

AUSTRALIA

Queensland University of Technology,
Faculty of the Built Environment and Engineering,
School of Architecture, Interior and Industrial Design
GPO Box 2434, Gardens Point Campus,
Brisbane Qld, 4001 Australia
Tel. 61/7/864 2669, Fax. 61/7/864 1528

The Industrial Design program at QUT focuses on product development with a high degree of innovative design incorporated into the quality product. The emphasis of the program is based on a systematic approach to design research. In-depth analysis of design proposals plays a very significant role during the design and development of a product. There is an equal emphasis on marketing, technology, CAD, design management, human factors as well as aesthetics and cultural and social values. Students are encouraged not to follow any particular visual style.

The Industrial Design program at QUT focuses on producing graduates who can, in a very short time, make a mature contribution to the product development team and students are trained to find job opportunities and their own market niche. □ The QUT Industrial Design program is a two-tier course consisting of a three-year full-time degree followed by a one-year full-time or a two-year part-time postgraduate course. The courses are: 1/Bachelor of Built Environment, Industrial Design Major – Three years full-time option □ 2/Graduate Diploma in Industrial Design – One year full-time option or two years part-time option. □ The Industrial Design Major in the Bachelor of Built Environment is a three-year full-time degree. In Year 1 students take subjects such as mathematics, applied science, introductory design, introduction to technology, human environment studies and an introduction to industrial design. □ The emphasis in Years 2 and 3 is on industrial design studio projects in conjunction with subjects such as ergonomics, marketing, manufacturing technology, CAD, economics of industrial production, dynamics, visual communication, psychology, law and industrial design history. □ The Graduate Diploma in Industrial Design is a one-year full-time or two-years part-time postgraduate course. During the course the students are encouraged to develop their knowledge and expertise in design research which they apply to the design of a product or system. □ The subjects in the course include industrial design, industrial design research, advanced ergonomics, advanced CAD, professional practice, decision theory, case studies and history, theory and criticism of industrial design. The one-year major core subject is Industrial Design Research. □ The first semester's work is directed toward analytical research in a chosen area. Its application to product design is studies in the second semester. During both semesters students have access to a range of appropriate expertise by having specialist consultants in addition to the academic staff responsible to the subject. Some of the projects are undertaken with industry support. □ Students in both courses may work singly or in teams. They may also be asked to work on more than one project at a time in order to learn how to handle project management problems. □ The Industrial Design staff at QUT have a high level of expertise relevant to contemporary industrial design demands. The Faculty of Built Environment and Engineering has well-equipped industrial design studios, a computer laboratory, an ergonomics and industrial design research laboratory, and workshop facilities for model and prototype development. Students have access to all University facilities such as the computer centre and libraries. □ The Graduate Diploma in Industrial Design is accredited by the Design Institute of Australia (DIA) and graduates are eligible for associate membership. □ The Faculty of Built Environment and Engineering – Industrial Design discipline is an associated member of ICSID (International Council of Societies of Industrial Design). □

10

VIDEO WALKMAN

STUDENT:
LUDOVIC MALMOUX
COURSE:
BACHELOR OF
APPLIED SCIENCE
(BUILT
ENVIRONMENT)
MAJOR:
INDUSTRIAL
DESIGN,
3RD YEAR,
1989
ACADEMIC
ADVISERS:
D. HARDY, A. SCOTT



ECHO - ACOUSTO - ULTRASONIC COMPOSITE TESTING UNIT

STUDENT:
WARREN STEWART
COURSE:
GRADUATE
DIPLOMA
IN INDUSTRIAL
DESIGN 1990
ACADEMIC
ADVISERS:
V. POPOVIC,
D. HARDY

THE CURRICULUM GRADUATE DIPLOMA IN INDUSTRIAL DESIGN

Full-time Course Structure Semester 1	Credit Points	Contact Hrs/Wk
Advanced Ergonomics 1	2	1
Case Studies	4	2
History, Theory & Criticism of Industrial Design	2	1
Industrial Design 1	16	6
Industrial Design Research 1	20	8
Advanced CAD for Industrial Designers 1	4	2
Semester 2		
Advanced Ergonomics 2	4	2
Design Management & Decision Theory	2	1
Professional Practice	2	1
Industrial Design 2	16	6
Industrial Design Research 2	20	8
Advanced CAD for Industrial Designers 2	4	2

