Bachelor of Technology Innovation (Digital Media) (ST50)

Year offered: 2010
Admissions: Yes
CRICOS code: 070694G
Course duration (full-time): 4 years
Domestic fees (indicative): 2010: CSP $2,125 (indicative) per semester
International Fees (indicative): 2010: $11,750 (indicative) per semester
Domestic Entry: February
International Entry: February and July
Past rank cut-off: 77
Past OP cut-off: 12
Assumed knowledge: English (4, SA) and Maths B (4, SA)
Preparatory studies: For information on acquiring assumed knowledge visit http://www.studentservices.qut.edu.au/apply/ug/info/knowledge.jsp
Total credit points: 384
Standard credit points per full-time semester: 96
Course coordinator: Associate Professor Chris Collet
Campus: Gardens Point

Overview
Digital media companies now dominate the multimedia and cinematic industries and the evolution of the industry is just beginning. Mixing graphics, video, animation and sound to produce stand alone digital entertainment or cinematic special effects is a growing global industry seeking new ideas and innovation.

Career Outcomes
Graduates can build companies creating their own products and take these to the global market. Or graduates could chart their careers in the world of commercialisation and technology transfer of research innovation in the digital media. Graduates could pursue careers in all aspects of the new product development continuum including company owners and directors, business development officers, venture capital associates, investment analysts, commercialisation managers, technology transfer officers, intellectual property analysts, policy development officers and, of course, researchers.

Professional Recognition
No professional accreditation is currently available for courses in the games and entertainment area.

Digital Media Major Course Structure

Year 1 Semester 1
INB101  Impact of IT
INB104  Building IT Systems

INB180  Computer Games Studies
INB182  Introducing Design

Year 1 Semester 2
INB103  Industry Insights
INB181  Introduction to Games Production
Plus TWO Block C Units

Year 2 Semester 1
INB385  Multimedia Systems
KIB101  Visual Communication
KIB230  Interface and Information Design
Plus ONE Block C Unit

Year 2 Semester 2
INB386  Advanced Multimedia Systems
KIB102  Visual Interactions
Plus TWO Block C Units

Year 3 Semester 1
BSB115  Management
INB345  Mobile Devices
KIB309  Embodied Interactions
STB551  Engaging with the Innovation Industry

Year 3 Semester 2
BSB126  Marketing
KIB314  Tangible Media
MGB223  Entrepreneurship and Innovation
Plus ONE Block C Unit

Year 4 Semester 1
AMB240  Marketing Planning and Management
LWS007  Introduction To Intellectual Property Law
MGB324  Managing Business Growth
STB709-1  Innovation and Commercialisation Project

