

## Subject Description Form

<b>Subject Code</b>	BRE271
<b>Subject Title</b>	Measurement and Estimation
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite / Co-requisite / Exclusion</b>	Nil
<b>Objectives</b>	<p>This subject is intended to:</p> <ol style="list-style-type: none"> <li>1. Introduce the measurement rules as stipulated in standard method of measurement.</li> <li>2. Enable students to develop the skills required to measure, quantify, and price construction work.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>a. Quantify and describe new building works and alteration work in accordance with standard method of measurement.</li> <li>b. Utilise available commercial building measurement software for the production of Bills of Quantities.</li> <li>c. Analyse and synthesis composition of unit rates and an appreciation of the cost.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<p><u>Measurement of building works (for learning outcomes (a), and (b)):</u></p> <p>Organisation and systems of measurement including subdivision of building works; mensuration used in measurement including mean girth, formulae for measuring regular figures and irregular figures, gross and net floor areas; measurement techniques including measurement of building works, comparative studies of measurement procedures, and examination of forward trends.</p> <p><u>Estimating (for learning outcome (c)):</u></p> <p>Factors influencing the pricing of new works and alteration work; evaluation of unit rate based on resources (labour, plant, and materials); enquiries for materials and sub-contract prices; calculation of unit rates; calculation of preliminaries and temporary works.</p>
<b>Teaching/Learning Methodology</b>	<p>The theory and rationale will be delivered in lecture periods. Practical experiences will be delivered in the tutorial periods.</p>

**Assessment Methods  
in Alignment with  
Intended Learning  
Outcomes**

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c			
1. Coursework 1: Individual assignment (taking off exercise, preparing BQ section)	15%	√	√				
2. Coursework 2: Individual assignment (taking off exercise, preparing BQ section)	15%	√	√				
3. Coursework 3: Group project (estimating problem)	20%			√			
4. Examination	40%	√	√	√			
5. Effort	10%	√	√	√			
Total	100%						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Coursework 1 and Coursework 2: Students are given assignments (taking off exercise) from reading construction drawings to taking dimensions off from the drawings. Coursework 1 and Coursework 2 are to assess students' ability:

- i. To understand the construction activities through reading construction drawings.
- ii. To organize themselves to work on building measurement tasks.
- iii. To gather necessary information and develop electronic measurement skill.
- iv. To identify and familiarize themselves with building components.

Upon completion of Coursework 1 and Coursework 2, students will be able to achieve learning outcomes (a) and (b).

Coursework 3: Students are given a group project to solve the estimating problems. This coursework is to assess students' ability:

- i. To organize themselves and fellow group members because an estimator needs to work with others as a team to accomplish the estimating task.
- ii. To correctly use technical terminology relating to quantification of building works and cost estimating.
- iii. To solve a problem or task that is given (e.g., by your employer).
- iv. To demonstrate presentation, communication and writing skills.

Through the problem solving exercises relating to estimating activities (Coursework 3), students will be able to achieve learning outcomes (c).

	<p>Examination is used to assess students' understanding of measurement and estimating concepts and practices learned in the lectures. Students will be able to achieve learning outcomes (a), (b) and (c).</p> <p>Through students' effort in solving the problem exercises given in lectures and tutorials, the students will be able to achieve learning outcomes (a), (b) and (c).</p>	
<b>Student Study Effort Expected</b>	Class contact:	
	<ul style="list-style-type: none"> <li>▪ Lecture</li> </ul>	26 Hrs.
	<ul style="list-style-type: none"> <li>▪ Seminar / Tutorial</li> </ul>	13 Hrs.
	Other student study effort:	
	<ul style="list-style-type: none"> <li>▪ Student study effort</li> </ul>	120 Hrs.
	Total student study effort	159 Hrs.
<b>Reading List and References</b>	<p>Ashworth, A. and Hogg, K. (2007) <i>Willis's practice and procedure for the quantity surveyor</i>, 12<sup>th</sup> Edition, Blackwell, Oxford.</p> <p>Buchan, R., Fleming, F.W. and Grant, F.E. (2003) <i>Estimating for builders and surveyors</i>, 2<sup>nd</sup> Edition, Butterworth-Heinemann, Oxford.</p> <p>Chan, C.T.W. (2014). <i>Estimating and measurement for simple building works in Hong Kong</i>, Pearson.</p> <p>Holroyd, T.M. (2000) <i>Principles of estimating</i>, Thomas Telford, London.</p> <p>Packer, A.D. (1996), <i>Building measurement</i>, Addison Welsey Longman, Essex.</p> <p>Picken, D.H. and Drew, D.S. (1996) <i>Building measurement in Hong Kong: Worked Examples</i> Longman Asia Ltd., Hong Kong.</p> <p>The Hong Kong Institute of Surveyors (2005) <i>Hong Kong standard method of measurement of building works — fourth edition (HKSM4)</i>, HKIS, Hong Kong.</p>	