

Sept 2019 - Human Factors / Ergonomics Tertiary Qualifications, Programmes and Courses in New Zealand (on offer for 2020)

University/ Tertiary provider	Massey University
School/ Faculty/College	College of Health (School of Health Sciences), College of Business (School of Aviation), College of Creative Arts (School of Industrial Design)
Qualifications/Programmes	<p>Bachelor of Health Sciences (B Hlth Sci) (Major in Occupational Health and Safety) Graduate Diploma in Occupational Health and Safety (GDipOHS) Master of Health Sciences (M Hlth Sci) (Specialising in Occupational Health and Safety) Master of Public Health (MPH)(Optional courses in Occupational Health and Safety) Bachelor Aviation Management (B Av Man) Bachelor of Aviation (B Av) Master in Aviation (M Av) Bachelor of Design (Honours) (BDes(Hons))</p>
128.300	Ergonomics/Human Factors: work, performance, health and design
Delivery mode /Semester	Distance Learning / Semesters 1
Credit Value	15
Total Course Hours	150
HFE Content Hours	150
Co-ordinator/Tutor	Ms Ying Jin/Liz Ashby
Cost	NZ\$ 744.66 (domestic), NZ\$ 3565.00.25 (International)
Frequency of offering	Annual
Students last 5 years	About 50-60 students annually
Prescription	An introduction to Ergonomics/Human factors (E/HF) - an inter-disciplinary holistic practice-based approach to integrate work, leisure and people in occupational, organisational, leisure (including sport, equipment, products, design and rehabilitation) environments to optimize matching of human-user-system health, performance, comfort and effectiveness: covering fundamental ergonomics principles, micro-macro-ergonomics, E/HF analytical methods, physical, psychological and social capacity and limitations of individuals and groups/teams in organizational socio-technical work and leisure environments.
Learning outcomes	<ol style="list-style-type: none"> 1. Have an accurate understanding of the scope of the field of ergonomics/human factors and its fundamental principles, 2. Be aware of the need to research and apply knowledge about human behaviour, abilities, limitations and other characteristics in the design of work systems, 3. Be able to apply basic principles of ergonomics/human factors, 4. Understand the role of the practising ergonomist/human factors specialist
HFE Content/Topics	Introduction to Ergonomics, Integrated ergonomics, Physical ergonomics, Ergonomics system design, Environmental ergonomics, Cognitive ergonomics, Organisational ergonomics, Ergonomics methods, Ergonomics in design and Product Development, Sleep, jetlag and fatigue, Sports ergonomics, Eco-ergonomics.
Other information	A compulsory course in the Grad Dip OHS. Course included in the OHS Major in BHlthSci;
251.271	Occupational Health and Safety 1
Delivery mode / Semester	Block Albany, Distance learning / Semester 1
Credit Value	15
Total Course Hours	150
HFE Content Hours	75
Co-ordinator/Tutor	Dr Kirsten Olsen
Cost	NZD 744.66 (domestic), NZD 3,565.00 (international)