Year 4 Semester 2
BSB311  Innovation Commercialisation Strategies
MGB225  Intercultural Communication and Negotiation Skills
STB709-2  Innovation and Commercialisation Project
STB709-3  Innovation and Commercialisation Project
<table>
<thead>
<tr>
<th>Block C Minor List</th>
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<td><strong>ANIMATION:</strong></td>
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<tr>
<td>KIB105</td>
<td>Animation and Motion Graphics</td>
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<td>KIB108</td>
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<td>KVB105</td>
<td>Drawing for Design</td>
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<td>Drawing for Animation</td>
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<td><strong>GAME DESIGN:</strong></td>
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<tr>
<td>KIB201</td>
<td>Concept Development for Game Design and Interactive Media</td>
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<td>KIB202</td>
<td>Enabling Immersion</td>
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<td>INB280</td>
<td>Fundamentals of Game Design</td>
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<td>Plus ONE of the following two units</td>
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<td>INB281</td>
<td>Advanced Game Design</td>
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<td>INB272</td>
<td>Interaction Design</td>
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<td><strong>MATHEMATICS FOR GAMES:</strong></td>
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<tr>
<td>MAB120</td>
<td>Algebra and Calculus</td>
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<td>MAB122</td>
<td>Algebra and Analytic Geometry</td>
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<td>MAB121</td>
<td>Calculus and Differential Equations</td>
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<td>MAB312</td>
<td>Linear Algebra</td>
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<td>Students who have completed Maths C can substitute MAB120 with one of the following units: MAB311, MAB481 or MAB422</td>
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<td><strong>MOBILE AND NETWORK TECHNOLOGIES:</strong></td>
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<td>INB102</td>
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<td>INB251</td>
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<td>INB350</td>
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<td>INB353</td>
<td>Wireless and Mobile Networks</td>
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<td><strong>SOUND DESIGN:</strong></td>
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<tr>
<td>KMB107</td>
<td>Sound, Image, Text</td>
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<td>KMB119</td>
<td>Music and Sound Production 1</td>
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<td>KMB129</td>
<td>Music and Sound Production 2</td>
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<td>KMB252</td>
<td>Multiplatform Sound Design</td>
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<td><strong>SOFTWARE TECHNOLOGIES:</strong></td>
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<td>INB210</td>
<td>Databases</td>
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<td>INB250</td>
<td>Systems Architecture</td>
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<td>INB270</td>
<td>Programming</td>
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<td>INB371</td>
<td>Data Structures and Algorithms</td>
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<td><strong>PHYSICS FOR GAMES:</strong></td>
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<tr>
<td>MAB120</td>
<td>Algebra and Calculus</td>
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<tr>
<td>PQB250</td>
<td>Mechanics and Electromagnetism</td>
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<td>PQB251</td>
<td>Waves and Optics</td>
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<td>Plus ONE of the following three units</td>
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<td>PCB593</td>
<td>Digital Image Processing</td>
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<td>PQB450</td>
<td>Energy, Fields and Radiation</td>
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<td>PQB460</td>
<td>Astrophysics 1</td>
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**UNIT SYNOPSES**

**AMB240 MARKETING PLANNING AND MANAGEMENT**

This unit extends the student’s knowledge of the fundamental marketing concepts and theories introduced in the Faculty Core unit in Marketing, by adding further breadth and depth of knowledge of marketing and developing skills in the application of this knowledge to marketing planning and management within the business environment. Emphasis is on the role of the marketing manager at the product management level in undertaking analysis, planning, implementation and control of marketing activities.

**Prerequisites:** BSB126 or CTB126

**Equivalents:** CTB240

**Credit points:** 12

**Contact hours:** 3 per week

**Campus:** Gardens Point and Caboolture

**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**BSB115 MANAGEMENT**

The unit provides an introduction to the theories and practice of management and organisations. Emphasis is on the conceptual and people skills that are needed in all areas of management and in all areas of organisational life. The unit acknowledges that organisations exist in an increasingly international environment where the emphasis will be on knowledge, the ability to learn, to change and to innovate. Organisations are viewed from individual, group, corporate and external environmental perspectives.

**Antirequisites:** BSD115

**Equivalents:** CTB115

**Credit points:** 12

**Contact hours:** 3 per week

**Campus:** Gardens Point and Caboolture

**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**BSB126 MARKETING**

This introductory subject examines the role and importance of marketing to the contemporary organisation. Emphasis is placed on understanding the basic principles and practices of marketing such as the marketing concept, market segmentation, management information systems and consumer behaviour. The unit explores the various elements of the marketing mix, with special reference to product, price, distribution, and promotion, including
advertising and public relations. By way of introduction only, key issues relating to services marketing, e-marketing and strategic marketing are also canvassed.

**BSB311 INNOVATION COMMERCIALISATION STRATEGIES**

Students study strategies and approaches used in industry and government organisations for the research, development and commercialisation of biotechnology innovations. The unit offers the opportunity to read widely as well as in depth about the commercialisation of molecular biology and biotechnology research. Theoretical concepts are integrated with prepared case studies prior to guest speaker seminars.

**Prerequisites:** BSB310 or MGB223  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point and Caboolture  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**INB101 IMPACT OF IT**

You will gain an appreciation of the massive and positive impact that IT has had on a wide range of fields including business, science, engineering, education and health. You will learn about the benefits of increased productivity due to IT. You will consider ethical issues and possible negative impacts of IT. You will raise your awareness of the social implications of IT systems for society at the global, local and personal levels. You will develop an informed position on issues, and justify your reasoning with considered supportive arguments.

