Subject Code: BRE3931

CONTACT HOURS: Lect:21 PW:56

Student Effort Hours: 120

Assessment Method: Coursework 100%

Credit Value: 4

Pre-requisites: BRE291, BRE204 or equivalent

Co-requisites: Nil

Exclusions: Nil

Subject Leader/Lecturer/Dept.: H.Q. Fan (BRE)

**Subject Aim:**

This subject is intended to:

1. Bring students' attention to the vertical integration of the subject areas learned in Level 2 such as Structure, Construction Technology, Engineering Mathematics together with the working experience gained in Industrial Centre to the subject areas of Level 3 Structure II & Construction Technology II through design project whilst the inter-relation of the horizontal integration between subjects are also important in solving a problem-based project work.

2. Integrate and apply knowledge gained from individual subject areas in technology, management, economics and legal aspects.

**Learning Outcomes:**

Students will demonstrate their ability to:

1. Evaluate the importance of different types of falsework and formwork.
2. Design falsework and formwork for building construction.
3. Appraise alternative solutions to falsework and formwork design.
4. Recognize the inter-relationship and interdependence of various areas in construction.
5. Comprehend the operations, technology & structure, management, economics and legal impacts of the construction industry both local and other countries.

**Brief Syllabus Content:**

The basic concepts of falsework.

Formwork classification: economies of formwork, formwork finishes and surface treatments, tolerance, proprietary system formwork, types of form types.

The choice of materials and systems.

Falsework design: procedures, materials and components, forces applied to falsework, analysis of falsework structure, foundations to falsework; design using scaffold tube and fittings, standard solutions and other considerations affecting certain design solutions.

Formwork design: permissible stress for solid timber and plywood, loading on formwork, design concepts and procedures for wall forms, column forms, beam sides and slab soffit forms.

International study.

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):

Structured tutorials are carried out at different stages during the progress of project to provide learning support to students in achieving the outcomes.

A structured design project based on real life situation is to be used for setting the project and consists of the components. The project will be divided into two parts. The first component deals with the design of the structural elements of building components, while the second components students to prepare design of falsework systems to facilitate the construction of the structural elements. The third component is to evaluate the different systems of formwork and falsework and to appraise alternation solutions. Students are asked to form in groups of five. By providing the students basic drawings and design brief, they are asked to propose a suitable structural form for the project, and to prepare the subsequent design drawings, structural calculations and specifications for the first part of the project. The second part of the project is the further development of the works in part 1, students are asked to produce plan and proposal for the falsework system for facilitating the construction. Formal lectures will be conducted with supplement of tutorials during the lecture sessions.

For international study, An important part of the subject is the comparative study of the construction and real estate industry of selected Asia Pacific countries and Hong Kong. A study tour or equivalent is to be organized by students. Students will select a country/region to study the structure of the property and construction industries on a wide range of topic areas of visit to bodies of the countries, which may include, government bodies, research institutions, universities, construction contractors and consultants, property developers, etc. The study tour will be organised by students between semesters. On completion of the tour, students are asked to prepare a report on what they have observed and to carry out a critical comparison between the country visited and Hong Kong. Also, a public presentation will be arranged to let students present their findings in a formal situation. It must be emphasized that input from teaching staff on the study tour is kept to a minimal and is provided as guidance in order to allow the student more autonomy to administer the projects and learn through the process of planning and execution. A final report and a public lecture for the International Studies will be presented and assessed by the Project Tutor.

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

The assessment of the subject will be by continuous assessment. For the design project, students will produce a report, with drawings, specifications and any other relevant information appropriate for project submissions. They also need to prepare a group presentation on their findings and work done together with the submission if required. At regular intervals, students will be asked to report on the progress of work which will be commented and assessed by the supervisor. The design project should demonstrate the students’ ability to design formwork/falsework systems and to appraise their proposed solutions.

For international study, the assessment will be achieved through the initial proposal, the report and the public lecture. It is expected all students will participate in various stages of the project, therefore, each student have to state at which stage they are involved in the project so that contributions by individual student can be observed.

Reading List:

No standard text is recommended, since students have to refer to various literatures in order to achieve the requirement of the design project.

Reference will be made to current articles in journals, local newspaper, would press, proceedings dealing with topics of current importance.

Recommended:


