Bachelor of Technology Innovation (Games Technology) (ST50)

Year offered: 2011
Admissions: Yes
CRICOS code: 070694G
Course duration (full-time): 4 years
Domestic Fees (indicative): 2011: CSP $2,178 (indicative) per semester
International Fees (indicative): 2011: $12,250 (indicative) per semester
Domestic Entry: February
International Entry: February and July
QTAC code: 418311
Past rank cut-off: 76
Past OP cut-off: 12
OP Guarantee: Yes
Assumed knowledge: English (4,SA), Maths B (4,SA), Chemistry (4,SA)
Preparatory studies: For information on acquiring assumed knowledge visit http://www.qut.edu.au/assumed-knowledge
Total credit points: 384
Standard credit points per full-time semester: 96
Course coordinator: Associate Professor Chris Collet
Campus: Gardens Point

Why Choose This Course
If you like to work in a dynamic world of translating discovery and creativity into commercial products, meeting people, and working in a high-powered team environment to build money-making enterprises, then this course is for you. The Bachelor of Technology Innovation will allow a rapid entry into the high-flying world of commercialisation and technology transfer. This new degree builds upon the successful Bachelor of Biotechnology Innovation which has seen graduates realise outstanding job outcomes, often successfully competing against graduates with PhDs and MBAs.

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

Your Course
Year 1
You will be able to choose subjects from across a range of science and technology areas to help you define your choice of disciplinary major. The introductory core studies will provide you with a solid foundation in your chosen disciplinary skills and build the basis for future studies.

Year 2
You will be introduced to advanced theoretical concepts and practical skills that serve to build your expertise in the science and technology disciplines. A thorough understanding of science and technology theory and practice is necessary to understand, evaluate and communicate aspects of innovation to the business world.

Year 3
In third year, you will complete your science and technology disciplinary advanced studies and take basic and advanced business units that encompass the business of innovation, intellectual property law and professional skills development. Through the action learning framework of the Student Enterprise Scheme, professional skills development will concentrate on communication and team-building skills. These exercises will help prepare you for industry-based consultancy style projects and extra-curricular networking events and an industry career.

Year 4
You will undertake integrative business units that develop the entrepreneurial mindset needed for a career in innovation commercialisation. You will further develop your professional skills through networking events. Student teams will source an industry-based consultancy-style project that will serve to provide real world experience and ready you for your future career.

Games Technology Major Course Structure

<table>
<thead>
<tr>
<th>BLOCK</th>
<th>Description</th>
<th>Credit Points</th>
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<tbody>
<tr>
<td>A</td>
<td>Core Studies - 13 units (156 credit points)</td>
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<tr>
<td>B</td>
<td>Major - 13 units (156 credit points)</td>
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<tr>
<td>C</td>
<td>Minor - 4 units (48 credit points)</td>
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<tr>
<td>D</td>
<td>Electives - 2 units (24 credit points)</td>
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Year 1 Semester 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>INB101</td>
<td>Impact of IT</td>
</tr>
<tr>
<td>INB104</td>
<td>Building IT Systems</td>
</tr>
<tr>
<td>INB180</td>
<td>Computer Games Studies</td>
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<tr>
<td>INB182</td>
<td>Introducing Design</td>
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Year 1 Semester 2

<table>
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<tr>
<th>Code</th>
<th>Course Name</th>
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<tr>
<td>INB103</td>
<td>Industry Insights</td>
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<tr>
<td>INB181</td>
<td>Introduction to Games Production</td>
</tr>
<tr>
<td>INB270</td>
<td>Programming</td>
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**MAB281**  Mathematics for Computer Graphics

**Year 2 Semester 1**
- INB370  Software Development
- INB371  Data Structures and Algorithms
  - Block C or Block D Unit
  - Block C or Block D Unit

**Year 2 Semester 2**
- INB210  Databases
- INB250  Foundations of Computer Science
- INB381  Modelling and Animation Techniques
  - Block C or Block D Unit

**Year 3 Semester 1**
- BSB115  Management
- STB551  Engaging with the Innovation Industry
  - Block C or Block D Unit
- Plus ONE of the following two units:
- INB382  Real Time Rendering Techniques
- INB383  AI for Games

**Year 3 Semester 2**
- BSB126  Marketing
- MGB223  Entrepreneurship and Innovation
  - Block C or Block D Unit
  - Block C or Block D 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

**BLOCK C Minor Units List**

**ANIMATION:**
- KIB105  Animation and Motion Graphics
- KIB108  Animation History and Practices
- KIB225  Character Development, Conceptual Design and Animation Layout
- KVB105  Drawing for Design
- KVB106  Drawing for Animation

**ADVANCED SOFTWARE TECHNOLOGIES:**
- INB365  Systems Programming
- INB372  Agile Software Development
- INB374  Enterprise Software Architecture
- Plus ONE from the following two units:
- INB382  Real Time Rendering Techniques
- INB383  AI for Games