BACHELOR OF BUILT ENVIRONMENT INDUSTRIAL DESIGN MAJOR

Location: Gardens Point Campus
Course Duration: 3 years full-time
Total Credit Points: 288
Standard Credit Points/Full-time Semester: 48

The Bachelor of Built Environment (Industrial Design) consists of the three-year full-time degree program. Successful completion of the course satisfies the requirements for entry into the Graduate Diploma in Industrial Design which is a one-year full-time or two-year part-time program.

Full-time Course Structure Year 1, Semester 1	Credit Points	Contact Hrs/Wk
Introductory Design 1	16	8
The Human Environment 1	4	2
Introduction to Technology	2	1
Writing for Designers 1	4	2
Environmental Science	4	2
Applied Mathematics for Designers 1	6	3
Applied Science for Designers 1	6	3
History of the Built Environment 1	6	3

PORTABLE FIELD MICROSCOPE

STUDENT:
JENS BUDNIK
COURSE:
BACHELOR OF
APPLIED SCIENCE
(BUILT
ENVIRONMENT)
MAJOR:
INDUSTRIAL
DESIGN,
2ND YEAR
1990
ACADEMIC
ADVISERS:
D. HARDY,
E. SINDEN,
A. MASON



Year 1, Semester 2

History of the Built Environment 2	10	5
Ergonomics for Industrial Designers 1	2	2
Applied Science for Designers 2	4	2
Writing for Designers 2	4	2
Applied Mathematics for Designers 2	6	3
Introductory Design 2	18	8
The Human Environment 2	4	2

Year 2, Semester 1

Industrial Design 1	18	8
Ergonomics for Industrial Designers 2	4	2
Visual Communication for Industrial Designers 1	4	2
Manufacturing Technology 1	12	6
CAD for Industrial Designers 1	4	2
The Human Environment 3	6	3

Year 2, Semester 2

Environmental Studies - Environmental Impacts	2	1
Industrial Design 2	20	6
Visual Communication for Industrial Designers 2	4	2
Manufacturing Technology 2	10	5
CAD for Industrial Designers 2	4	2
Dynamics 1	4	2
The Human Environment 4	4	2

Year 3, Semester 1

Industrial Design 3	20	6
Visual Communication for Industrial Designers 3	4	2
Manufacturing Technology 3	8	3
CAD for Industrial Designers 3	4	2
Economics of Industrial Production	4	2
Dynamics 2	4	2
Marketing	4	2

Year 3, Semester 2

Law of the Built Environment	4	2
Industrial Design 4	20	6
Visual Communication for Industrial Designers 4	4	2
Manufacturing Technology 4	14	5
CAD for Industrial Designers 4	6	2

DESCRIPTION OF THE INDIVIDUAL SUBJECTS GRADUATE DIPLOMA IN INDUSTRIAL DESIGN

Advanced Ergonomics 1

Man-machine systems and their relations with living and working environments; the importance of ergonomics (human factors) criteria and their application to industrial design. The course consists of a series of seminars relevant to case studies concerned. Typical case studies are concentrated on the ergonomic evaluation of consumer products.

Advanced Ergonomics 2

Systematic ergonomic evaluation methods and their application to design problems. Lectures and seminars relevant to case studies concentrated on the ergonomic evaluation of the working and living environment, eg. key-punch operator work station, bus driver work station and ergonomic evaluation of an assembly line.

Case Studies

This subject consists of a series of seminars dealing with case study evaluation by practicing designers; study of different evaluation methods and techniques; the application of evaluation methods through individual case studies. All design factors of manufactured products are evaluated in depth.

