Master of Lighting (off-shore) (PH83)

Year offered: 2010
Admissions: No
Course duration (external): 3 semesters (1 year) full-time and 6 semesters (2 years) part-time (Hong Kong)
Domestic fees (indicative): Off-shore course
International Entry: September
Total credit points: 144
Standard credit points per part-time semester: 24
Course coordinator: Associate Professor Ian Cowling
Campus: City University of Hong Kong

Overview
The Master of Lighting (PH83) is designed primarily for people working in all areas of the lighting industry and engineers or architects whose work includes some aspects of lighting. It provides the opportunity for graduates of the Graduate Certificate in Lighting (PH63) and the Graduate Diploma in Lighting (PH73) to undertake a Masters in the form of a project with some coursework.

Entry Requirements
(a) Bachelor level degree in an appropriate field

OR

(b) Successful completion of the PH72/PH73 Graduate Diploma in Lighting or equivalent.

Note: Students with relevant experience in the lighting industry or recognised educational qualifications in lighting may be granted credit to a maximum of 36 credit points.

Course Design
Masters students will undertake a 24 credit point research project, which may be based within their place of employment and two units (24 credit points) of coursework which may be reading topics associated with their project or other electives taken from any relevant units within the University, on approval of the Course Coordinator.

Contact Details
Course Coordinator
Associate Professor Ian Cowling
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Course structure - Part-time
First Semester (September to December)
PCZ121 Vision Colour and Photometry

Second Semester (January to April)
PCZ122 Lighting Design
PCZ123 Sustainability and Human Factors

Third Semester (May to August)
PCZ222 Advanced Lighting Design
PCZ223 Lighting Applications

Fourth Semester (September to December)
PCZ221 Best Practices in Lighting
PCZ224 Applied Lighting

Fifth Semester (January to April)
PCZ321 Reading Topic 1
Or approved elective
PCZ322 Reading Topic 2
Or approved elective

Sixth Semester (May to August)
PCZ320 Lighting Project

NOTE: PH83 will be offered part-time in a combination of face-to-face lecture/tutorial/practical format, and on-line. Some units will have a computer-design type component and all units will incorporate learning through assignment work, all of which will be incorporated into the assessment program. For the first three semesters the two units offered each semester will be presented sequentially. The face-to-face teaching component will be offered in block form over a weekend, usually on the first weekend of the teaching period assigned to that unit. There will then be a follow-up face-to-face session about three weekends later. For the fourth and fifth semesters both units will commence together at the start of the semester.

Students in the Master of Lighting (PH83) wishing to exit with the Graduate Certificate in Lighting (PH63) or Graduate Diploma in Lighting (PH73) are required to submit an Application to Graduate Early with an Approved Exit Course (SRX) Form in their final semester of study.

Potential Careers:
Architect, Electrical Contractor, Electrical Engineer, Energy Consultant, Industrial Designer, Landscape Architect, Lighting Designer, Lighting Technician, Luminaire Designer,
UNIT SYNOPSIS

PCZ121 VISION COLOUR AND PHOTOMETRY
This unit includes the following: measurement of luminous flux; luminous intensity; illuminance; luminance; reflectance; transmittance; diffuse surfaces; inverse square law; cosine law; Munsell and CIE Colour System; chromaticity coordinates X,Y, L* A* B*, Luv, correlated colour temperature, colour rendering indices; the integrating sphere; goniophotometry; distribution photometry; graphical representation of photometric data; measuring instruments; accuracy; repeatability; the physiology of the eye and light detection; contrast sensitivity; colour vision; adaptation; brightness and lightness; image detection and recognition including edge detection; lightness determination; the association of the characteristics of patterns.

Credit points: 12    Campus: City University of Hong Kong

PCZ122 LIGHTING DESIGN
This unit includes the following: definition of the visual field; the extension of threshold studies to practical task situations; the evaluation of visual tasks; the development of measures of discomfort and disability glare; illuminance and glare scales; methods for the assessment of tasks and environments; experimental techniques of evaluation. It also includes the perception of colour, form, pattern and space, and issues relating to the perception and comprehension of the environment; aesthetics, perception and emotion; the practical methods available for predicting illuminances from daylight and uniform arrays of luminaires; the prediction of discomfort; appraisals; codes of practice; economics; maintenance; integration of daylight and electric light.