**Antirequisites:** ITB005  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Teaching period:** 2010 SEM-2

**INB102 EMERGING TECHNOLOGY**

The aim of this unit is to provide you with a conceptual framework so that you clearly identify Information Technologies and their purpose. This task will be fun as it covers a wide spectrum of ideas and allows us to examine some currently popular technologies. Information Technology has become so entwined with everyday life that identifying its scope is difficult, which also makes it difficult to identify opportunities where IT might further infiltrate into our daily lives for work and play. To achieve these aims, the unit introduces you to some of the theories and engineering practicalities that have already resulted in technological advances in the area of information technology. Concepts leading to existing technologies are introduced during lectures, which are followed by laboratory sessions where students will be encouraged to discuss social change, future information tools and explore the concepts required for constructing these technologies.

**Antirequisites:** ITB005  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**INB103 INDUSTRY INSIGHTS**

This unit aims to develop your awareness of the career possibilities in the ICT industry and to equip you with some of the essential skills required of an ICT professional. The unit helps you to derive a roadmap for your career; to enable you to identify the qualities, skills and interests you need to possess, to plan your career path. The unit will also introduce you to the inter-disciplinary nature of ICT careers.

**Antirequisites:** ITB002  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**INB104 BUILDING IT SYSTEMS**

This team-based unit is an integrated introduction to information technology designed to engage, inspire and inform and will demonstrate the important role that technical system design and development plays in achieving robust operation of a large variety of technological solutions. This unit will give you substantial hands-on, practical learning experiences and will motivate you through engagement in the creative, explorative and meaningful development of technological artefacts that operate in real world contexts.

**Antirequisites:** ITB001  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**INB180 COMPUTER GAMES STUDIES**

This unit is designed to give you a clear understanding of the socio-cultural issues that affect the computer game industry. Through critical review of games and games industry literature, playing games and actively participating in classroom discussion you will develop your capacity to join in the discourse about the design, impact and future direction of computer games in our society.

**Antirequisites:** INN180, ITB750  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Teaching period:** 2010 SEM-1

**INB181 INTRODUCTION TO GAMES PRODUCTION**

This subject will provide you with knowledge and skills in games production. By gaining an overview of the production process, you will learn how the technology and the people involved integrate into a coherent and efficient manufacturing process. By the end of this subject you will have the knowledge to conceive, create, integrate and optimise tools and personnel into a complete games
Antirequisites: INN181  Equivalents: ITB751, ITN751
Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

INB182 INTRODUCING DESIGN
TBA
Antirequisites: DEB101  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

INB210 DATABASES
The aim of this unit is to help you develop your knowledge, understand a formal specification tool (ORM) for modelling information systems unambiguously and to apply this formal technique to conceptualise information systems found in many real world application domains.

Assumed knowledge: Students are expected to have solid IT background knowledge (e.g., completion of at least 192 credit points)  Equivalents: ITB004, ITB115  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

INB250 SYSTEMS ARCHITECTURE
Contemporary computer-based systems are built from a wide range of technologies working at different levels of abstraction, from microprocessor hardware, to operating system and application software, to entire communications networks. At each abstraction level different techniques are needed to understand emergent properties of the system. This unit introduces some of the foundational principles commonly used to reason about the behaviour of computer-dependent systems at different levels of abstraction. Such techniques are especially important in the context of safety-, security- or mission-critical systems.

Assumed knowledge: Basic familiarity with set theory (Venn diagrams and set operators), elementary algebra (polynomial and summation expressions, exponents and logarithms, etc) and simple probability concepts (permutations and combinations).  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

INB251 NETWORKS
Computer systems and communications networks are essential to the activities of modern organisations. When you graduate from a course in Information Technology, employers expect you to have a sound understanding of the terminology and concepts of computer systems, communications networks, and network services. This unit provides you with an introductory study of communications network technologies and network applications. The unit serves as an entry point to further specialised studies in the field of computer network systems.