Design Management and Decision Theory

This subject covers: the meaning of the design process, control and the design process, complexity of design problems, types of contracts, design and business,

project team, design responsibility and design management, design documentation, concept of design evaluation and management action, application of design theory to design management.

Professional Practice

This subject explores the role and responsibilities of the industrial designer in professional practice. Lectures cover: job administration, liability, design protection, designer and client relationships.

History, Theory and Criticism of Industrial Design

This subjects reviews the development of industrial design and its relationship to ideas, technology and the arts, and the development of industrial design from the eighteenth century to the present day. It also covers the study of Australian inventions and their impact on product design in Australia.

Industrial Design 1 Industrial Design 2

This course consists of studio work in which students design a wide range of products or systems. The emphasis is on projects generated from local industry and community. The complexity and depth of the design project increases systematically throughout the semesters.

Industrial Design Research 1

This course consists of the topic selected by the student which is approved and supervised by the industrial design staff. Examples of topics are: microsurgical equipment design; bushfire safety equipment; mobile dental clinic in isolated regions; and interactive display in psychological testing.

Industrial Design Research 2

This course depends on the topic selected by the student in the previous semester. Students are responsible for the program as a part of their project work which is approved and supervised by Industrial Design staff.

Advanced CAD for Industrial Designers 1

CAD in the design process. Two- and three-dimensional applications of appropriate CAD programs. Development of a design project through the interactive use of CAD and related engineering programs as an aid to design analysis and finalization.

Advanced CAD for Industrial Designers 2

CAD/CAM in the design, analysis, and manufacturing process. Three-dimensional solid modelling, finite analyses, and CAM are employed. A project will be taken from first concept through to final documentation. The presentation, technical description, engineering analyses, and finalization to Computer Numerically Controlled (CNC) testing and prototype production of a small product.

BACHELOR OF BUILT ENVIRONMENT INDUSTRIAL DESIGN MAJOR

Introductory Design 1

The greater part of the subject consists of studio work in freehand and mechanical drawing techniques. Topics covered include: contour, texture and tone; depth perception, optical illusions and the principles of perspective; techniques of perspective drawing; the organization of the visual field and the gestalt laws of pragnanz; pattern in two and three dimensions; visual interstate and attention; visual dynamics; and principles of scale drawing.

CHAPERONE TRAVEL LUGGAGE - EASIER LIVING FOR THE AGED

STUDENT:
ANTHONY LLOYD
COURSE:
GRADUATE
DIPLOMA
IN INDUSTRIAL
DESIGN 1990
ACADEMIC
ADVISERS:
V. POPOVIC,
D. HARDY



The Human Environment 1

The aim of this subject is to provide a basic understanding of the dimensions and movement of the human body, and of its perceptual systems, as an essential preliminary to the design of all artefacts for human use. The subject consists of lectures and studio exercises. Lecture topics include: static and dynamic anthropometry; human sensory systems; introduction to ergonomics; applications of anthropometrics and ergonomics to design.

Introduction to Technology

This subject aims to provide basic knowledge on applied technologies and how they relate to industrial products and systems. The lecture topics include; social and technological change in an historical context; the industrial society and the role of the designer; new technologies and social change; appropriate technologies and their implication for design.

History of the Built Environment 2

History of the following from circa 1600 AD: ideas, art, and two of the following (core of which must be the student's major discipline) - Town and Country Planning, Landscape Architecture, Architecture, Interior Design, Industrial Design.

Ergonomics for Industrial Designers 1

Lecture topics include: psychomotor skills; human information processing; human-machine interfaces; displays, controls, and tools; human-machine system properties; feedback and controls; workplace design; noise; stress; vibration; legal aspects; safety and product liability. Practical exercises cover application of lecture topics to product design.

Industrial Design 1

Lecture topics include: scope of problem solving theory; special characteristics of design problems; the task of environment design heuristics; creativity and innovation and general psychological theories of creativity. The studio exercises to which most of the time is devoted are aimed at a range of different product designs. The complexity and depth of the design project will increase systematically according to the semester level.