Credit points: 12    Campus: City University of Hong Kong
Teaching period: 2010 SEM-1

PCZ123 SUSTAINABILITY AND HUMAN FACTORS
This unit will not cover all areas of specialised lighting, but rather will concentrate on the more important and general public lighting situations. Topics covered include emergency lighting requirements, road lighting, pedestrian lighting and sports lighting, with particular reference to standards for specialised lighting situations, equipment, required light distributions and calculation and design techniques. There is a need to fully understand the issues involved in designing for these applications and to be able to build a design that satisfies the requirements with quality and efficient lighting solutions.

Credit points: 12    Campus: City University of Hong Kong
Teaching period: 2010 SEM-1

PCZ124 LAMPS AND LUMINAIRES
This unit includes the development of light sources, the practical requirements of light sources including tubular fluorescent lamps, various high and low pressure discharge lamps. Practical lamps are discussed in terms of luminous efficacy, spectral output, colour rendering, life, supply requirements, control gear, cost, etc. The unit also addresses the design, manufacture, testing and the provision of data on luminaires methods of light control; the properties of optical systems; refractors; reflectors and diffusers; luminance control techniques; manufacture of luminaires and auxiliaries; codes and provision of photometric data for indoor and outdoor luminaires; the calculation of utilisation factors; luminaire luminances; computerised testing.

Corequisite(s): PCZ121    Credit points: 12    Campus: City University of Hong Kong

PCZ221 BEST PRACTICES IN LIGHTING
Electrical energy usage and subsequent energy analysis techniques, advantages and disadvantages of choosing low energy lamps and luminaries, compromising low energy sources and quality lighting, sensors and sensing techniques for lighting control, energy conservation through dimming and lamp switching, daylighting techniques, potential for energy savings through daylighting, daylighting design and calculations.

Credit points: 12    Campus: City University of Hong Kong
Teaching period: 2010 SUM

PCZ222 ADVANCED LIGHTING DESIGN
This unit includes the latest developments in lamp technologies and sources (including LEDs and lasers), lighting in the mesopic range, a review of factors influencing lighting design; discomfort and disability glare; illuminance and glare scale, methods for the assessment of tasks and environments; in-depth studies of colour, form, pattern and space, issues relating to the perception and comprehension of the environment; the practical effects of daylight, introduction to the integration of daylight and electric lighting. This is a very hands-on unit with a large component of computer design work, group discussions and site visits and evaluations.

Credit points: 12    Campus: City University of Hong Kong
Teaching period: 2010 SUM

PCZ223 LIGHTING APPLICATIONS
This unit builds on the material covered in PCN122 and looks in more depth at some of the applications covered in that unit, namely street lighting and public access lighting, as well as other areas not covered in that unit, including general floodlighting requirements and equipment, light distributions, calculation methods, area floodlighting, building floodlighting, pedestrian lighting, tunnel lighting, vehicle lighting, traffic signals, airport lighting, navigation lighting, display lighting, and advertising.

Credit points: 12    Campus: City University of Hong Kong
Teaching period: 2010 SEM-2

PCZ224 APPLIED LIGHTING
There is no set material for this unit. Students undertake an approved project over a semester on any topic relevant to their interest in lighting. The project may be predominantly a reading course, reviewing, comparing or analysing material on a specific topic, or it may be a practically oriented project involving manufacture, measurement or analysis of a particular lighting product or installation. The project may be taken within the person's place of employment.
Credit points: 12    Campus: City University of Hong Kong

PCZ320 LIGHTING PROJECT
This unit will be a project in some area of lighting in keeping with the student's interest. The project may be undertaken at QUT or within the student's place of employment and may be a project of direct interest and value to the student's employer.
Credit points: 24    Campus: City University of Hong Kong
Teaching period: 2010 SEM-1

PCZ321 READING TOPIC 1
The make-up of this unit will be determined on a student-by-student basis, taking account of the student's interest, their proposed Master's project, and the availability of appropriate units. The units may be drawn from existing QUT units (including from PH73 GradDipLighting) or units from other universities in Australia.
Credit points: 12    Campus: City University of Hong Kong
Teaching period: 2010 SEM-1

PCZ322 READING TOPIC 2
The make-up of this unit will be determined on a student-by-student basis, taking account of the student's interest, their proposed Master's project, and the availability of appropriate units. The units may be drawn from existing QUT units (including from PH73 GradDipLighting) or units from other universities in Australia.
Credit points: 12    Campus: City University of Hong Kong
Teaching period: 2010 SEM-1