

Subject Description Form

Subject Code	BSE574
Subject Title	Research Methods
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	<p>To develop an understanding of scientific research methods and to critically examine their application in a particular aspect of building services engineering or fire and safety engineering.</p> <p>To develop sufficient expertise to adopt and use an appropriate research strategy to undertake a dissertation project.</p> <p>To know the techniques necessary for collecting, presenting, synthesizing and analyzing data.</p>
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> a. understand the conventional methods for carrying out research in building services engineering and fire and safety engineering; b. understand the process of research investigation; c. prepare investigation proposal systematically and scientifically.
Subject Synopsis/ Indicative Syllabus	<p>Statistical techniques: sampling, parametric and sensitivity analysis, linear and multiple-linear regression analyses, tests for significance, data analysis.</p> <p>Numerical techniques: solutions of systems of equations including iteration method. Basic computing techniques.</p> <p>Experimental techniques: selection of instruments for measurement, experimental method design, measurement accuracy, resolution and measurable range, systematic and random errors, uncertainty analysis, and data logging and retrieval.</p> <p>Scientific research methods: research methodologies suitable for application in building services engineering and fire and safety engineering.</p> <p>Advanced techniques: such as fluid dynamics, heat transfer and combustion for energy, built environment, indoor air quality, and fire and safety research.</p>
Teaching/Learning Methodology	<p>The subject will start with a discussion on the various research techniques commonly used in engineering.</p> <p>Each student is required to develop a proposal after carrying out a literature review on the topic he/she selected. Method for proposal development will be introduced.</p> <p>Seminars will be tutors to reinforce the understanding of the research process.</p>

	Tutors will give advices to the students during the weekly case study tutor meetings to enforce the teaching and learning process.							
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. Report	70%	✓	✓	✓			
	2. Test/Quiz	30%	✓	✓				
Total	100%							
Reading List and References	<p>Bell. J. (1999). <i>Doing Your Research Project: A Guide for First-time Researchers in Education and Social Science</i> (3rd ed), Buckingham: Open University Press.</p>							
	<p>Bryman, A. & Burgess, R.G. (Ed.) (1994). <i>Analysing Qualitative Data</i>, London: Routledge.</p>							
	<p>Fellows, R.E. & Liu, A.M.M. (1997). <i>Research Methods for Construction</i>, Oxford: Blackwell Science.</p>							
	<p>Runeson, G. & Skitmore, R.M. (1999). <i>Writing Research reports: A Practical Guide for Students of the Built Environment</i>, Geelong: Deakin University Press.</p>							