

# Advanced Diploma of Horticulture

## First year subjects

### 202-151 Information Technology and Communication

See full subject details on page 657.

### 206-151 Plant Biology

See full subject details on page 657.

### 206-152 Soil Management

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr Ross Hall

**Contact:** 24 hrs lectures, 10 hrs laboratory sessions (*Semester 2*).

**Description:** The management of plants depends on a thorough knowledge and understanding of the way in which soil properties can influence plant growth. This subject aims to provide a background in plant/soil relationships and to show the ways in which soils can be manipulated to influence and improve plant growth. It will describe the ways in which soil properties (physical, chemical and biological) can affect plant growth. It will describe the ways in which soils can be managed to maintain and improve their productivity and will describe the distribution of important soils in Victoria and the systems developed for classifying soils.

**Assessment:** One 3-hour written examination worth 50% of final marks, two assignments equivalent to 2500 words and worth 25% of final marks each.

### 206-153 Horticultural Science

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr Ross Hall

**Contact:** 24 hours of lectures, 12 hrs laboratory sessions (*Semester 1*).

**Description:** This subject covers:

- the nature of matter;
- chemical symbols;
- valency and the periodic table;
- plant nutrients and their relationship to pH, principles and units of measurement;
- energy balances;
- plant growth regulators;
- macro and micro climatic issues and the relationships to plant growth and development;
- taxonomic approaches to plant description;
- and plant anatomy and morphology (roots, stems, leaves, flowers, fruits).

**Assessment:** Two 2-hour written examinations worth 80% of final marks, two written assignments (practical reports) worth 20% of final marks.

### 206-154 Horticultural Technology

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr Ken James

**Prerequisites:** 206-158 Horticultural Practices.

**Contact:** 36 hours of lectures, 36 hours of practical classes and tutorials (*Semester 2*).

**Description:** This subject examines the range of machinery used in the management of horticultural sites, together with the principles of machinery operation and maintenance. Health and safety techniques to identify hazards associated with machinery used, the assessment of risk and the control methods used to comply with current legislation; basic site surveying techniques that will enable the production of site plans and levelling details, for horticultural and irrigation applications; irrigation equipment such as micro, trickle and sprinkler systems as used in horticulture; and water management principles used in the design and management of irrigation systems, including the evaluation of the performance of irrigation systems.

**Assessment:** A 3-hour examination (50%), and two 3000 word assignments (each 25%).

### 206-155 Horticultural Practices II

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Rayner

**Contact:** 24 hours of lectures, 36 hours of practical, 12 hours tutorials (*Semester 2*).

**Description:** This subject covers landscape management issues of horticultural plants (plant selection, plant production methods, plant quality, site assessment, plant establishment, plant nutrition strategies, pruning, landscape materials, plant maintenance); practical skills development activities and knowledge requirements within a specific horticultural industry sector (aboriculture, landscape construction, parks and gardens or nursery); plant performance in and selection issues associated with specialised environments; and the study of plant groups based on environmental tolerances, specialised uses and themes;

**Assessment:** One final 2-hour written examination worth 35% of final marks, one mid-semester examination worth 15% of final marks and practical assessments (sector based) worth 50% of final marks.

**Recommended texts:** Burnley College, University of Melbourne, Version 1.05, *Burnley Plant Directory (Database) 2000*, Burnley College, University of Melbourne.

### 206-158 Horticultural Practices I

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Delpratt

**Contact:** 36 hours of lectures, 36 hours of practical classes (*Semester 1*).

**Description:** Topics include the industry sectors that service landscape horticulture; basic practices and systems for propagating plants from seeds and cuttings and for establishing and maintaining plants within the landscape; critical environmental factors that influence the establishment and growth of plants in planted landscapes; International Code of Botanical Nomenclature and Code for Cultivated Plants; and study of plant groups based on habit, life-cycle and thematic approaches.

**Assessment:** Two 2-hour written examinations worth 80% of final marks, two practical reports worth 20% of final marks.

**Recommended texts:** Burnley College, University of Melbourne, Version 1.05, *Burnley Plant Directory (Database) 2000*, Burnley College, University of Melbourne.

### 209-151 Financial Management for Resource Ind I

See full subject details on page 657.

## Second year subjects

Complete descriptions of second year subjects will be available in the 2002 Handbook, or from the course coordinator.

### 202-051 Industry Experience

See full subject details on page 681.

### 206-252 Horticultural Management I

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Rayner

**Contact:** 36 hours of lectures, 36 hours of practical activities (*Semester 1*).

**Description:** Topics include technical issues relating to a specific horticultural industry sector; aboriculture: safely climbing and pruning trees by utilising modern technologies and techniques; parks and gardens: park design and resource planning, development of standards and specifications; turf management, park materials and equipment; landscape construction: soil mechanics and application, construction techniques and materials, surveying and calculations; nursery: production contracts and management, plant growth regulators, plant nutrition management, nursery accreditation; practical activities related to a horticultural industry sector (landscape construction, parks and gardens or nursery); principles of plant design and composition; and study of plant groups based on garden styles, landscape themes and cultural factors.