Ergonomics for Industrial Designers 2

Lecture topics include: person-machine-system models; human capabilities hearing and signal detection theory; vision; and user modelling. Practical exercises cover application of lecture topics to product design.

Visual Communication for Industrial Designers 1

A practice-based program will be followed with specialised, formal lecture inputs related to the development of visual communication techniques. Lecture topics include: introduction to rendering techniques and the use of different visual communication media.

Manufacturing Technology 1

The subject consists of lectures and studio work. Lecture topics include: metals, glass, wood, ceramics and plastics technologies; the relation between the properties of materials and the industrial processes available for their fabrication. Application of the study of materials and their fabrication to design problems will be the subjects of studio exercises.

CAD for Industrial Designers 1

PC computer operation, DOS, file and disk management. Introduction to the use of graphics and CAD by industrial designers. Applications in design, presentation graphics and engineering drawings, and introduction to three-dimensional CAD.

Environmental Studies - Environmental Impacts

The impacts of development; environmental impacts related to land uses, land and building development, production and use of consumer products, construction materials and processes; environmental criteria for future land and product development.

Industrial Design 2

Lecture topics concentrate on design methodologies; design process; creativity and product innovation. The studio exercises to which most of the time is devoted are aimed at different product ranges. The complexity and depth of the design project increases systematically according to the semester level.

Visual Communication for Industrial Designers 2

The subject topics include: the structure of presentation layouts; product graphics, photography; introduction to three-dimensional presentation and model making techniques.

CAD for Industrial Designers 2

Development of skills in the use of CAD in the production of two-dimensional engineering drawings, and introduction to three-dimensional CAD using AUTOCAD. Shading of design evaluation drawing using paintbrush.

Manufacturing Technology 2

The subject consists of lectures and studio work. Lecture topics include: application of engineering mechanisms to products or systems; analysis of the performance of mechanical, electrical, hydraulic and pneumatic mechanisms in relation to particular functions; introduction to electronics. Application of engineering to design problems is the subject of studio exercises.

Industrial Design 3

Most of the time is devoted to product design in depth. The projects are cross-referenced with other subject areas which provide an integration of knowledge and skills acquired in the previous semesters. During the design projects, different specialist expertise is included.

Visual Communication for Industrial Designers 3

The subject topics include: organisation of visual communication media relevant to the presentation of a product; the use of graphic skills in visual analysis; advanced renderings, and exploded technical renderings.

Manufacturing Technology 3

The subject consists of lectures, studio work and field studies. Lecture topics include: production techniques in relation to different materials, various methods for different finishing operations, various methods for forming, automatic and semi-automatic assembly and quality control methods. Field studies consists of site visits to selected manufacturing industries. The application of the appropriate production techniques should be developed through the design project.

CAD for Industrial Designers 3

Development of wire frame and shaded three-dimensional evaluation presentation; introduction to animation; advanced two-dimensional engineering drawing; evaluation of a product's features and characteristics; refinement through three-dimensional studies, in wire frame and shaded versions.

Law of the Built Environment

The law as a constraint in the design and construction process. A review of the Australian and Queensland acts, local authority by-laws and regulations of statutory authorities as they affect the built environment. Legal aspects of land and land transfer, introduction to professional liability, design registration, patents and copyrights.

Economics of Industrial Production

The subject consists of a series of lectures and seminars and covers the following aspects; commercial practice, costing production, marketing, strategic planning and capital budgeting.

Manufacturing Technology 4

The subject consists of lectures and field studies. Lecture topics include: organisation, planning the technologies required for computer-integrated manufacturing (CIM). The impact of CIM to product design solutions. Field studies complement the lecture series.

SUGAR CANE PLANTER

STUDENT:	1988
FAUSTO CAVARZAN	ACADEMIC
COURSE:	ADVISERS:
GRADUATE	V. POPOVIC
DIPLOMA	D. HARDY
IN INDUSTRIAL DESIGN	



Industrial Design 4

The major time allocation is given to design studio projects. There are usually two projects per semester and they are done in depth. The interdisciplinary expertise is included when appropriate. Most of the projects are industry based.