Antirequisites: ITB006  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

INB270 PROGRAMMING
This unit aims to give you a positive introduction to the skills required in solving computational problems and implementing solutions in a programming or scripting language. Although some theoretical aspects of computer programming are introduced briefly, the overall emphasis of the unit is programming practice. The unit emphasises generic programming concepts and related problem-solving strategies. The skills you learn in this unit will be applicable to a wide variety of commonly-used, industrially-significant programming and scripting languages.

Prerequisites: INB104 or INB246  Antirequisites: ITB003, ITB112, ITB411, INN270  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

INB272 INTERACTION DESIGN
The aim of this unit is to provide you with an understanding of the theory, practices and challenges associated with the development of creative interactive design and human computer interaction.

Prerequisites: INB103 or INB181  Equivalents: ITB254  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

INB280 FUNDAMENTALS OF GAME DESIGN
Modern games production is a complex process involving various businesses and organisations, working with budgets in the tens of millions. One of the roles within a game production team is that of the game designer. It is crucial that a game designer understands how to create a game world, the rules that govern game play and other high level design tasks. This subject provides an introduction to game design, by starting with high level conceptual design tasks before moving to more concrete tasks.

Prerequisites: INB180  Equivalents: ITB016, ITN016  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

INB281 ADVANCED GAME DESIGN
This unit will provide you with theoretical and practical knowledge of advanced games design concepts; that is, specific activities undertaken by game designers and their purpose. By the end of this unit you will have the knowledge to identify problems and suggest solutions for innovative...
game designs, as well as understand how to carry out the process of designing a game yourself. You will possess practical and theoretical knowledge of game design issues such as: how to design a game level, how to design a task and reward a player for completing it, how to ensure that the player knows how to progress through the game and how to design characters whose behaviour and dialogue provide clues and prompts to the player.

Prerequisites: INB280  Equivalents: ITB017  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

INB345 MOBILE DEVICES
This unit provides the opportunity for exploring new and emerging mobile devices and wireless technology including iPhone, Netbook, 3G, WiMax, and RFID. Students will critically review and understand how they can be used for current contexts such as government, business, education and social community, as well as emerging ‘wilderness’ environments with no power and wired communication. Students will appreciate the impacts of these devices and be inspired for the current and future opportunities in ICT usage trends.

Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

INB350 INTERNET PROTOCOLS AND SERVICES
An understanding of the theoretical and practical concepts of network protocols and services is highly useful and relevant to network engineers and others working in the Information Processing industries. This unit introduces you to Internet protocols and the design, implementation and operation of network based applications. Theory and practical skills taught in this unit will be useful if you intend undertaking further networking units.

Prerequisites: INB251 or ITB006  Antirequisites: ITN723  Assumed knowledge: Networks or equivalent networking knowledge is assumed knowledge  Equivalents: ITB723  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

INB371 DATA STRUCTURES AND ALGORITHMS
The purpose of this unit is to ensure that you have a sound knowledge of modern programming techniques and their use in providing medium-scale software solutions. This unit will teach you to decompose a problem and produce a modular solution to a programming task. The principles to analyse algorithms for efficiency will also be introduced. In addition, you will acquire the necessary skills for you to use the tools available in common development environments, such as Microsoft Visual Studio.

Prerequisites: INB270 or ITB003  Antirequisites: ITB711, ITB702, INN371  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

INB385 MULTIMEDIA SYSTEMS
This unit will explore the concepts underpinning multimedia systems and the role played by these technologies in the overall knowledge of a computer professional. You will learn to: design and develop different kinds of interactive multimedia applications; understand the bank of knowledge in cultural developments surrounding the emergence of multimedia technologies; analyse design and processes that contribute to the production of a creative work, using contemporary hardware and software technologies; develop the creative potential of temporal media forms and their placement and use within new media works; understand principles and conventions associated with the interpretation and production of meaning through interactive visual representation.

