Master of Public Health (PU85)

Year offered: 2010  
Admissions: Yes  
CRICOS code: 009029C  
Course duration (full-time): 3 semesters  
Course duration (part-time): 6 semesters  
Course duration (external): 3 semesters (full-time) or 6 semesters (part-time)  
Domestic fees (indicative): 2010: Full fee tuition $7,500 (indicative) per semester  
International Fees (indicative): 2010: $10,750 (indicative) per semester  
Domestic Entry: February and July  
International Entry: February and July  
Total credit points: 144  
Course coordinator: Dr Thomas Tenkate  
Campus: Kelvin Grove

Overview
Public health professionals make a difference to the health of populations. These courses provide opportunities to protect, promote and restore health and wellbeing in society. Students obtain core skills in epidemiology and biostatistics and gain knowledge about health systems and contemporary and challenging population health issues. This course is designed for health professionals interested in moving into the public health area, mid-career health professionals seeking advancement in their area of work and clinicians wishing to broaden their range of expertise.

Entry requirements
Applicants should have an approved three-year or four-year bachelor degree in health, behavioural, social or biological science from a recognised institution and not less than one year of relevant full-time professional experience.

Applicants who hold a four-year degree may be eligible for advanced standing of up to 48 credit points.

Admission on the basis of professional experience and/or research work will be considered.

Study areas
Specialised streams of study are offered in the areas of:  
- Emergency and Disaster Management *  
- Epidemiology and Research Methods #  
- Health Promotion  
- Health Services Management  
- Occupational and Environmental Health Sciences  
- Public Health Nutrition

* The units in this study area are currently only offered in second semester  

There is also the option of not completing a major and choosing units from more than one stream.

Course Structure
Students elect between three options:

(1) The first option is for full coursework, with no project or thesis component:  
- four core units (Part A),  
- one research methods unit (HLN405, HLN705 or HLN706) and  
- seven advanced elective units (Part B)

(2) Option two is to undertake coursework with a project component:  
- four core units (Part A)  
- one research methods unit (HLN405, HLN705 or HLN706) and  
- five advanced elective units (Part B) and  
- one project unit (HLN703).

(3) Option three is coursework with a thesis component:  
- four core units (Part A)  
- four advanced elective units (Part B)  
- dissertation component of one semester or two semesters (HLN700 or HLN750-1 and HLN750-2)

Elective units (from Part B) will normally be selected according to choice of a major, or more than one stream of study where the no major option is chosen.

Course Articulation
The Graduate Certificate in Public Health fully articulates into the Graduate Diploma in Public Health and Master of Public Health and the Graduate Diploma in Public Health fully articulates into the Master of Public Health.

International Student Entry
International students may only enrol in full-time studies.

Further information
For more information about this course, please contact the School of Public Health on +617 3138 5878 or email sph.studentcentre@qut.edu.au

Course structure - Full-time
PART A - Semester 1 - Core Units (Option 1, 2, 3)

PUN105  Health Statistics
PUN640  Health Care Delivery and Reform
PUN106  Population Health
HLN710  Fundamentals of Epidemiology and Research Design

PART B - Semester 2 - Advanced Elective Units offered by QUT (Option 1, 2, 3)

4 electives from same major
or
4 electives across majors

PART C - Semester 3 - Coursework (Option 1 only)

Students select further electives from advanced elective list, one of which must be HLN405 or HLN706

PART C - Semester 3 - Project (Option 2 only)

HLN703  Project A

plus electives from advanced elective list, one of which must be HLN405 or HLN706

PART C - Semester 3 - Dissertation (Option 3 only)

HLN700  Thesis

Course structure - Part-time

PART A - Semester 1 - Core Units

HLN710  Fundamentals of Epidemiology and Research Design
PUN105  Health Statistics

PART B - Semester 2 - Advanced Elective Units Offered By QUT (Option 1, 2, 3)

2 electives from same major
or
2 electives from across majors

PART A - Semester 3 - Core Units

PUN106  Population Health
PUN640  Health Care Delivery and Reform

PART B - Semester 4 - Advanced Elective Units Offered By QUT (Option 1, 2, 3)

2 electives from same major
or
2 electives from across majors

PART C - Semester 5 & 6 - Project (Option 2 only)

HLN703  Project A

AND

HLN405 or HLN706, plus one further elective

PART C - Semester 5 & 6 - Coursework (Option 1 only)

Students select 4 further electives from advanced elective list.