Frequency of offering	Yearly
Students last 5 years	Average 140 / year
Prescription	An introduction to Occupational Health and Safety and its application to workplaces in New Zealand. The course will explore the complex relationship between health and safety, factors in the working environment affecting health and safety and systems intended to regulate and manage the working environment.
Learning outcomes	<ol style="list-style-type: none"> 1. Assess factors in an organisation that affect the health, safety and wellbeing of employees. 2. Analyse factors external to the organisation that influence the working environment. 3. Analyse how the key elements and methods of health and safety legislation and systematic Occupational Health and Safety and Health management systems are applied at an organisational level. 4. Evaluate different analytical perspectives in the Occupational Health and Safety context. 5. Assess the strengths and weaknesses of different accident causation theories, hazard identification, and management methods.
HFE Content/Topics	Macro ergonomics, organisational ergonomics, systems ergonomics, participatory ergonomics, physical, cognitive, psychosocial and sociotechnical working environments, health workplaces
Other information	A compulsory course in the Grad Dip OSH, OHS Major in BHlthSci and BSc Construction management
251.272	Occupational Health and Safety 2
Delivery mode / Semester	Distance learning / Semester 2
Credit Value	15
Total Course Hours	150
HFE Content Hours	50
Co-ordinator/Tutor	Associate Professor Ian Laird and Dr Maxine Clark
Cost	NZD 744.66 (domestic), NZD 3,565.00 (international)
Frequency of offering	Yearly
Students last 5 years	Average 100 / year
Prescription	A detailed study of hazards commonly found in the work environment.
Learning outcomes	<ol style="list-style-type: none"> 1. Describe the nature and effects of chemical hazards commonly encountered in the workplace. 2. Explain the application of New Zealand legislation relating to hazardous substances and the strategies for the control of toxic substances in the workplace. 3. Explain principles of fire and explosion prevention and control. 4. Describe the properties and effects of noise, methods of determining exposure, and strategies to maintain a safe working environment. 5. Analyse how an occupational hygiene framework can be used to identify the health hazards arising from physical and biological aspects of a range of work environments.
HFE Content/Topics	Physical, chemical, biological and environmental hazards
Other information	A compulsory course in the GradDipOSH and OHS Major in BHlthSci
251.370	Health and Safety Auditing
Delivery mode / Semester	Block Wellington and Block Auckland / Semesters 1
Credit Value	15
Total Course Hours	150
HFE Content Hours	30
Co-ordinator/Tutor	Associate Professor Ian Laird
Cost	NZD 744.66 + a component fee of 1,294.70 (domestic), NZD 3,565.00 + a component fee 1,294.70 (international)

Frequency of offering	Yearly
Students last 5 years	Average 35 / year
Prescription	An examination and critical analysis of current theories and practice in relation to auditing and assessing organisational health and safety performance.
Learning outcomes	<ol style="list-style-type: none"> 1. Explain the principles of auditing health and safety practice. 2. Conduct a health and safety audit of an organisation. 3. Explain the rationale for processes used in the audit. 4. Assess the “ACC Audit Tool” in terms of its compliance to the requirements of New Zealand legislation.
HFE Content/Topics	Use of OHS audits
Other information	A compulsory course in the GradDipOSH and OHS Major in BHlthSci
251.372	Occupational Hygiene
Delivery mode / Semester	Distance Learning / Semesters 2
Credit Value	15
Total Course Hours	150
HFE Content Hours	30
Co-ordinator/Tutor	Associate Professor Ian Laird
Cost	NZD 744.66 (domestic), NZD 3,565.00 (international)
Frequency of offering	Yearly
Students last 5 years	Average 42 / year
Prescription	A study of the principles of occupational hygiene and their application to the workplace in New Zealand. Topics include the recognition, evaluation and control of health hazards in the work environment; noise measurement and control; relevant legislation and standards; dust, vapour and gas measurement techniques; ventilation and case studies.
Learning outcomes	<ol style="list-style-type: none"> 1. Explain in detail, the key principles and basic concepts of occupational hygiene practice. 2. Calculate dust, vapour and gas concentrations in air using practical examples. 3. Provide comprehensive and detailed explanations of types of stresses in the thermal environment, the measurement of the thermal environment, the effects of heat and cold on the body and the thermal indices used in the evaluation of thermal conditions. 4. Provide a detailed explanation of the principles of ventilation and calculate adequate volume flow rates. 5. Explain the principles of lighting and how adequate illumination levels are determined. 6. Provide detailed explanations of the principles of noise measurement and to determine whether noise levels in a particular situation are excessive. 7. Explain how occupational hygiene surveys are undertaken and the principles of exposure assessment.
HFE Content/Topics	Controlling physical hazards and exposures in workplaces
Other information	A compulsory course in the GradDipOSH and OHS Major in BHlthSci
251.374	Project in Occupational Health and Safety
Delivery mode / Semester	Distance Learning / Semesters 1 and 2
Credit Value	15
Total Course Hours	150
HFE Content Hours	30-150
Co-ordinator/Tutor	Dr Kirsten Olsen
Cost	NZD 744.66 (domestic), NZD 3,565.00(international)
Frequency of offering	Yearly
Students last 5 years	Average 30 /year

