Graduate Diploma in Lighting (on-shore) (PH72)

Year offered: 2011
Admissions: Yes
Course duration (part-time): 4 semesters (2 years)
(Internal and External)
Domestic Fees (indicative): 2011: Full fee tuition $7,375
(indicative) per semester
Domestic Entry: July
Total credit points: 96
Standard credit points per part-time semester: 24
Course coordinator: Associate Professor Ian Cowling
Campus: Gardens Point

Course Design
Graduate Diploma students will undertake 24 credit points
(two units) of advanced lighting design and applications
studies and two other units (24 credit points) which could
include at least one unit in Project Management, Project
Cost and Risk Management or Quality Management.

Limits on grades of 3
A new policy concerning grades of 3 came into effect from 1
January 2009 (QUT MOPP C/5.2). With effect from this date
grades of 3 are no longer considered a conceded or low
pass but are classified as a fail grade. Any grades of 3
awarded prior to 1 January 2009 retain the conceded pass
status and will be counted for graduation purposes up to the
maximum number of grades of 3 permitted for your course.
Grades of 3 incurred in units that commence after 1 January
2009 will not count towards your degree. Further information
is available on the Student Services website

Further Information
For further information about this course, please contact:
Associate Professor Ian Cowling
Phone: +61 7 3138 2592
Email: i.cowling@qut.edu.au

Course structure - Part-time

Year 1, Semester 2 (July to October)
PCN121 Vision Colour and Photometry
PCN124 Lamps and Luminaires

Year 2, Semester 1 (February to June)
PCN122 Lighting Design
PCN123 Sustainability and Human Factors

Year 2, Semester 2 (July to October)
PCN223 Lighting Applications

PCN222 Advanced Lighting Design

Year 3, Semester 1 (February to June)
PCN221 Best Practices in Lighting
PCN224 Applied Lighting

NOTES: PH72 is offered part-time internally and externally. The course comprises a
lecture/tutorial format, and where appropriate
practical and field work. Some units will have a
significant computer-design type component
and all units will incorporate learning through
assignment work, all of which will be
incorporated into the assessment program.
Most units in the internal mode will be offered in
block format on weekends. Students
enrolling in the external mode will be required
to attend QUT for 4 to 5 days per semester for
intensive practical and tutorial work.

Domestic students in the Graduate Diploma in
Lighting (PH72) will be invited, on successful
completion of 96 credit points, to continue with
studies in the Master of Lighting (PH82).

Students in the Graduate Diploma in Lighting
(PH72) wishing to exit with the Graduate
Certificate in Lighting (PH62) are required to
submit an Application to Graduate Early with
an Approved Exit Course (SRX) Form in their
final semester of study.

International students wishing to change
courses should consult International Student
Business Services.

Potential Careers:
Architect, Electrical Contractor, Electrical Engineer, Energy
Consultant, Industrial Designer, Landscape Architect,
Lighting Designer, Lighting Technician, Luminaire Designer,
Physicist, Sales Person, Scientist, Theatre Lighting.

UNIT SYNOPSES

PCN121 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 Xyy, 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: Gardens Point  Teaching
period: 2011 SEM-2

PCN122 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: Gardens Point  Teaching
period: 2011 SEM-1

PCN123 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: Gardens Point  Teaching
period: 2011 SEM-1

PCN124 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. 

Credit points: 12  Campus: Gardens Point  Teaching
period: 2011 SEM-2

PCN221 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: Gardens Point  Teaching
period: 2011 SEM-1

PCN222 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,
intraduction 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: Gardens Point  Teaching
period: 2011 SEM-1 and 2011 SEM-2

PCN223 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: Gardens Point  Teaching
period: 2011 SEM-2

PCN224 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 at QUT or within the person's place of employment. 

Credit points: 12  Campus: Gardens Point  Teaching
period: 2011 SEM-1 and 2011 SEM-2