PART C - Semester 5 & 6 - Dissertation (Option 3 only)

HLN750-1  Thesis

AND

HLN750-2  Thesis

Course structure - Advanced Elective Unit List

Emergency and Disaster Management

PUN451  Introduction To Health Disaster Management
PUN452  Health Disaster Planning and Preparedness
PUN453  Health Disaster Response and Recovery
PUN454  Health Leadership in Disaster Management

Epidemiology and Research Methods

HLN405  Qualitative Research
HLN706  Advanced Quantitative Research Methods
PUN103  Advanced Epidemiology
NSN424  Evidence Based Practice

Health Services Management and Policy Sciences

Students should complete any 4 of the following units

PUN210  Fundamentals of Health Management
PUN211  Health Care Finance and Economics
PUN212  Understanding Health Information
PUN213  Introduction to Quality Management in Health
PUN632  Health Services Management, Leadership and Change
PUN688  International Health Policy and Management
LWN164  Health Care Law and Ethics
Occupational and Environmental Health Science

Students should complete any 4 of the following units

- **PUN001** Contemporary Risk Management
- **PUN008** Risk Assessment
- **PUN301** Occupational Health and Safety Law and Management
- **PUN363** Environmental Health Law
- **PUN500** Safety Management
- **PUN465** Environmental Protection
- **PUN466** Communicable diseases
- **PUN467** Public Health Risk Assessment
- **PUN620** Concepts of Environmental Health
- **PUP116** Ergonomics
- **PUP250** Occupational Hygiene
- **PUP415** Occupational Health

Health Promotion

- **PUP032** Intervention Design and Theories of Change
- **PUP034** Advanced Studies and Practice in Health Promotion
- **PUP037** Health Program Evaluation
- **PUP038** New Developments in Health Promotion

Public Health Nutrition

- **PUN551** Advanced Public Health Nutrition
- **PUN552** Population Nutrition and Physical Activity Assessment
- **PUN553** Chronic Disease Prevention and Management
- **PUN554** Food Policy and Sustainability

Health Unit prerequisites/corequisites

For information on prereqs & coreqs visit: [www.hlth.qut.edu.au/study/forcurrentstudents/](http://www.hlth.qut.edu.au/study/forcurrentstudents/)

Potential Careers:
Community Health Officer, Government Officer, Health Promotion Officer, Public Health Officer.

UNIT SYNOPSIS

**HLN405 QUALITATIVE RESEARCH**

This unit addresses a range of qualitative methodologies and methods which represent alternative approaches to the application of the quantitative paradigm in health science research. The predominance of the natural sciences in nursing/health research has come into question in recent times and thus the unit introduces students to the origins of such challenges, to the knowledge bases of the alternative approaches to investigating the microsocial world of health/illness and to the relevant research methods. The unit comprises a series of lectures, seminar presentations and relevant readings.

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Kelvin Grove and External  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**HLN700 THESIS**

The thesis provides an opportunity to formally extend and synthesise knowledge gained in earlier semesters of the program. Coursework conducted in the area of specialisation may be applied in a practical manner reflecting a student's specific interest in health science. The work represents an independent and original piece of research completed under the guidance of a supervisor. The thesis may be a report on research that makes a contribution to knowledge, or a study in which students critically analyse and appraise existing knowledge and produce observations and conclusions of value to the field concerned.

**Assumed knowledge:** Completion of all coursework units is assumed knowledge.  
**Credit points:** 48  
**Campus:** Kelvin Grove and External  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**HLN703 PROJECT A**

An important aspect of postgraduate development is the opportunity to engage in research or project work in a specialist field of study in industry or as a component of consultancy work. Working in industry or a health-related agency, locally or internationally, can provide students with valuable work experience and develop skills and expertise that advances their profession or the particular industry involved. The research option enables students to work independently under the guidance of a supervisor. The research may be a report that makes a contribution to knowledge or a study in which the student critically analyses existing knowledge and produces observations and conclusions of value to the field concerned.

