CONSTRUCTION ENGINEERING MANAGEMENT

Subject Aim:

This subject is intended to:

Develop the students’ ability to apply decision making theories and operational research techniques in the management of construction projects.

Learning Outcomes:

Students will demonstrate their ability to:

1. Ability to identity and diagnose management problems accurately and effectively across a wide range of construction engineering activities, including management practices, human resources and plant management, operations, and strategic management.
2. Ability to formulate construction engineering management problems into analytical models.
3. Ability to find out and plan sound solutions from various analytical models by using quantitative (operational research) techniques.

Brief Syllabus Content:

Construction Labour productivity: measurement and analysis
Construction methods and method statements
Construction plant management
Risk management for construction projects
Construction Management Practices in the China Mainland Construction Industry
Fundamentals of decision theory.
Application of linear programming in construction project management and process control.
Decision trees, utility theory and sensitivity analysis.
Inventory control and transportation theories.
Monte Carlo simulation and applications.

Learning and Teaching Approach:

Student learning will be facilitated through a combination of self-study and class contact sessions. The self-study will include guided reading, library searching skills, problem solving, reflection and textual & graphical communication as individuals and as part of a group. Some assignments will involve the training and development of problem analysis and presentation of results. Class contact will include lectures for providing an overall framework to topic areas and for those areas where textbooks do not provide adequate coverage. Small group sessions will be used for a combination of student-led seminars, role plays and workshop exercises for skill development and the raising of ethical awareness.
**Assessment strategy** (assessment of student performance resulting from learning tasks):

Coursework and examination will constitute equal parts of the overall marks of the subject respectively. The coursework mark will be based on role play, seminar discussion, presentation, workshops and problem-based assignments. Marks will be allocated on group and individual basis. Typical assessment criteria include:

- logical structure;
- clarity and depth of thought;
- quality of written presentation;
- knowledge and information;
- problem analysis skills;
- oral and visual presentation skills;
- participation and leadership.

**Reading List:**

**Recommended:**


Longman Ltd., Ascot, England: Chartered Institute of Building


**Journals:**

*Asia Engineer: The Journal of the Hong Kong Institution of Engineers* Henderson & Associates

*Asia Pacific Building and Construction Management Journal*, CIOB (HK), HKIE (Bldg. Div.) & ACMA

*Australian Institute of Building Papers*, AIB
Journals: (Cont’d)

Construction Management and Economics, Spon

Engineering, Construction and Architectural Management, Blackwell Science

HKIE Transactions, Henderson & Associates

Journal of Construction Engineering & Management, ASCE

International Journal of Construction Management