Prescription	An applied research course in which the student conducts an extended, systematic enquiry into a particular topic in occupational safety and health.
Learning outcomes	<ol style="list-style-type: none"> 1. Assess and develop research aims, objectives and questions related to a chosen topic in Occupational Health and Safety. 2. Analyse key literature relevant to a chosen topic in Occupational Health and Safety. 3. Design an appropriate methodology for a specific project. 4. Evaluate ethical issues relevant to the research methodology. 5. Integrate and report the project results in an appropriate format.
HFE Content/Topics	All OHS projects have at least a small level of HFE content. Some projects could be 100% HFE, depending on the topic
Other information	A compulsory course in the GradDipOSH and OHS Major in BHlthSci
251.731	Advanced Occupational Health and Safety
Delivery mode / Semester	Distance / Double
Credit Value	30
Total Course Hours	300
HFE Content Hours	100
Co-ordinator/Tutor	Dr Kirsten Olsen
Cost	Domestic NZD \$2,139.52, International NZD \$7,460.00
Frequency of offering	Once a year
Students last 5 years	Average 8 /year
Prescription	An examination of current issues in Occupational Safety and Health and issues commonly found in the work environment.
Learning outcomes	<ol style="list-style-type: none"> 1. Critically assess current Occupational Safety and Health issues in an organisation. 2. Critically discuss Hazard Management strategies and apply them to an organisation. 3. Critically evaluate an organisation's Occupational Safety and Health management systems in relation to legal requirements, the Healthy Workplace framework and stakeholders' contributions.
HFE Content/Topics	Physical, psychosocial, biological, chemical and organisational hazards, systems ergonomics, participation and healthy workplaces.
Other information	
251.770	Health and Safety Auditing
Delivery mode / Semester	Block Auckland and Distance / Semesters 1 and 2
Credit Value	30
Total Course Hours	300
HFE Content Hours	60
Co-ordinator/Tutor	Associate Professor Ian Laird
Cost	NZ\$ 2139.52 (domestic), NZ\$ 7460.00 (international), plus NZ\$ 1631.10 Component fee
Frequency of offering	Yearly
Students last 5 years	Average 4 / year
Prescription	A comprehensive examination and critical analysis of current theories and practice in relation to auditing and assessing organisational health and safety performance.
Learning outcomes	<ol style="list-style-type: none"> 1. Understand the legislative framework for health and safety in New Zealand. 2. Understand the principles and conceptual models that have been developed for occupational safety and health auditing. 3. Understand the concepts of the measurement of management performance in health and safety. 4. Undertake a health and safety audit of an organisation.

	5. Prepare an audit report and present the findings. 6. Demonstrate an understanding of concepts and tools of assessing safety culture in an organisation.
HFE Content/Topics	Use of OHS audits
Other information	
251.772	Advanced Occupational Hygiene
Delivery mode / Semester	Distance learning / Semesters 1 and 2
Credit Value	30
Total Course Hours	300
HFE Content Hours	60
Co-ordinator/Tutor	Associate Professor Ian Laird
Cost	NZ\$ 2139.52 (domestic), NZ\$ 7460.00 (international)
Frequency of offering	Yearly
Students last 5 years	Average 44 / year
Prescription	An advanced course studying the current issues in occupational safety and health, which involves the recognition, evaluation and control of health hazards in the work environment, including the study of noise, ventilation systems and air pollution.
Learning outcomes	<ol style="list-style-type: none"> 1. Explain the key principles and basic concepts of occupational hygiene. 2. Measure and calculate dust, vapour and gas concentrations in air. 3. Explain stresses in the thermal environment, the measurement of the thermal environment, the effects of heat and cold on the body and the thermal indices used in the evaluation of thermal conditions. 4. Explain the principles of ventilation and calculate adequate volume flow rates. 5. Explain the principles of lighting and how adequate illumination levels are determined. 6. Explain the principles of noise measurement and determine whether noise levels in a particular situation are excessive. 7. Conduct an environmental hygiene survey, utilising principles of occupational hygiene.
HFE Content/Topics	Controlling physical hazards and exposures in workplaces
Other information	
251.773	Hazard Management
Delivery mode / Semester	Distance Learning / Semesters 1 and 2
Credit Value	30
Total Course Hours	300
HFE Content Hours	60
Co-ordinator/Tutor	Associate Professor Ian Laird
Cost	NZ\$ 2056 (domestic), NZ\$ 7035 (international)
Frequency of offering	Annual
Students last 5 years	Average 15 /year
Prescription	A comprehensive analysis of Hazard Management and the application of Hazard Management methodologies and legislation.
Learning outcomes	<ol style="list-style-type: none"> 1. Critically analyse Hazard Management legislation compliance. 2. Critically evaluate the application of Hazard Management principles. 3. Critically analyse the implication of Hazard Management systems.
HFE Content/Topics	Systems ergonomics in practice
Other information	