**Credit points:** 24  
**Campus:** Kelvin Grove and External  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**HLN706 ADVANCED QUANTITATIVE RESEARCH METHODS**

The content of this unit builds on the basic statistics background assumed of students. A unifying theme is the concept of sources of variation in collected data, how proper design of study and measurement instruments minimises some sources of variation (error), how analytical techniques account for other sources, and finally the issue of introduced...
error that cannot be accounted for, but must be addressed in discussion of results. Analytical strategies for modelling health data are compared, and practical experience focuses on the analysis and interpretation of various data sets.

Prerequisites: PUN105 Credit points: 12 Contact hours: 4 per week Campus: Kelvin Grove Teaching period: 2010 SEM-2

HLN710 FUNDAMENTALS OF EPIDEMIOLOGY AND RESEARCH DESIGN
This unit introduces you to the fundamentals of epidemiology and quantitative research design. It addresses the collection and interpretation of epidemiological data, introduces measures of disease occurrence and association, and contemporary issues of major importance in health. It provides you with essential skills for logical, scientific assessment of the health and medical literature. There will be a strong emphasis on applying concepts through critical reading of the literature and the development of a comprehensive research proposal as the main practical exercise of the unit.

Antirequisites: HLN705, PUN743 Credit points: 12 Teaching period: 2010 SEM-1 and 2010 SEM-2

HLN750 THESIS
Students undertake original research with the guidance of a supervisor. The thesis provides an opportunity for coursework conducted in the area of specialisation to be applied in a practical manner reflecting the student's specific interest in health science. HLN750-1 and HLN750-2 are the part-time version of HLN700.

Assumed knowledge: Completion of all coursework units is assumed knowledge. Credit points: 24 Campus: Kelvin Grove Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

HLN750 THESIS
Students undertake original research with the guidance of a supervisor. The thesis provides an opportunity for coursework conducted in the area of specialisation to be applied in a practical manner reflecting the student's specific interest in health science. HLN750-1 and HLN750-2 are the part-time version of HLN700.

Prerequisites: HLN750-1 Assumed knowledge: Completion of all coursework units is assumed knowledge. Credit points: 24 Campus: Kelvin Grove Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

LWN164 HEALTH CARE LAW AND ETHICS
The relationship between law and ethics in healthcare is important, but at times contested. This unit explores that relationship to lay the foundations of an understanding of law and ethics as they relate to healthcare.

Credit points: 12 Contact hours: 26hrs in total Campus: Gardens Point Teaching period: 2010 6TP5

NSN424 EVIDENCE BASED PRACTICE
On successful completion of this unit students will be able to critically appraise systematic reviews of evidence and design projects for the implementation of evidence into practice. Content includes: Evidence-based terminology, principles and processes; incorporating evidence into practice; comparing and contrasting current practice with the most current evidence; modifying policies and procedures to be consistent with the evidence; use of audit results to identify areas of practice that are consistent with the evidence and those needing revision; formulating strategies for promoting the uptake of evidence-based practice.

Credit points: 12 Campus: Kelvin Grove Teaching period: 2010 SEM-2

PUN001 CONTEMPORARY RISK MANAGEMENT
This unit provides an introduction to the risk management process as outlined in AS/NZS 4360 risk management. The unit concentrates on the context of risk management and introduces the student to the concepts that will be explored further in the units PUN008, PUN009 and EFN418. The structure of the organisation, its environment and the potential loss exposures are examined in some detail.

Credit points: 12 Contact hours: 3 per week Campus: Kelvin Grove and External Teaching period: 2010 SEM-1

PUN008 RISK ASSESSMENT
This unit provides the skills necessary to identify and assess risks. Qualitative, semi-quantitative and quantitative methods of risk analysis are investigated in the context of the major perils likely to be considered by an organisation. Various risk analysis techniques including HAZOP, FMEA, hazard indices, fault trees, event trees, reliability analysis, statistical analysis, and probability are discussed.