Visual Communication for Industrial Designers 4

The subject topics include; structure of professional presentation, with selection of appropriate visual communication media; advanced renderings and their application to product design concepts; professional portfolio organization.

Writing for Designers 1

The writing process: style, accuracy and simplicity in writing; the editing process.

Environmental Science

Atmospheric processes including climate; air pollution and smog; water cycle. Sea-level changes and water pollution as a global issue; carbon, nitrogen and phosphorous cycling. Introduction to human population and demographic trends. Distribution and trade in renewable and non-renewable resources; trends in the use of land; the city as an ecosystem; natural resource management and conservation.

Applied Science for Designers 2

This subject covers chemistry for environmental design; basic chemical properties of commonly occurring materials, natural and artificial; common chemical processes in buildings and artefacts.

Applied Mathematics for Designers 1

Applications of plane and geometry in design; revision of basic geometry; symmetry; construction and packing of solids; spherical geometry and its applications. Applications of trigonometry in design; revision of basic trigonometry; calculation of heights, distances, areas and vol-

umes. Data collection and analysis in design; introduction to statistics; use of computers in data analysis; elements of computer programming.

Applied Mathematics for Designers 2

Applications of plane and geometry in design; revision of basic geometry; symmetry; construction and packing of solids; spherical geometry and its applications. Applications of trigonometry in design; revision of basic trigonometry; calculation of heights, distances, areas and volumes. Data collection and analysis in design; introduction to statistics; use of

Indentiveness

C H A R A C T E R I S T I C S

Creativity

F O R M I N G

Sensitivity

10

A

Methodological

D E S I G N E R ' S

organization

P E R S O N A L I T Y

Management skills

computers in data analysis; elements of computer programming.

Dynamics 1

The lectures include: modelling methods and analysis; motion of relevant machines and mechanisms; fluids, transmissions and methods of measurement.

Dynamics 2

The lectures include: application of modelling techniques on machines and mechanisms; unbalanced forces in rotating bodies and gyroscopic effects; vibration; interaction of fluids and methods of measurement.

Marketing

A series of lectures and seminars on the following: marketing concept, market segmentation, marketing test, methodologies of forecasting, planning and organization, costing of products, and the business issues of design.

History of the Built Environment 1

The subject reviews the development of man's artificial environment and its relationship to ideas, technology, and the fine arts from the earliest times to the seventeenth century.

The Human Environment 2

This subject encompasses basic research principles, perception, learning processes, motivation and problem solving. Communication, characteristics and dynamics of group and interpersonal interactions. Stress and anxiety management. The role of the self-concept and locus of control in transactions with the world in general.

Applied Science for Designers 1

Physics for environmental design: energy and energy transfer, heat, light and sound; introduction to mechanics; principles of hydraulics and fluid flow; electricity, magnetism and basic electronics. Chemistry for environmental design: basic chemical properties of commonly occurring materials, natural and artificial; common chemical processes in buildings and artefacts. Earth science and climatology for environmental design: land forms and their origins; introduction to the physical and horticultural properties and behaviour of soils and rocks.

