UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For The Following Qualifications:-

Grad Dip M.Sc.

ESGL3: Lighting: Current Research Issues

COURSE CODE	:	**ENVSGL03**
DATE	:	**07-MAY-04**
TIME	:	**10.00**
TIME ALLOWED	:	**3 Hours**

04-C0441-3-40

TURN OVER

UNIVERSITY OF LONDON

MSc DEGREE IN BUILT ENVIRONMENT 2004
for Internal Students of University College London

ESGL3: Lighting: current research issues

Answer **FOUR** questions.

All questions carry equal marks. Use annotated sketches.

1. There are at least two strands in the work of Le Corbusier: the *International Style* and *Brutalism*. Show the differing responses to the handling of daylight in each strand using appropriate exemplar buildings.

2. Measures of lighting quality are confined, in the main, to specification of power density and illuminance. Describe how other parameters such as discomfort glare, luminance ratios and colour metrics might be incorporated into a specification of lighting quality.

3. Explore, with reference to the research literature, the benefits in terms of *visual clarity* from the use of sources rich in blue light.

4. Compare the simulation of daylight and sunlight penetration into buildings using:

   i) scale models

   ii) computer software

   iii) manual calculation methods.

5. Describe the prospects for affecting the 'alertness' or 'productivity' of people working in environments by the use of *dynamic* or *variable* lighting.

6. Visualisation and simulation of the indoor lit environment is rapidly advancing through the use of software tools. Compare the utilisation, radiosity and ray tracing methods of computer simulation with particular reference to their current limitations. Is physical modelling of the lit environment still an appropriate technique?

TURN OVER

7. Emergency lighting enables the safe evacuation of the building when the normal lighting has failed and is affected by three different European Directives. Explore the recent changes to British practice as a result of implementing the European norms.

8. Propose reasons for encouraging the development of a Metric of Lighting Quality.

Compare the advantages or otherwise of delivering a Metric to the lighting community using the following methods:

a) Codes of Practice eg. SLL Code for Lighting,

b) single number metric eg. CSP index,

c) prescriptive eg. Pattern Book approach.

END OF PAPER