**Assessment:** One final 2-hour written examination worth 35% of final marks, one mid-semester 1-hour examination worth 15% of final marks and practical and written assessments to 3000 words (sector based) worth 50% of final marks.

**Prescribed texts:** Burnley College, University of Melbourne, Version 1.05, *Burnley Plant Directory (Database) 2000*, Burnley College, University of Melbourne.

### 206-253 Horticultural Management II

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Rayner

**Contact:** 36 hours of lectures, 36 hours of practical activities (*Semester 2*).

**Description:** This subject covers technical, design, planning and management issues relating to a specific horticultural industry sector. Topics include: arboriculture: establishing, maintaining and managing trees that enhance urban and other human environments; parks and gardens: park policy and planning, site analysis, vegetation establishment and management, vegetation surveying; heritage garden management, recreation planning and management; landscape construction: steps and construction/materials, water feature construction, rockwork, interior and roof gardens; nursery: materials handling, growing media, trials organisation and management, specialist production enterprises, nursery retailing and marketing, greenhouse management issues; origins and utilisation of Australian flora; and study of plant groups based on key horticultural and Australian genera and themes.

**Assessment:** One final 2-hour written examination worth 35% of final marks, one oral presentation worth 15% of final marks and practical and written assessments (sector based) worth 50% of final marks.

**Recommended texts:** Burnley College, University of Melbourne, Version 1.05, *Burnley Plant Directory (Database) 2000*, Burnley College, University of Melbourne.

### 209-254 Managing Staff

See full subject details on page 659.

### 206-263 Advanced Plant Biology

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr Kevin Blaze

**Contact:** 36 hrs lectures, 24 hrs practicals, 12 hrs tutorials (*Semester 1*).

**Description:** The objective of this subject is to extend the participant's ability to:

- describe various physiological processes;
- and propose appropriate management strategies for controlling these physiological processes to better suit horticultural objectives.

The content includes:

- photosynthesis, respiration and their manipulation to control vegetative growth;
- the processes of germination, growth, flowering, fruiting and senescence and their management;
- population genetics, competition, natural and artificial selection;
- the effects of waterlogging, drought, freezing, high temperature and pollution stresses on plants;
- and the management of the stresses and the characteristics of plants that allow them to survive these stresses.

**Assessment:** One three-hour written examination worth 50% of final marks, one assignment equivalent to 3000 words and worth 30% of final marks and one assignment equivalent to 2000 words and worth 20% of final marks.

### 206-265 Plant Management and the Environment

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Brereton

**Contact:** 24 hours lectures and 36 hours practical work (*Semester 2*).

**Description:** This subject is to consist of two parts. Plant Protection 206319 and Water Management and Plant protection 206319.

Upon completing this subject the participants should be able to:

- utilize advanced diagnostic field skills and including the use of diagnostic equipment;
- employ plant protection principles and practices which are specifically applicable to different sectors of the horticultural industries as nominated by the student;
- develop a plant protection or pest and disease management program Advanced diagnostic field skills;
- plant protection principles and practices which are specifically employed in different sectors of the horticultural industries nominated by the student;
- detailed knowledge of pest disease and weed problems specific to nominated industry streams;
- case management studies of particular pest, disease and weed problems;
- and damage thresholds and control strategies in the context of the urban environment and sustainable practices.

The participants will be able to explain the principles of:

- IPM, design, implement and evaluate integrated pest management programs;
- and water management: an overview of current irrigation and drainage systems, including the selection and evaluation of irrigation equipment to

suit the climatic conditions, water supply sources, reticulation, pumped and storage systems, irrigation principles and methods, sprinkler performance and selection, irrigation control equipment, an overview of drainage methods and the selection of irrigation pipes and equipment.

**Assessment:** One three-hour written examination worth 50% of final marks, two assignments equivalent to 2500 words and worth 25% of final marks each.

### 206-319 Plant Protection

See full subject details on page 613.

## Elective subjects

### 206-251 Plant Technology

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr James Will

**Contact:** 36 hours of lecture, 24 hours of practical classes and site visits (*Semester 1*).

**Description:** Topics include clonal and non-clonal methods for producing plants for nursery and revegetation programs through tissue culture; the biological basis for plant tissue culture; the tissue culture and micropropagation process; in vitro media and environments; seed processing technologies; laboratory testing for seed quality; and seed sowing techniques for nursery, field and revegetation.

**Assessment:** One 2-hour written examination worth 50% of final marks, two written assignments each equivalent to 2000 words, each worth 25% of final marks.

