

SBS5498 Final Year Project 2 (Applied Research Project)

<http://ibse.hk/SBS5498/>

Suggested Topics from Supervisors (2018-2019)

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Title:	Developing prototype building simulation models for sustainable urban design
Description:	In town planning exercise, targets were usually designed by a top-down approach. However, there is no interactions between the impacts of latest technologies on the energy and carbon emission in an urban scale. Hence the use of bottom-up approach is of interested. In the beginning, different prototype buildings should be developed for conducting simulation. In this study, survey and simulation technique should be used for developing prototypes.

Title:	Design and commissioning approach for daylight-linked control system by simulation techniques
Description:	Daylight-linked control system is being criticised as ineffective due to inappropriate responses. In this study, field measurement and simulation via RADIANCE are required to model the lighting responses and deliver a design and commission guideline for this control system.

Title:	Implication of vertical daylight factor and building envelope designs on daylight-linked control system
Description:	Daylight requirement and thermal transfer through building envelope are key concerns in window designs. In this study, the impactions of daylight-linked control system performance and its relationship with vertical daylight factors (VDF), overall thermal transfer value (OTTV) and residential thermal transfer value (RTTV) are studied.

Title:	Study on lightpipe application in a shopping centre by simulation technique
Description:	Lightpipe can be used as effective light sources for illuminating

	indoor space. Vast of high-rise buildings are built closely together in Hong Kong which limited the uses of lightpipe system. To promote the uses of these system, a reliable database and accurate estimation method are needed. In this study, simulation programs call Holigram and RADIANCE to develop a database for lightpipe performance in a shopping mall.
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Title:	Application of combined heat and power system in hotel buildings / hospitals
Description:	With the supply of landfill gas and biodiesel become available, there is a raising concern on the decentralize power generation. Hotel and hospital are buildings with both high electricity and heat demand. They offer opportunities for employing combined heat and power system. The performances of different schemes will be compared by simulation.

Title:	Investigation on integrated photovoltaic and solar thermal panel in small house
Description:	A house of rural area within Hong Kong was selected for study. The performance of an integrated photovoltaic and solar thermal panel system would be analyzed. This project is jointly collaborated with a supplier. Priorities will be given to those students whom had internship experience with that supplier.