired through a study of a degree in a built-environment related discipline. Students should be working professionals in building maintenance or related industries.

Mutual exclusions: Nil

Learning approach:
The programme will consist of a series of lectures, tutorials, practical workshops and laboratory demonstration classes. Concepts, theory and application of maintenance management and operation will be covered. Case studies will be introduced to reflect the real life examples of building maintenance techniques. In particular in maintenance operation, the subject will introduce the condition-based inspection and maintenance technology covering a host of advanced non-destructive testing (NDT) technologies such as infrared thermography, pulsed radar, forced vibration techniques etc. The subject will also emphasize the importance of continuous condition monitoring and complete rehabilitation instead of patch repairs to deteriorated concrete structures.

Contact hours:
- Lecture 15 hours
- Workshop/Seminars 21 hours

Independent study:
- Self study material 80 hours
- Web-based learning & teaching 6 hours
- Assignment 18 hours
- 140 hours

Assessment:
- Continuous assessment 40%
- Examination 60%

Objectives:
The aim of this subject is to provide the students with an ability to identify and diagnose defects, visually and/or with the help of scientific or NDT equipment, including those presenting occupational and health hazards in buildings and to understand specifications for remedial work. A further aim is to enable students to apply management techniques to ensure efficient maintenance of buildings. ‘Sustainable maintenance’ within the much wider scope of ‘sustainable development’ will also be introduced and discussed.
Keyword syllabus:

Maintenance management: establishing workload; budgeting, programming, executing and controlling programme; contractual forms and procedures; use of direct and indirect labour; controlling maintenance and repair work; working in occupied premises; service charges; information systems; categories of information; feedback; maintenance manuals; establishing database; schedules and specifications; survey; report writing.

Maintenance technology: diagnosis and treatment of common defects in buildings by life expectancy; conservation.

Green issues related to building maintenance and operation.

Sick building syndrome; development and prevention; case studies.

Asbestos management; abatement and disposal; case studies.

Building defects diagnostic techniques.

Condition-based inspection and maintenance

Condition monitoring

Sustainable maintenance

Hazardous materials in buildings and health issues related to buildings

Indicative reading list and references:


H.M.S.O. (1974), Precautions in the Use of Asbestos in the Construction Industry, a report by the sub-committee if the Joint Advisory Committee. H.M.S.O.


RICS (1990), Management of Maintenance (Developing Concepts for Hong Kong), HKIS/RICS (H.K. Branch).

The Institution of Structural Engineers (1980). Appraisal of Existing Structures.