

Prescriptions and Schedule of Papers for 2007

Mode of Delivery

*	= Not available in 2007
B1, B2, B3	= Available as a block course
E, E1, E2	= Available extramurally
F1	= Face to face teaching
I, I1, I2, I3, I4, I5, I6, I7, I8, I9, I10, I11, I12, I13, I14, I15, I16, I17, I18, I19, I20, I21, I22, I23, I24, I25, I26, I27, I28, I29, I30, I31, I32, I33, I34, I35, I36, I37, I38, I39, I40, I41, I42, I43, I44, I45, I46, I47	= Available internally

Semesters

S1	Semester One
S2	Semester Two
S3	Summer School
S12	Double Semester

Locations

AG	Auckland Geographic Area
AL	Massey Albany
CG	Christchurch Geographic Area
CH	Christchurch
EM	Employers and Manufacturers Assc
HK	Hokowhitu Campus
HW	Hawkes Bay
MA	Military Stds Inst. Auckland
NT	Email/Internet
PG	Papua New Guinea Geographic Area
PN	Massey Palmerston North
RU	Ruawharo Campus
SP	Singapore Aviation Academy
TH	Thailand Aviation Academy
TN	Tonga Geographic Area
WG	Wellington Geographic Area
WL	Massey Wellington

Paper No./Title	Credits	Sem	Mode	Loc
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Consumer Technology

183.201	15 credits	S1	I	AL
Product Design I		S2	I	PN
An introduction to the methods and practices of product design. The paper examines the role of design in the development of a new product and introduces the basic design methodology and skills that are required for this process.				

183.300	15 credits	*	*	*
Packaging Materials Technology				
Packaging development, including the materials, manufacturing processes and technology used to protect consumer-durable products and fast-moving consumer goods during handling, shipment and storage. Packaging development methods, including: case studies to illustrate innovative design, environmental legislation and transportation features. A studio-based course involving graphic design aspects of package development.				

183.301	15 credits	S2	I	AL
Product Development Process I	S2	I	PN	
The advanced study and application of the product innovation process. This is a project-based course that requires students to apply modern product innovation methodology to the development of a new product. This course will extend students' knowledge of the techniques and strategies involved in new product development.				

183.302	15 credits	S1	I	AL
Consumer Research and Innovation		S1	I	PN
A study of the relationship of the consumer, the market and innovation; consumer research techniques and their practical application to projects. Topics include information gathering techniques, consumer evaluation methods, consumer cultures, lifestyles, ethnography and ethics as they relate to innovation; these are taught via case study analyses.				

183.305	15 credits	S1	E	PN
Packaging Materials Manufacture				
Manufacture and properties of packaging materials, including polymers, paper (solid fibreboard, corrugated fibreboard), glass, metal (tinplate, ECCS, polymer coated steel, aluminium) containers. Includes factory visits.				

183.306	15 credits	S1	E	PN
Technology Practice				
Modern technology practice and its development over time to the present. Implications for school technology practice and strategies for developing a modern technology approach in the classroom.				

Paper No./Title	Credits	Sem	Mode	Loc
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183.307	15 credits	S2	B1	PN
Technology Knowledge				
Knowledge, concepts and practice of the seven technological areas identified in the New Zealand Technology Curriculum Statement. Case studies of modern industrial practice presented by technologists involved in the area.				

183.400	15 credits	S1	I	AL
Product Design II		S1	I	PN
This paper focuses on advanced product design methods and practices, and introduces ergonomics and user-centered design. It also examines the engineering designer's role in relation to allied professions in the new product development process, including the industrial designer, visual communication designer and marketing specialists.				

183.401	30 credits	S12	I	AL
Product Development Project I	S12	I	PN	
Applied product development. The Product Development Project provides the opportunity for the student to undertake a complete major product development project from proposal through to research, development and financial assessment. It is the application of accumulated knowledge within a supervised environment. Co-taught with 183.402.				