Prerequisites: INB103 or ITB002  Antirequisites: ITB257  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

INB386 ADVANCED MULTIMEDIA SYSTEMS
This advanced level unit will give you high level design and development skills in some of the current and emerging areas of the new media. Web delivered applications, stand-alone systems and installations will be included. It will endeavour to give you an in-depth understanding of interactive Multimedia Systems. You will be given the theoretical basis and practical skills to motivate you in the design and creation of a state-of-the-art system in this discipline. In the process it will encourage a professional team approach appropriate to the industry environment.

Prerequisites: INB385 (Special considerations may apply)
KIB101 VISUAL COMMUNICATION
Communication Design deals with visual communication and the creation of meaning through images. This unit will introduce you to the principles, production and presentation of visual design and communication.

Equivalents: KIB801  Credit points: 12  Contact hours: 4 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-1 and 2010 SEM-2

KIB102 VISUAL INTERACTIONS
This unit further develops interface design skills for communications technologies including design priorities, interaction, visual systems, refinement of concepts, project analysis and problem solving through presentation models.

Prerequisites: KIB101 or KIB801 or KPB101 or KPB150 or KPB155  Equivalents: KIB802  Credit points: 12  Contact hours: 3.5 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-2

KIB105 ANIMATION AND MOTION GRAPHICS
This unit provides an introduction to animation and motion graphics concepts and practices, with an emphasis on principles of design in motion

Equivalents: KIB804  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-2

KIB108 ANIMATION HISTORY AND PRACTICES
The unit is an introductory examination of the development of animation. It addresses social, cultural, economic and technological themes that have shaped notable practitioners and established animation as a significant medium for the expression of popular culture, artistic experiment and philosophical, social and political comment.

Equivalents: KIB825  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-1

KIB201 CONCEPT DEVELOPMENT FOR GAME DESIGN AND INTERACTIVE MEDIA
This unit addresses theoretical issues associated with non-linear story structures and interactive narratives through the analysis of game structures, the creation of original game ideas and the application of techniques of information design to the structuring of non-narrative content. Addressing the creative and analytical roles of writers, conceptual designers and information designers in the context of interactive digital media and the Creative Industries.

Equivalents: KIB816  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-1

KIB202 ENABLING IMMERSION
As creative practitioners within a highly networked technological society, it is important to develop a critical understanding of how the application of technology influences modes of communication, production processes and creative practices, particularly within the Creative Industries. This unit provides an introductory overview of the philosophies underlying applications of technology, and critically examines current applications in order to explore creative visions of future technology.

Prerequisites: KIB201  Equivalents: KIB814  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-2

KIB230 INTERFACE AND INFORMATION DESIGN
With the advent of new technologies for communication, graphical user interfaces have become fundamental to the design of effective communication, and a key factor in the uptake, ease of use and experience of technology systems. This unit builds upon knowledge and skills acquired in units on visual communication and Web design to establish the knowledge and skills required to design and produce effective visual interfaces for technology applications such as Web, small screens in mobile media, and interactive displays. It will cover theories and principles of visual communication, information architecture and user experience design, which will be applied in the production of interfaces for interactive media and digital projects. The unit will be taught through a combination of lectures, tutorials and practical classes, in which skills and knowledge will be applied.

Prerequisites: KIB101 or KIB801  Equivalents: KIB211  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-1

KIB309 EMBODIED INTERACTIONS
Interaction with technology has advanced beyond the desktop paradigm of mouse and keyboard to embodied interfaces that incorporate video tracking, audio input, and gestural interaction techniques. Applications range from wearable technology to tangible media installations. This unit introduces an experimental field of interactive media design through the practical application of the processes and techniques of tangible media applications. Lectures, which provide the theoretical grounding of the study area, methodologies and examples of the application of tangible media are complemented by practical classes which extend the technical skills acquired in Programming for Designers and Artists and support the development of tangible media outcomes within design studios.
This is a studio based unit that introduces you to media, processes, strategies and traditions of drawing and associated imagery for use in animated media. The development of critical/reflective frameworks of traditional and contemporary practice underpins studio development. Equivalents: KVB755 Credit points: 12 Contact hours: 4 per week Campus: Kelvin Grove Teaching period: 2010 SEM-1