### 206-254 Specialist Horticultural Studies

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Rayner

**Contact:** 12 hrs lectures, 48 hrs practical classes and 12 hrs tutorials (*Semester 2*).

**Description:** Topics include contract planning and management, project planning, presentation skills; information technology activities including data planning, processing and presentation; access, analysis and presentation of horticultural information; and project studies relating to a horticultural enterprise, activity or issue.

**Assessment:** One written assignment (project report) equivalent to 5000 words worth 75% of final marks and one oral presentation worth 25% of final marks.

### 206-258 Sports Turf Management

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Dr David Aldous

**Semester:** Semester 1

**Description:** Areas for this subject have been designed to extend the student's ability to:

- describe the benefits, values, location, and distribution of the national and international turfgrass industry;
- describe basic turfgrass function, physiology, inflorescence, and seed development;
- describe the major cool, transitional, and warm-season turfgrasses, and alternatives;
- describe specialist sowing/planting/instant lawn and after-care practices;
- describe important turf fertilisers and conditioners for turf performance;
- describe the components of surface playing quality;
- describe the agronomic factors influencing surface playing quality;
- describe the performance requirements for different grassed surfaces;
- measure and assess the playing quality of a range of grass surfaces;
- describe the practices associated with efficient and effective irrigation and drainage application;
- describe the practices associated in the use and care of turfgrass machinery and equipment for maintenance and renovation;
- recommend control methods and strategies for weeds, insects, nematodes, and diseases of turfgrass;
- and develop a works program and schedule for fine and coarse turf maintenance.

**Assessment:** One 3-hour common examination (50%) (short answer, or essay), one Web assignment of 2500 words (25%) (analysis of an industry topic), and two workshop reference exercises of 1000 words (25%).

**Prescribed texts:** Aldous, D.E. (ed.), *International Turf Management Handbook*, (1999), Butterworth-Heinemann, London, 384pp.

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### 206-261 Landscape Design and Graphics

**Availability:** Burnley campus

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Rayner

**Contact:** 24 hrs lectures and 36 hrs practicals (*Semester 2*).

**Description:** Upon completing this subject the student should be able to:

- demonstrate basic graphic design and technical drafting skills;
- describe the principle components of the design process;
- demonstrate an ability to interpret client requirements;
- and draw basic landscape plans for small projects in park, garden or turf facilities.

The content includes:

- the theory of design both contemporary and historic, site analysis techniques;
- developing and interpreting a brief;
- use of graphic symbols to communicate;
- use of scale perspective;
- planting plans;
- and colour media.

**Assessment:** One two-and-a-half-hour written examination worth 40% of final marks, two assignments equivalent to 3000 words and worth 30% of final marks each.

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### 206-269 Amenity Vegetation Management

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr John Rayner

**Contact:** 36 hrs lectures, 24 hrs practical classes and site visits (*Semester 1*).

**Description:** Topics include:

- tree selection and establishment;
- tree transplanting and post-planting maintenance;
- tree root physiology and problems associated with tree roots;
- plant replacement;
- management of amenity and natural grasslands;
- urban vegetation management issues;
- park maintenance resources and scheduling;
- and management of remnant vegetation (including vegetation restoration techniques, habitat creation issues etc.).

**Assessment:** One 2-hour written examination worth 50% of final marks, two assignments equivalent to 2000 words and worth 25% of final marks each.

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### 211-266 Amenity Tree Management

**Availability:** Burnley campus.

**Credit points:** 12.5

**HECS-band:** 2

**Coordinator:** Mr Clive Sorrell

**Prerequisites:** 211-253 Amenity Vegetation Management.

**Contact:** 48 hrs lectures, 48 hrs, 12 hrs tutorials and 12 hrs practicals (*Semester 2*).

**Description:** Upon completing this subject the student should be able to:

- design tree surveys and technologies to suit a range of situations;
- read plans;
- locate and assess trees and interpret arboricultural specifications;
- diagnose and manage stressed and defective trees;
- quantify and cost tree management works;
- understand safety issues relating to managerial and supervisory aspects of arboriculture;
- manage an arboricultural work site;
- and understand the law, insurance, competitive tendering, quality control and tree maintenance scheduling.

The content includes:

- arboricultural safety;
- supervisory and managerial;
- managing defective trees;
- tree replacement strategies;
- tree locating and assessment;
- designing tree surveys;
- diagnosing and alleviating stress in trees;

- advanced hazard assessment;
- tree maintenance scheduling;
- costing and quoting on arboricultural works;
- insurance, trees and the law;
- competitive tendering;
- specifications and quality control;
- and managing an arboricultural operation.

**Assessment:** One three-hour written examination worth 50% of final marks, two assignments equivalent to 2500 words and worth 25% of final marks each.

