

1. A factory hall size of 15m*12m is to be illuminated by metal halide lamp of 70W. Inside the hall, an average illumination of 200lumen/m² is to be provided on the working plane. The walls and ceilings are brightly painted. Calculate the no. of luminaries required to be fitted in the hall. Draw a layout diagram showing arrangement of luminaries, sub-circuits and switches. Assume value for utilization and maintenance factor are 0.7 and 0.6 respectively and the lamp efficiency is 90lum/watt.
2. A process room measuring 30m*15m*5m is to be provided with illumination of 200lux. Assuming the coefficient of utilization and maintenance factors are 0.8 and 0.7 respectively. Calculate number of luminaries for the process room in an industry, illuminated by twin 40W fluorescent lamps. The efficiency of lamp is 60lum/watt and distance between working plane and mounting height of luminaries is 3m. Draw neat sketch showing the arrangement of lamps, sub-circuits and switches.
3. An illumination on the working plane of 75lux is required in a room 40m*15m in size. The luminaries are required to be hung 4m above the work bench. Assuming a suitable space-height ratio, a utilization factor of 0.8, a lamp efficiency of 60 lumen/watt and maintenance factor is 0.7. Estimate number and disposition of lamps and draw layout of sub-circuits and switches. Consider 1*36W FTL with electronic ballast.
4. A drawing hall 40m*25m*6m is to be illuminated with 2*36W fluorescent lamp to an average illumination of 90lum/m² on a working plane 1m above the floor. Estimate suitable numbers and size of lamps. Mounting height 1m below the ceiling. Sketch the spacing, sub-circuits and switches layout. Assume coefficient of utilization 0.8, depreciation factor 1.2, space height ration 1.4 and the lam efficiency is 60lum/watt.
5. Calculate the number of luminaries for the process room in an industry. The size of room is 40m*20m illuminated by twin 40W fluorescent lamp. The efficiency of lamp is 60 lumen/watt and distance between working plane and mounting height is 3m, coefficient of utilization and depreciation factor are 0.7 and 1.4 respectively. Draw a neat sketch showing the arrangement of lamps.
6. A drawing hall 40m*25m*6m high is to be illuminated with LED lamps to an average lux is 90lum/m² on a working plane 1m above the floor. Estimate suitable number of lamps. Assume coefficient of utilization of 0.8, depreciation factor of 1.2 and spacing/height ratio of 1.2.

Draw layout diagram showing arrangement of luminaries.

Size of lamps	45W
Luminous efficiency(in lum/W)	90

7. A hall measuring 27.45m*45.75m is to be illuminated using 2*40W fluorescent tube lamps. Inside the hall an average illumination of 108 lumen/m² is to be provided on the working plane. The walls and ceiling are brightly painted. Calculate the number of luminaries required to be fitted in the hall. Draw layout diagram showing arrangement of luminaries, sub-circuits and switches. Design the distribution board to supply lighting loads, if supply is 3 phase, 400V and 50 Hz. Assume suitable value for utilization and maintenance factor and lamp efficiency is 60lum/watt.