

THE UNIVERSITY OF ZAMBIA
SCHOOL OF ENGINEERING
Department of Electrical & Electronic Engineering

EEE 3352: ELECTROMECHANICS AND ELECTRICAL MACHINES

ASSIGNMENT 8: PRINCIPLES OF ILLUMINATION (Due 16/06/2014)

1.

A square of side 6 m is illuminated by lamps of 300 cd one at each corner and 6 m above ground level. Calculate the illuminance on the ground at a point half way along one side of the square.

2.

It is desired to illuminate a horizontal circular space 8 m in diameter by a lamp suspended at a height of 5 m. The illuminance must not be less than 100 lx at any point. Estimate the power consumption of the lamp required if the lamp is suspended over the centre of the area, the lamp having an efficacy of 20 lm/W and being fitted with a reflector which directs light output over the surface to be illuminated and gives uniform luminous intensity over this angle.

3.

A room whose floor measures 10 m by 20 m is designed to have an illuminance of 300 lx and will have 8 lamps. If the utilisation factor is 48% and the maintenance factor is 80%, calculate the mean spherical luminous intensity per lamp.

A Zulu 12/06/2015