190.216	Aviation Human Factors
Delivery mode / Semester	Internal, Distance learning / Semester 2
Credit Value	15
Total Course Hours	150
HFE Content Hours	150
Co-ordinator/Tutor	Dr J. Perezgonzalez
Cost	NZD 744.66 (domestic), NZD 3,565.00 (international)
Frequency of offering	Yearly
Students last 5 years	Average 53 / year
Prescription	The course provides an overview of the basic concepts of human factors in aviation, human performance, and issues relating to judgement and decision-making in this high-risk environment. Communication and other aspects of social psychology in various aviation environment are also explored
Learning outcomes	<ol style="list-style-type: none"> 1. Critically analyse selected concepts that have led to contemporary Human Factors management practice. 2. Explain and evaluate the relevance of selected Human Factors management theories. 3. Critically assess selected Human Factors management cases.
HFE Content/Topics	Human Factors in Aviation (general overview)
Other information	
190.701	Human Factors for Professional Aviation
Delivery mode / Semester	Internal, Distance learning / Semester 1
Credit Value	30
Total Course Hours	150
HFE Content Hours	150
Co-ordinator/Tutor	Dr J. Perezgonzalez
Cost	NZD 2,332.92 (domestic), NZD 8,767.50 (international)
Frequency of offering	Yearly
Students last 5 years	Average 9 / year
Prescription	An in-depth study of the latest developments in human factors policies and regulations made by the International Civil Aviation Organization (ICAO), with the aim of enhancing the safety, security and reliability of all areas of air transport. Contemporary research and research applications associated with the human factor aspects of aviation complements above study.
Learning outcomes	<ol style="list-style-type: none"> 1. Identify a variety of human factors issues (definitions, risks, and hazards) of relevance to aviation. 2. Evaluate a variety of references from the scientific and professional literature relevant to human factors issues predominant in aviation. 3. Provide reasoned alternatives for the resolution of human factors issues relevant to aviation found in the scientific or professional literature. 4. Transfer theoretical understanding to effective business practice in aviation contexts.
HFE Content/Topics	Human Factors as they appear in ICAO's (International Civil Aviation Organization) publications
Other information	
190.117	Introduction to Human Factors
Delivery mode / Semester	Internal Manawatu, Distance Learning, Singapore – Semester 1 only
Credit Value	15
Total Course Hours	150
HFE Content Hours	150