183.402	30 credits	*	*	*
Product Development Project II				
As part of client-based project work, the student develops professional practice skills in project management, communication, research and commercialisation strategies. The course provides valuable experiential learning skills involving design, technical, financial economic and market evaluation. The students are individually mentored by an industrial Advisory Board throughout their project work. Co-taught with 183.401.				

183.404	15 credits	S1	I	AL
Future-focussed Product Innovation		S1	I	PN
An advanced study of design for manufacturing, safety and risk management, along with production, legal issues and commercialisation strategies. An overview of future technologies and their influence on innovation, forecasting and scenario-based planning.				

183.405	15 credits	S2	E	PN
Packaging Container Manufacture				
Manufacture and properties of plastic sheet, films and containers. Sterilisation of packaging materials for aseptic packaging systems, including the effects of radiation sterilisation. Packaging design and efficiencies. Factory visits.				

Paper No./Title	Credits	Sem	Mode	Loc
183.406 Food Packaging – Modelling Product Shelf Life	15 credits	*	*	*
Gas and moisture transport phenomenon of packaging materials, permeability characteristics and determination. Water vapour transmission rates and gas transmission rates. Evaluation and modelling of the deteriorative reactions of different foods. Determination and modelling of the shelf life of products based on deteriorative reactions and the packaging material. Accelerated storage methods for shelf life evaluation. Factory visits and practical work.				
183.407 Modern Technology Processes	15 credits	S1	E	PN
Product and process development methodology and its application to the teaching of technology in schools. A practical product development project with evaluation of how this might inform classroom technology.				
183.701 Product Development Process	30 credits	S12	E	PN
The stages of the product development process. A study of the techniques used in the product development; in particular, the techniques and research related to the consumer in product development – project planning, brief definition, idea generation and screening, concept design development, consumer evaluation, testing and marketing of products.				
183.702 Product Design Techniques	30 credits	S12	E	PN
Product design and an overview of product design within an international context. A study of design methodologies and the development of project-oriented skills, e.g. formulation of design brief, product design concept generation techniques, communication skills and presentation techniques. An overview of the principles of ergonomics, model making techniques, component and material selection methods.				
183.703 Product Development Management	30 credits	S12	E	PN
New product development management, design management and project management techniques utilised by major international groups. Examination of case studies on product development techniques used by small and medium-sized enterprises in New Zealand. Comparisons between New Zealand industry practices in product development and international best practices.				
183.704 Product Innovation	30 credits	S12	E	PN
Application of techniques in product design and development. An advanced understanding and analysis of research in the chosen area of product innovation. Exploration of contemporary issues relevant to the New Zealand context of small and medium industries.				
183.705 Packaging Design	30 credits	S1	I	PN
The basic elements of two- and three-dimensional design and help to develop the analytical and communication skills necessary to understand them. Outlines the major graphic production processes and their application in graphic design. Theoretical and project work will introduce design methodologies and how they apply to packaging design problems. The course will also outline computer-aided design and its application in packaging design and graphic design.				
183.709 Advanced Product Design	30 credits	S12	E	PN
Advanced methodologies and techniques in product design. The techniques of prototyping and principles of ergonomics and their application via projects.				

