Subject Code: BRE349
Level: 3
Contact Hours: Lect:21 TU/Sem:21 Lab:8
Student Effort Hours: 120
Assessment Method: Coursework 40% Examination 60%
Credit Value: 3
Pre-requisites: BRE291
Co-requisites: Nil
Exclusions: Nil
Subject Leader/ Lecturer/Dept.: W.K. Kong (BRE)

Building Services I

Subject Aim:
This subject is intended to:
1. Provide students with an overview of the various building services engineering systems in modern buildings,
2. Understand the basic design intent of various building services systems and their integration with the building fabric and architectural features.

Learning Outcomes:
Students will demonstrate their ability to:
1. Possess a knowledge of the system configuration and operation of various building services systems.
2. Relate how different building services systems can help to control and improve the indoor environment.
3. Identify the relationships between the design of building services systems and the overall building design.
4. Appreciate the cost and value relationship on the selection of appropriate building services systems.
5. Relate issues on environmental impact to the design of building services systems and overall building design.

Brief Syllabus Content:
Plumbing & Drainage: Water supply and drainage system for high rise buildings. Simple design on pipe sizing for plumbing and drainage pipes. Sewage treatment process.


HVAC/MVAC: Assessment on the efficiency of air-conditioning process. Large scale air conditioning systems configuration and operation.

Internal transportation: The configuration and operation of lifts and escalators. Assessment to the quality of services for life operation.

Fire Services: Prevention, detection and suppression systems. Integration of fire services system to other building services systems.

An introduction to the measurement for building services installations and concepts of life cycle costing.

Environmental issues: the effects of external environments to the design of building services system. An introduction to environmental impact assessment and ISO 14000.

Teaching activities: Lecture (LT)/Tutorial (TU)/Seminar (SM)/Drawing (DW)/Laboratory or Practical (LB)/Studio (ST)/Workshop (WS)/Project (PJ)/Field Study (FS)/Guided Study (GS)/Visit (VS)
**Learning and Teaching Approach** *(tasks and activities designed to achieve learning outcomes)*:

The learning and teaching approaches for the subject comprises lectures, tutorials and laboratories.

Lectures aims at delivering the basic core of concepts whilst ideas and operations will be further elaborated and discussed in the tutorials. Presentation by students during tutorials on selected topics will also be arranged. Laboratories are provided to allow students to relate theories and concepts to real situation.

**Assessment strategy** *(assessment of student performance resulting from learning tasks)*:

Assessment will be in the form of written examination, oral presentation, case study report and laboratories.

Written examination aims to assess students’ ability to apply concepts learned for solving problems on building services design and operation.

Oral presentations on specific topics on building services serves to assess students’ understanding to the topics chosen.

Case study report aims to consolidate students’ knowledge and relating design of building services system to the overall building design.

Laboratories allow students to relate theories to actual practices and operations.

The split between coursework and examinations will be 40/60.

**Reading List:**

**Recommended:**

**Supplementary:**
- HKSAR (1994) *Code of Practice for Minimum Fire Services Installations and Equipment*
- H.K. SAR Government, *Building Ordinance and Regulations* CAP.123