Co-ordinator/Tutor	Mr. Isaac Henderson
Cost	\$715.75 (domestic), \$3,297.50 (international)
Frequency of offering	Annual
Students last 5 years	96 in 2017, 71 in 2016. Varies between 60 and 110.
Prescription	The application of information processing strategies for improving performance in learning, problem-solving, decision-making, interpersonal interrelations, coping in situational anxiety and mental rehearsal.
Learning outcomes	<ol style="list-style-type: none"> 1. Describe the principles of sensory, perceptual and cognitive processing in an aviation context. 2. Explain the principles of individual and team behaviours in an aviation context. 3. Critically evaluate the strengths and weaknesses of a number of theoretical frameworks for threat, error and safety management. 4. Discuss the key principles of aviation medicine.
HFE Content/Topics	<ol style="list-style-type: none"> 1. Introduction to Human Factors 2. Physics of the Atmosphere 3. Human Physiology and Flight 4. Hyperventilation and Hypoxia 5. Vision and Visual Illusions 6. Hearing and Balance 7. Stress, Anxiety and Depression 8. Fatigue and Sleep 9. Human Information Processing 10. Judgement and Decision Making 11. Crew Resource Management and Communication 12. Threat and Error Management
Other information	Compulsory course in BAvMan degree, can be taken as an elective by other programmes
190.107	Human Performance
Delivery mode / Semester	Internal Manawatu / Semesters 1 and 2
Credit Value	15
Total Course Hours	150
HFE Content Hours	150
Co-ordinator/Tutor	Mr. Isaac Henderson
Cost	\$919.62 (domestic), \$4,290.00 (international)
Frequency of offering	Twice annually
Students last 5 years	30-40 annually
Prescription	The application of information processing strategies for improving performance in learning, problem-solving, decision-making, interpersonal interrelations, and an introduction to aviation medicine.
Learning outcomes	<ol style="list-style-type: none"> 1. Demonstrate an understanding of the principles of sensory, perceptual and cognitive processing in an aviation context. 2. Demonstrate an understanding of the principles of individual and team behaviour in an aviation context. 3. Critically evaluate the strengths and weaknesses of a number of theoretical frameworks for threat, error and safety management. 4. Demonstrate an understanding of the principles of aviation medicine. 5. Demonstrate a practical knowledge of New Zealand Civil Aviation Authority's Human Factors requirements for a Private Pilot Licence (PPL) and a Commercial Pilot Licence (CPL).
HFE Content/Topics	<ol style="list-style-type: none"> 1. Introduction to Human Factors 2. Physics of the Atmosphere 3. Human Physiology and Flight 4. Hyperventilation and Hypoxia

	5. Vision and Visual Illusions 6. Hearing and Balance 7. Stress, Anxiety and Depression 8. Fatigue and Sleep 9. Human Information Processing 10. Judgement and Decision Making 11. Crew Resource Management and Communication 12. Threat and Error Management 13. First Aid and Survivability
Other information	Compulsory course in the BAv programme, cannot be taken as an elective.
190.205	Crew Resource Management
Delivery mode / Semester	Internal Manawatu / Semesters 1 and 2
Credit Value	15
Total Course Hours	150
HFE Content Hours	150
Co-ordinator/Tutor	Mr Lonic Harkness
Cost	\$919.62 (domestic), \$4,290.00 (international), plus component fees \$6,725.00
Frequency of offering	Twice annually
Students last 5 years	30-40 annually
Prescription	The development of practical competencies in crew resource management CRM) in the professional aviation environment.
Learning outcomes	1. Explain how Crew Resource Management (CRM) contributes to improving individual, team and organisational performance. 2. Critically evaluate the strengths and weaknesses of a variety of selected CRM topics in an aviation context utilising relevant theoretical frameworks. 3. Demonstrate detailed knowledge of relevant topics in aviation medicine. 4. Demonstrate detailed knowledge of the interaction of key CRM topics on crew behaviour. 5. Demonstrate a practical knowledge of New Zealand Civil Aviation Authority's Human Factors requirements for a Commercial Pilot Licence (CPL) and an Air Transport Pilot Licence (ATPL).
HFE Content/Topics	Crew Resource Management, Individual and Team behaviour, Organisational Performance, Aviation Medicine, Aviation Psychology.
Other information	Compulsory course in the BAv programme, cannot be taken as an elective.
198.257	Design Studio IIA (Industrial)
Delivery mode / Semester	Internal / Semester 2
Credit Value	30
Total Course Hours	192 (50% class contact, 50% self-directed)
HFE Content Hours	48
Co-ordinator/Tutor	Lyn Garrett
Cost	\$1,691.50 (domestic)
Frequency of offering	Annual
Students last 5 years	About 45 / year
Prescription	In this studio course students will explore and articulate creative responses to design challenges through critical awareness of contextual issues. Students will develop and apply core techniques, skills and processes in industrial design.
Learning outcomes	The learning outcomes are not explicit about content – more about generic processes.
HFE Content/Topics	There are two modules in this course. The second module includes an introduction to ergonomics and affective design processes, focussing on designing for hands and