Paper No./Title	Credits	Sem	Mode	Loc
183.711 Packaging Engineering	30 credits	S1	I	PN
The study of the protective function of the packaging system. Involves an understanding of the fundamentals of solid mechanics, stress and strain, tension, compression and shear under static and dynamic loading conditions. Also studied will be impact loading and vibration, and the mechanical properties of packaging materials and of complete packages. Assessment of product fragility, transportation hazards and their laboratory simulation; the design of package to protect from transportation hazards. The design and performance testing of complete packages and techniques for evaluating test results are covered. This course may also include laboratory sessions.				
183.712 Packaging Technology	30 credits	S12	I	PN
The principles of packaging, including the materials, processes and technology used to protect products during handling, shipment and storage. Basic concepts of package design – child-resistant and tamper-evident packaging, modified atmosphere packaging, shelf life methodology, material considerations for irradiated packaging, selection and design of packaging systems for products. The technology underlying the basic printing processes used for packaging materials, toxicological and safety aspects of packaging materials. Regulatory aspects of packaging, including consumer product safety, hazardous material packaging and how environmental protection applies to packaging.				
183.714 Advanced Product Formulation and Development	30 credits	S12	I	PN
The formulation and development of fast-moving consumer goods, including cosmetics, pharmaceuticals, paints and personal care products. An overview of factors that influence the product formulation process; use of quantitative analysis and testing techniques; appropriate use of experimental design techniques to aid formulation; specification of required packaging technologies and consumer evaluation.				
183.715 Special Topics in Product Development	30 credits	S1	I	AL
Critical reviews, case studies, advanced study and/or research into selected aspects of Product Development.				
183.717 Special Topics in Packaging Technology	30 credits	S12	I	PN
Critical reviews, case studies, advanced study and/or research into selected aspects of Packaging Technology.				
183.718 Advanced Topics in Packaging Technology	30 credits	S12	I	PN
Critical reviews, case studies, advanced study and/or research into selected aspects of Packaging Technology.				
183.719 Packaging Materials	30 credits	S1	I	PN
Basic functions of packaging and their relationship to the needs and demands of society. Includes studying the chemical and physical nature of packaging materials, including paper, paperboard, glass, plastics, metal foils and sheets, wood and cushioning media. Basic properties will be reviewed in relation to packaging performance. This course will introduce the mechanics of materials, including stress, tension, compression and shear. Laboratory sessions may be included.				
183.746 Packaging Technology II	15 credits	S2	B1	AL
Packaging and the environment, solid waste management and packaging, including New Zealand Approach – Packaging Code of Practice; German Approach – Green Dot; EU Packaging Directive; other international				

Paper No./Title	Credits	Sem	Mode	Loc	Paper No./Title	Credits	Sem	Mode	Loc
approaches. Options for packaging reduction, reuse, recycling. Closures, child-resistant packaging, tamper-evident systems. Case and carton filling systems, and packaging line efficiency determination and design. Factory visits.									
183.747	15 credits	*	*	*					
Packaging Engineering									
Engineering principles used to design protective packaging and to study the properties of packaging materials. Design to counter physical and climatic hazards to which packages and packaging materials are subjected. Package performance testing procedures. Laboratory work and factory visits.									
183.748	15 credits	*	*	*					
Packaging Design Technology									
Development of package and package systems for products, including elements of two- and three-dimensional design. Application of graphics design to package development, and the interaction between graphics designer and package designer/developer. Relationship between the package and product marketing. Consumer evaluation techniques for package evaluation. Factory visits and practical work.									
183.749	15 credits	*	*	*					
Packaging Technology III									
Package design to optimise space and area utilisation during palletisation and subsequent distribution. Application of the Theory of Constraints to packaging production, Jonah Thinking processes and the packaging project management systems. Filling technologies for powders and liquids. Factory visits.									
183.760	15 credits	S1	B1	AL					
Fast-Moving Consumer Goods Packaging									
Systems to develop packaging systems for Food and Fast-Moving Consumer Goods (FMCG). Driving forces for development of packaging systems. Canning technology, modified atmosphere packaging and freezing systems. Packaging systems of pharmaceutical and drug products, medical products, and cosmetic and personal care products. Factory visits and laboratory work.									
183.761	30 credits	*	*	*					
Technology Project									
A technology education project focused on technological practice in the local public or private sector. Identification of technology practice in context and application of the knowledge and understanding gained in the prerequisite papers, to the development of a significant technology education resource.									
183.900	120 credits	S12	I	AL					
PhD Product Development									
		S12	I	PN					