Prerequisites: PUN001 Credit points: 12 Contact hours: 3 per week Campus: Kelvin Grove and External Teaching period: 2010 SEM-1

PUN103 ADVANCED EPIDEMIOLOGY
This unit's aim is the mastery of key principles and concepts of research design. There has been an increasing demand for evidence based health research, and an increasing trend towards research that considers complex biological, environmental and societal inter-relationships. Recent developments in epidemiology have contributed novel research designs and statistical methods to complement these needs. Throughout this unit, students are exposed to these more sophisticated designs and analytical methods. Such knowledge is mandatory for critical evaluation of the current research literature, for design of efficient research studies, and to inform appropriate interpretation of research results at a 'best practice' level.

Prerequisites: PUB326 or HLN710 Credit points: 12
Contact hours: 3   Campus: Kelvin Grove   Teaching period: 2010 SEM-2

PUN105 HEALTH STATISTICS
Beyond a common core of statistical concepts, each discipline area emphasises its own set of descriptive and inferential statistical methods and even terminology. The content of this unit emphasises both core and health specific statistical methods in the health sciences. Students are provided with substantial practical experience in the application and interpretation of the most common statistical methods to health data, and are also made aware of data management principles in preparation for analysis. There is a strong emphasis on applying concepts through critical reading and discussion of the literature and worked examples from a range of topic areas.
Credit points: 12   Contact hours: 3 per week   Campus: Kelvin Grove and External   Teaching period: 2010 SEM-1

PUN106 POPULATION HEALTH
This unit addresses some of the significant issues of population health including the complex relationship between health and social, economic, political and lifestyle factors and social disadvantage and health. It examines contemporary concepts of health and illness also draws on international examples. Potential health issues facing Australia and the world, such as the aging of the population, the impact of genetic technology on health and the health of specific sub-populations are also examined.
Antirequisites: PUP010   Credit points: 12   Contact hours: 3   Campus: External   Teaching period: 2010 SEM-1

PUN210 FUNDAMENTALS OF HEALTH MANAGEMENT
Credit points: 12   Teaching period: 2010 SEM-2

PUN211 HEALTH CARE FINANCE AND ECONOMICS
The unit develops analytical skills and understanding of micro- and macro- economics as they apply to health and of accounting and financial management decision-making principles and processes. It offers an overview of the financial structure of the Australian Health Care system and the context in which it operates. It also offers an understanding of the basic concepts and tools of economic analysis and introduces concepts that are essential in understanding financial resource management, health and health care.
Credit points: 12   Teaching period: 2010 SEM-1

PUN212 UNDERSTANDING HEALTH INFORMATION
This unit provides an introduction to the field of health information and its uses and applications in the health industry. It provides a context for the study of contemporary health information and data management practice. The use of information as a strategic, organisational and management resource is discussed, and a broad appreciation of health information and data management procedures and philosophy is provided. Demands on the users of health information occasioned by advances in information technology are highlighted.
Credit points: 12   Teaching period: 2010 SEM-1

PUN213 INTRODUCTION TO QUALITY MANAGEMENT IN HEALTH
The aim of the unit is to assist students to develop the necessary knowledge and skills to develop a quality management program, perform quality improvement activities, and expand outcomes into process improvements and organisational change. Methods of health care performance measurement are explored, and a clinical quality framework model is introduced. Issues relating to administrative and clinical data quality, safety and privacy in an increasingly electronic health care environment are also considered.
Credit points: 12   Teaching period: 2010 SEM-1

PUN301 OCCUPATIONAL HEALTH AND SAFETY LAW AND MANAGEMENT
This unit introduces students to the history of occupational health and safety and the impact on occupational health and safety practice of the law, and industrial relations. The theory and practice of occupational health and safety management is discussed.
Credit points: 12   Contact hours: 3 per week   Campus: Kelvin Grove and External   Teaching period: 2010 SEM-1

PUN363 ENVIRONMENTAL HEALTH LAW
The purpose of this unit is to develop students who have a detailed understanding of the legislation and legislative frameworks and principles that form the foundation for environmental health practice. In particular, this unit will detail various legislative tools for the management of public health issues in different settings. The prosecution process and gathering of evidence will be discussed along with a detailed discussion on the environmental health practitioners role under the Public Health Act 2005, Environmental Protection Act 1994 and other related legislation. Major topics covered include: an introduction to law and government, public health law, planning and environmental law, local laws, investigation processes and procedures.
Assumed knowledge: PUN620 is assumed knowledge.
Credit points: 12   Campus: Kelvin Grove   Teaching period: 2010 SEM-1