KVB106 DRAWING FOR ANIMATION
This unit develops individual knowledge, concepts and skills to enable you to articulate and present capabilities of motion through drawing for contemporary animation practices. Equivalents: KVB756 Credit points: 12 Contact hours: 3 per week Campus: Kelvin Grove Teaching period: 2010 SEM-2

LWS007 INTRODUCTION TO INTELLECTUAL PROPERTY LAW
Intellectual property protection is undoubtedly of paramount importance in the research, development and commercialisation of emerging technologies. Managers and researchers need to be aware of the different types of property that can be protected and how the property needs to be protected. There have also been significant developments in the field of intellectual property law in recent years. The concepts taught in Introduction to Intellectual Property Law are of significant relevance to persons intending to practice in the emerging fields of science. Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB120 ALGEBRA AND CALCULUS
This unit introduces and reviews the elementary concepts of function, calculus, matrices and vectors with special reference to applications in science, technology and business where appropriate. Topics covered include the algebra of complex numbers, elementary functions (polynomial, trigonometric, exponential and logarithmic) and their properties, differentiation and integration methods and principles, geometric and algebraic applications of vectors and the solution of linear systems using matrices.
Assumed knowledge: Grade of at least Sound Achievement in Senior Mathematics B (or equivalent) or MAB105 is assumed knowledge Equivalents: MAB100, MAB125, MAB180 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

MAB121 CALCULUS AND DIFFERENTIAL EQUATIONS
This unit extends the areas of function and calculus introduced in MAB120 by introducing series representations for functions and more advanced methods of differentiation and integration for functions of one variable. A strong
connection to real world problems is made by introducing
the use of differential equations in modelling, and exploring
appropriate methods of solution. Practical calculations of
volumes and surface areas of solids of revolution extend
your interpretations of the definite integral. Taylor and
Fourier series are introduced as a means of approximating
functions by sums of polynomials and periodic functions.
Some more advanced methods for indefinite integrals, such
as partial fraction decomposition, are also introduced.

**Assumed knowledge:** Grade of at least Sound
Achievement in Senior Mathematics C (or equivalent) or
MAB125 or MAB180 or MAB120 is assumed knowledge

**Equivalents:** MAB111, MAB126  
**Credit points:** 12
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

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**MAB122 ALGEBRA AND ANALYTIC GEOMETRY**

This unit extends your knowledge in the areas of functions,
calculus, matrices and vectors introduced in MAB120 by
introducing functions of more than one variable, partial
derivatives and multiple integrals, vector valued functions,
and matrix methods for the solution of large systems of
linear equations.

**Equivalents:** MAB112, MAB127, MAB132  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

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**MAB312 LINEAR ALGEBRA**

This unit covers the following broad topics from linear
algebra: matrix analysis; eigenvalues and eigenvectors;
vector spaces; inner product spaces.

**Prerequisites:** (MAB111 or MAB121) and (MAB112 or
MAB122)  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

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**MGB223 ENTREPRENEURSHIP AND INNOVATION**

This unit introduces students to the nature and
characteristics of entrepreneurship and innovation and
explores the inter-relationship between the two within
contemporary economies from managerial perspective.
Learning will be directed towards developing the theoretical
and applied knowledge, skills, and attitudes that will support
and enhance innovation and enterprise creation activity,
through the development of a business plan. The unit is
designed for those individuals interested in creating a new
venture or working in industries as employees of venture
owners or those that serve this sector. Students will have
opportunity to build a comprehensive plan of their business
concept.

