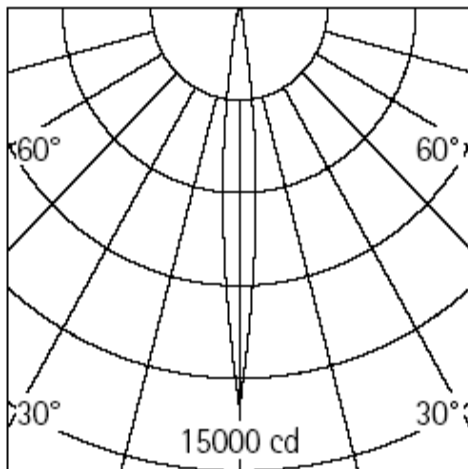


Lighting Worksheet 2

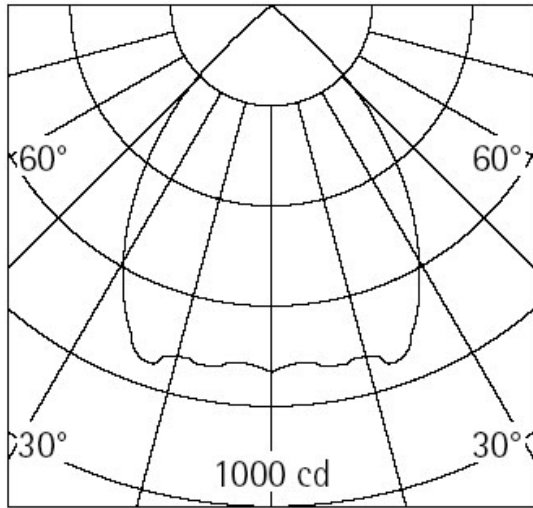
1) Estimate the Correlated Color Temperature [K] of the following:

- a) Candlelight
- b) Sunrise & sunset
- c) Average noon sunlight
- d) Overcast sky
- e) Blue sky

2) What type of application is this lamp good for and why? If it is directed perpendicularly at a 1m X 1m square surface 8m away, what is the luminance of the (assume lambertian) surface if we were to look at it at an angle of 45° and from 10m away?



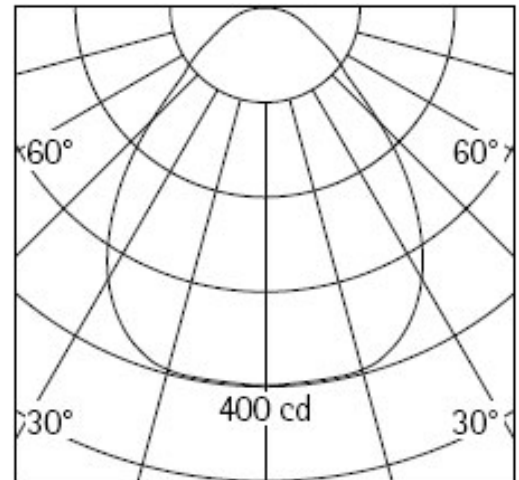
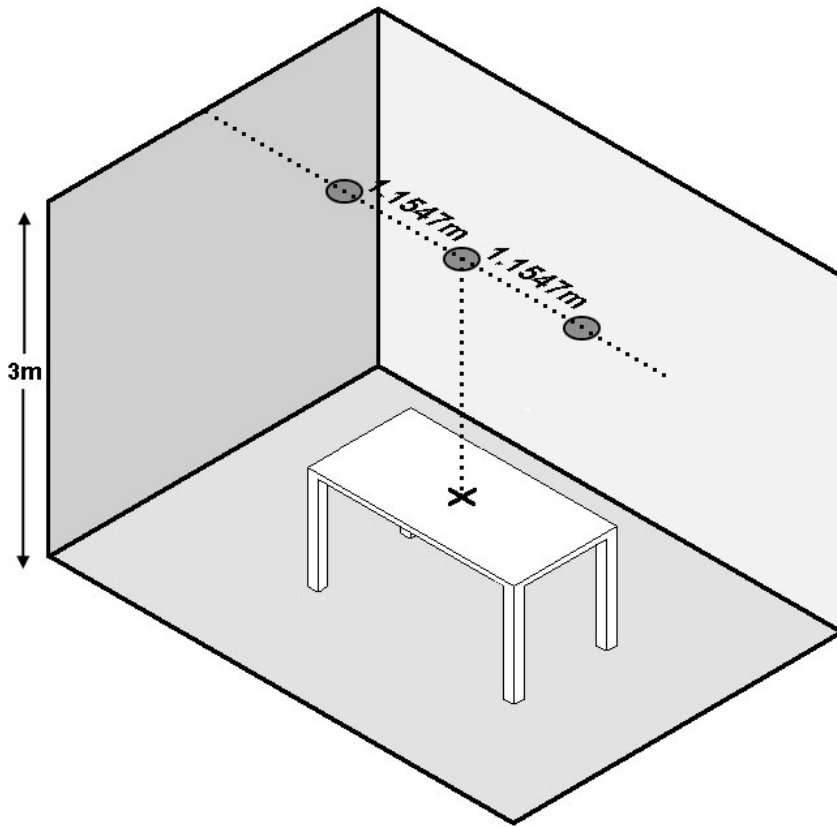
3) Estimate the Beam Spread and the Cut-Off Angle of a compact fluorescent lamp with polar curve below.



NB: Some manufacturers specify angles from vertical, typical convention should be entire cone

4) If the lamp above is to be used in an office where 300 lx is required on the workplane 2 m below the lamps, how far apart do the lamps have to be mounted assuming we use a square grid?

5) What is the illuminance in the middle of the tabletop (height 1m) if 3 identical lamps with polar curve below is mounted at ceiling height, spaced 1.1547m apart? Assume room height of 3m and middle lamp is directly above midpoint of table.



6) How does the Munsell System differ from the Newton Color Circle? How does it describe color? (Describe and explain the components)

7) Explain the CIE Color Rendering Index, the scale of measurement and why incandescent lamps are used to define the scale.

8) Estimate the efficacy, color temperature of the following lamps and typical uses.

Lamp	Efficacy (lm/W)	Color temperature (K)	CRI	Typical Use
Incandescent (Tungsten with inert gas)				
Halogen Lamp				
Fluorescent				
Metal halide				
Low Pressure Sodium				
White LED			NA	

Things I promise will not be on the quiz but your friends might ask you when they hear you're taking a lighting course

Sketch the human visual field in terms of acuity and coverage, giving values where necessary.

What are the limitations of LED lamps?

What are the limitations of the calculation methods in this class?