PUN451 INTRODUCTION TO HEALTH DISASTER MANAGEMENT
PUN452 HEALTH DISASTER PLANNING AND PREPAREDNESS
Assumed knowledge: PUN451 is assumed knowledge.
Credit points: 12 Teaching period: 2010 SEM-2

PUN453 HEALTH DISASTER RESPONSE AND RECOVERY
Individuals responsible for the provision of health services are also responsible for the management of major incidents and the aftermath of those events. To do so they need to be knowledgeable of a range of issues and possess the necessary skills to manage major incident response and recovery. The aim of this unit is to develop a high level of capability to identify and evaluate issues that need to be addressed during response to, and recovery from a major incident and to ensure that you have the ability to manage those issues.
Assumed knowledge: Concurrent enrolment in PUN451 and PUN452 is strongly recommended. Credit points: 12 Campus: Kelvin Grove and External Teaching period: 2010 SEM-2

PUN454 HEALTH LEADERSHIP IN DISASTER MANAGEMENT
Management of health service response to major incidents requires a sound understanding of the system and its guiding strategies. Individuals responsible require skills to develop policies and plans, capabilities within the health system, and to strategically manage responses and system recovery. The aim of this unit is to develop the capacity to manage a health service so that it is prepared and capable of managing a major incident. This unit is intended those who are likely to be responsible for designing response arrangements, instructing others in those arrangements and for managing the health service strategically throughout a major incident.
Assumed knowledge: PUN451, PUN452 and PUN453 are assumed knowledge. Credit points: 12 Campus: Kelvin Grove and External Teaching period: 2010 5TP8

PUN465 ENVIRONMENTAL PROTECTION
This unit aims to give students a detailed understanding of the causes, controls measures and management strategies for environmental pollution and an understanding of environmental impacts on human health. A variety of topics on environmental management are covered including environmental management principles, environmental policy and legislation, integrated planning, waste management, contaminated land, air pollution, water pollution, and noise pollution.
Prerequisites: PUN620 and PUN363 Credit points: 12 Campus: Kelvin Grove Teaching period: 2010 SEM-2

PUN466 COMMUNICABLE DISEASES
This unit aims to provide a comprehensive overview of communicable diseases and to discuss current surveillance, control and prevention methods/strategies implemented by public health agencies. Topics in this unit include the following: communicable disease principles; physiology and epidemiology; outbreak investigation and management; immunisation; vector control; disease surveillance; and infection control.
Credit points: 12 Campus: Kelvin Grove Teaching period: 2010 SEM-2

PUN467 PUBLIC HEALTH RISK ASSESSMENT
The aim of this unit is to provide future public health professionals with the skills and knowledge necessary to effectively assess and manage risks associated with a variety of public health hazards. Topics covered in this unit include the following: the Australian standard risk management framework; environmental health risk assessment framework (issues identification, hazard identification, dose-response assessment, exposure assessment, risk characterisation); risk management strategies and approaches; fundamentals of environmental toxicology and its application in health risk assessment; health impact assessment; effective risk communication and community consultation approaches for public health risks; and case studies.
Credit points: 12 Campus: Kelvin Grove Teaching period: 2010 SEM-2

PUN500 SAFETY MANAGEMENT
In this unit, students learn about the nature of materials with regards to material failure, fire and explosions. Students are introduced to the concept of the hierarchy of controls and learn about the various safety systems used to control physical, chemical and biological hazards. Students are also introduced to specific legislative requirements that regulate the use of such substances, the configuration of appropriate safety systems, and the storage, handling and transport of hazardous materials. Students develop skills in accident investigation.
Credit points: 12 Contact hours: 3 Campus: Kelvin Grove and External Teaching period: 2010 SEM-2

PUN551 ADVANCED PUBLIC HEALTH NUTRITION
This unit aims to broaden your understanding of and to critically analyse the application of community and public health nutrition within Australia and internationally across three frameworks. These frameworks are Program Planning incorporating assessment, implementation and evaluation; the Food Chain covering food production, supply and consumption; and the Life Cycle encompassing maternal and infant nutrition, child and adolescents, adults and ageing populations.
This unit provides students with an understanding of the impact of globalisation on health policy and management, including policy formation and the role of political influences. Students will have an opportunity to explore and understand specific examples of national and international policy in both developed countries and countries in transition, particularly in the Asia-Pacific region.