**Prerequisites:** BSB115 or CTB115  
**Equivalents:** CTB223  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point and Caboolture  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

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**MGB225 INTERCULTURAL COMMUNICATION AND NEGOTIATION SKILLS**

The course develops students' abilities to identify and
resolve problems in cross-cultural communication or
negotiation situations where cultural differences have
created misunderstandings or undesirable or unexpected
outcomes. It first explores the concept of 'national culture'
by considering the work of major theorists of cultural value
dimensions - from Hall to Schwartz. Students are
encouraged to analyse communication/negotiation process
issues in terms of these value dimensions and to practise
managing the process of communication/negotiation to
improve their outcomes.

**Prerequisites:** BSB115, CTB115, BSB119 or BSB124

**Antirequisites:** MGB312  
**Equivalents:** IBB205  
**Credit points:** 12  
**Contact hours:** 3  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

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**MGB324 MANAGING BUSINESS GROWTH**

This unit is designed to provide skills in the analysis,
solutions and implementation of the general management
issues that SME owners have to manage in their growing
operations. The unit brings together the different functional
aspects of managing an established SME and how they are
best managed from the owner's (general manager's) point
of view. It also provides opportunity to bring students into
contact with real world SME owners and their venture
management issues.

**Prerequisites:** MGB223  
**Equivalents:** MGB218  
**Credit points:** 12  
**Contact hours:** 3  
**Teaching period:** 2010 SEM-1

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**PCB593 DIGITAL IMAGE PROCESSING**

This unit provides students with a basic understanding of
the computer techniques used in image processing and
reconstruction. Specific areas of study include the following:
the structure of a digital image; image display techniques;
grey scale palettes and look-up tables; Fourier transform
theory; convolution theory; image processing hardware;
image processing techniques, eg analysis, enhancement
and restoration; spatial filtering; Fourier space filtering;
methods of image reconstruction; 3D volume and surface
rendering; applications of image processing in medicine,
astronomy and remote sensing, etc.

**Prerequisites:** PCB375-2 or PCB496 or PQB250  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

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**PQB250 MECHANICS AND ELECTROMAGNETISM**

The experimental means by which we have arrived at our
modern understanding of the universe is central to the
scientific philosophy. Students of physics and physics
related areas need to possess skills in quantitative handling,
processing, communication and evaluation of data. Higher
level studies in specialised areas of Physics require a familiarity with a range of fundamental topics in Physics and an ability to apply critical thinking and advanced mathematical techniques to the analysis and solution of Physical problems. This first-level unit lays the foundation for these higher level studies by introducing the fundamental topic areas of mechanics and electromagnetism.

**Assumed knowledge:** Senior Maths B is assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 4.5 hours per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2  

**PQB251 WAVES AND OPTICS**

Wave phenomena are used to describe and explain many of the physical processes in the universe. Sound and light are the most commonly experienced of these and have far-reaching human applications, including their use as experimental tools for science. The study of wave phenomena has led to the development of quantum mechanics, a cornerstone of modern scientific thought. This first-level unit lays the foundation for discussion of wave phenomena in higher level studies, but will also be relevant to those not considering progressing to a Physics major but wishing to understand more of the Physical world in which we live.

**Assumed knowledge:** Senior Maths B is assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 4.5 hours per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2  

**PQB450 ENERGY, FIELDS AND RADIATION**

The common theme of the topics covered in this unit is fields, the energy contained in these fields and the transfer of this energy. This theme is addressed in the specific topics of classical mechanics, electromagnetism and radiation physics. The classical mechanics and electromagnetism components build on material presented in introductory units and apply this to complex real world problems. The unit is designed to prepare students for more advanced studies in these areas but the unit will also provide a useful background for students undertaking a comajor in Physics or preparing for a career in secondary education.

**Prerequisites:** PQB250 or PCB250, and MAB311  
**Equivalents:** PCB362  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2  

**PQB460 ASTROPHYSICS 1**

This second level unit is one of the key units in the astrophysics co-major and introduces students to most of the main aspects of astrophysics. This unit is essential as it defines the connections between the supporting units of the co-major. Students are required to use the knowledge and skills developed in first level physics, maths and natural resource units.

**Prerequisites:** PCB136 or PQB250 or SCB123  
**Equivalents:** PCB469  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2