	handling as a case study of anthropometrics, biomechanics, semantics and affective design.
Other information	A core Industrial Design course within the Bachelor of Design (Honours).
198.258	Design Studio IIb (Industrial)
Delivery mode / Semester	Internal / Semester 2
Credit Value	30
Total Course Hours	192 (50% class contact, 50% self-directed)
HFE Content Hours	96
Co-ordinator/Tutor	Lyn Garrett
Cost	\$1,691.50 (domestic)
Frequency of offering	Annual
Students last 5 years	About 45 / year
Prescription	In this studio course students will continue to explore and articulate creative responses to design challenges through critical inquiry into contemporary issues relevant to industrial design. Students will further develop and apply core design techniques, skills and processes.
Learning outcomes	The learning outcomes are not explicit about content – more about generic processes.
HFE Content/Topics	There are two modules in this course. The first module focusses explicitly on ‘designing for people’, staircasing from anthropometrics, ergonomics and task analysis, inclusive / collaborative design processes, and affective design. Students develop a user-focussed design proposal around a specific product area.
Other information	A core Industrial Design course within the Bachelor of Design (Honours).
198.453	Industrial Design Research and Development
Delivery mode / Semester	Internal / Semester 1
Credit Value	30
Total Course Hours	192 (40% class contact, 60% self-directed)
HFE Content Hours	48
Co-ordinator/Tutor	Lyn Garrett
Cost	\$1,691.50 (domestic)
Frequency of offering	Annual
Students last 5 years	40 / year
Prescription	Research methods, processes and practices for industrial design and their application through a research project.
Learning outcomes	The learning outcomes are not explicit about content – more about generic processes.
HFE Content/Topics	Students undertake a self-selected design project, investigating user experience in depth. Key components of understanding user experience include an ergonomics analysis, journey mapping, experience and interaction prototyping. The focus is on developing insight into user experience that can direct the design of a product.
Other information	The first of two core final year Industrial Design courses within the Bachelor of Design (Honours). This projects that students initiate in this course are completed in the Semester Two paper 198.454 Industrial Design Research Project.
198.454	Industrial Design Research Project
Delivery mode / Semester	Internal / Semester 2
Credit Value	45
Total Course Hours	192 (30% class contact, 70% self-directed)
HFE Content Hours	48
Co-ordinator/Tutor	Lyn Garrett
Cost	\$1,691.50 (domestic)

Frequency of offering	Annual
Students last 5 years	About 40 / year
Prescription	In this studio course students will explore and articulate creative responses to design challenges through critical awareness of contextual issues. Students will develop and apply core techniques, skills and processes in industrial design.
Learning outcomes	The learning outcomes are not explicit about content – more about generic processes.
HFE Content/Topics	Students complete their self-selected design project, resolving user experience issues throughout the design and specification of a product or product system.
Other information	The second of two core final year Industrial Design paper within the Bachelor of Design (Honours). This projects that students complete in this paper was initiated in the Semester One 198.453 Industrial Design Research and Development.
198.463	Digital Representation
Delivery mode / Semester	Internal / Semester 1
Credit Value	15
Total Course Hours	48 (50% class contact, 70% self-directed)
HFE Content Hours	10
Co-ordinator/Tutor	Jason Mitchell
Cost	\$845.75 (domestic)
Frequency of offering	Annual
Students last 5 years	25 / year
Prescription	Digital design processes and their integration into design research.
Learning outcomes	The learning outcomes are not explicit about content – more about generic processes.
HFE Content/Topics	The focus of the paper is in learning and applying a range of advanced CAD process to a design project. One of the digital processes is applying digital anthropometric models to the design of a micro interior (a boat, for example).
Other information	An elective Industrial Design paper within the Bachelor of Design (Honours).