Credit points: 12    Teaching period: 2010 SEM-2

PUP032 INTERVENTION DESIGN AND THEORIES OF CHANGE
This unit examines theories of change as they impact on health promotion and health education practice and the development and implementation of public health interventions. The unit addresses the strengths and weaknesses of change theory into practice and explores the nature of individual, group and organisational change strategies in public health and health promotion.

Credit points: 12    Contact hours: 3 per week    Campus: Kelvin Grove and External
    Teaching period: 2010 SEM-1

PUP034 ADVANCED STUDIES AND PRACTICE IN HEALTH PROMOTION
This advanced unit identifies the repertoire of practice skills that health promotion students need to address health problems. It integrates needs identification, systematic planning and evaluation models into practice. Internal students put this knowledge into practice through participation in a group based health promotion project. The process of developing and implementing a health promotion program develops an understanding of issues such as ethics, writing goals and objectives, resources and time management. External students conduct a needs assessment and use the data to write a health promotion program proposal.

Prerequisites: PUP032 and PUP038
Anti-requisites: PUN613 and PUP023
Credit points: 12
Contact hours: 3 per week    Campus: Kelvin Grove and External
    Teaching period: 2010 SEM-2

PUP037 HEALTH PROGRAM EVALUATION
The aim of the unit is to provide students with skills and knowledge of health promotion planning, its place in public health and health sector contexts, the influences of evidence and contexts, both organisational and political in program evaluation and the application of program evaluation techniques. This unit complements health studies and deepens students’ understanding of program evaluation in practice.

Assumed knowledge: Knowledge of the principles of health promotion planning is assumed.

Credit points: 12
Campus: Kelvin Grove and External
    Teaching period: 2010 SEM-2
PUP038 NEW DEVELOPMENTS IN HEALTH PROMOTION
The unit provides students with a critical understanding of the foundations of health promotion nationally and internationally, and its influence and evidence in improving population health outcomes through new conceptual and practice perspectives. This unit complements public health and other studies and provides a foundation for health professionals of the fundamental underpinnings of the discipline nationally and internationally.

Credit points: 12  Contact hours: 3  Campus: Kelvin Grove and External  Teaching period: 2010 SEM-1

PUP116 ERGONOMICS
This unit explores the relationship between the worker, the work environment and the work space. Occupational ill health and injury arise from a lack of fit between the capabilities of workers and the design of the working environment, the work processes and the physical and mental demands of the task. Insight into ergonomics can assist practitioners to enhance the workers safety and comfort, improve work efficiency and performance, and optimise work performance. Topics include basic anatomy and physiology of body systems, occupational biomechanics and psychology.

Prerequisites: PUN301  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove and External  Teaching period: 2010 SEM-2

PUP250 OCCUPATIONAL HYGIENE
Occupational and environmental monitoring is described as the recognition, evaluation and control of hazards in the workplace. Workplaces contain numerous substances that are potentially hazardous to the health of the workforce, other occupants and the public. Occupational and environmental monitoring spans a number of disciplines including toxicology, engineering and statistics. Students need to develop strong investigative and analytical abilities and professional judgment. Students also develop skills in evaluating the extent of workplace hazards. A preventative approach to dealing with occupational health problems is emphasised based on an understanding of the control hierarchy and the use of exposure standards.

Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove and External  Teaching period: 2010 SEM-2

PUP415 OCCUPATIONAL HEALTH
This unit explores chemical hazards in the working environment, epidemiological principles and practice, and identification of special risk groups in the workforce. Topics include the following: the pathological bases of disease in humans; chronic occupational diseases; occupational skin conditions; respiratory diseases; biological hazards in the work environment (bacteria, parasites, viruses, rickettsia and fungi); chemical and physical stresses and their physiological responses; physiological monitoring principles and practice; special risk groups; and epidemiological principles and practice.

Credit points: 12  Contact hours: 3  Campus: Kelvin Grove and External  Teaching period: 2010 SEM-2