Introductory Design 2

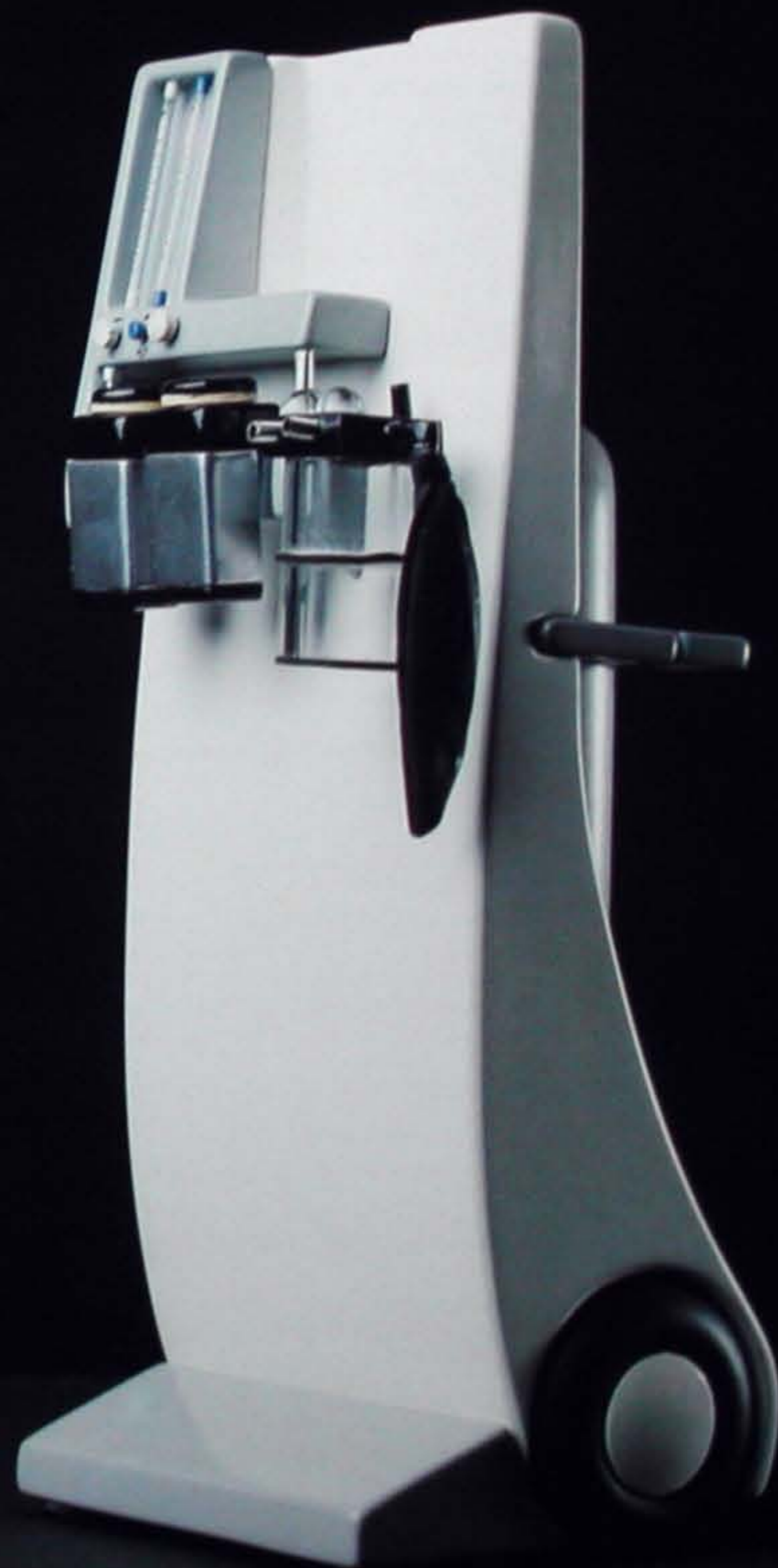
Studio work; simple three-dimensional design tasks at a variety of scales, and illustrating tasks associated with the five professions. Workshop and fieldwork are related to studio exercises.

The Human Environment 3

The role of social, cultural, and historical variables in human-environment interactions. The social and cultural development of Australian urban environments. Theory: privacy, personal space, territoriality, environmental meaning and cognition, cognitive maps and wayfinding, intercultural and intracultural differences.

The Human Environment 4

Directing society; the roles of government and private enterprise; theories of power in society. The Australian example; three tiers of government; Australian constitution; Parliamentary democracy; Queensland State administration; role of local government, quangos and statutory authorities; pressure groups and lobby groups and their influence in the built environment arena.



**VETERINARY
ANAESTHESIA
MACHINE**
STUDENT:
JULIA NEWMAN
COURSE:
GRADUATE
DIPLOMA
IN INDUSTRIAL
DESIGN 1990
ACADEMIC
ADVISERS:
V. POPOVIC,
D. HARDY