**DIGITAL MEDIA:**
- KIB101  Visual Communication
- KIB102  Visual Interactions
- INB385  Multimedia Systems
- INB386  Advanced Multimedia Systems

**GAME DESIGN:**
- KIB201  Concept Development for Game Design and Interactive Media
- KIB202  Enabling Immersion
- INB280  Fundamentals of Game Design
- Plus ONE from the following two units:
- INB272  Interaction Design
- INB281  Advanced Game Design

**MATHEMATICS FOR GAMES:**
- MAB120  Algebra and Calculus
- MAB121  Calculus and Differential Equations
- MAB122  Algebra and Analytic Geometry
- MAB312  Linear Algebra
  [Students who have completed Maths C can substitute MAB120 with one of the following units: MAB311, MAB481 or MAB422]

**MOBILE AND NETWORK TECHNOLOGIES:**
INB102  Emerging Technology
INB251  Networks
INB350  Internet Protocols and Services
INB353  Wireless and Mobile Networks

SOUND DESIGN:
KMB106  Music and Sound for Multimedia
KMB107  Sound, Image, Text
KMB119  Music and Sound Production 1
KMB129  Music and Sound Production 2

PHYSICS FOR GAMES:
MAB121  Calculus and Differential Equations
PQB250  Mechanics and Electromagnetism
PQB251  Waves and Optics
PQB450  Energy, Fields and Radiation
PQB460  Astrophysics 1
PCB593  Digital Image Processing

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: AMX240, CTB240  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point and Caboolture  Teaching period: 2011 SEM-1 and 2011 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: BSX115, CTB115  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point and Caboolture  Teaching period: 2011 SEM-1, 2011 SEM-2 and 2011 SUM-1

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.
Antirequisites: BSB116,BSB126  Equivalents: BSX126, CTB126  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point and Caboolture  Teaching period: 2011 SEM-1, 2011 SEM-2 and 2011 SUM

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: MGB223 or LSP127  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2

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: INN101  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 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.

Equivalents: ITB005 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2011 SEM-1 and 2011 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 the inter-disciplinary nature of ICT careers.

Equivalents: ITB002 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2011 SEM-1 and 2011 SEM-2

INB104 BUILDING IT SYSTEMS
Today's modern integrated technology is built on IT systems which run in a range of contexts (e.g. mobile computing, robotics, and web-based systems) using a range of technological solutions such as programming and scripting, databases, web development and network programming. This 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.

Equivalents: ITB001 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2011 SEM-1 and 2011 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 Campus: Gardens Point Teaching period: 2011 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 production system.

Antirequisites: INN181 Equivalents: ITB751, ITN751 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2011 SEM-2

INB182 INTRODUCING DESIGN
Please note: this unit is only available to BGIE (Bachelor of Games and Interactive Entertainment) students. The act of designing is a common link between many disciplines such as game design, software design, animation and character design, architecture, industrial design, etc. This unit offers a broad and generic introduction to the act of designing in a discipline context free environment.

This unit is designed to expose you to a range of experiences not possible within the confines of the usual university routine. It also calls upon you to exert physical and mental efforts that may be different in degree and nature to your usual coursework. Through these opportunities this unit seeks to introduce to you the ways of thinking like a designer.

Antirequisites: DEB101 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2011 SEM-1

INB210 DATABASES
Databases and database systems are essential items that support many aspects of everyday life in modern society. All graduates from a course in Information Technology will be expected by employers to understand the concepts and terminology of databases. The aim of this unit is to introduce you to the structure and role of databases in modern
organisations.

Antirequisites: INN210    Equivalents: ITB004    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-2

INB250 FOUNDATIONS OF COMPUTER SCIENCE
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. Most of the techniques are derived from the field of Discrete Mathematics and are the foundation of the discipline called Computer Science.

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: 2011 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: INN251    Equivalents: ITB006    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 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 ENB246    Antirequisites: INN270    Equivalents: ITB003    Credit points: 12    Contact hours: 3 per week    Campus: Gardens Point    Teaching period: 2011 SEM-1 and 2011 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: 2011 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: 2011 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: 2011 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 or ITB510  
**Antirequisites:** ITB624, ITB629, ITB720, ITN525, ITN667, ITN720  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1

**INB353 WIRELESS AND MOBILE NETWORKS**

This unit provides you with the skills to be able to design and understand the issues involved with different types of wireless communications systems. It develops your knowledge of Wide Area Networks (WANs), Local Area Networks (LANs) and Personal Area Networks (PANs) as well as skills in programming for mobile handsets. You will also develop knowledge of the different types of wireless communications technologies available and when each is most applicable in a particular situation.

**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:** 2011 SEM-1

**INB365 SYSTEMS PROGRAMMING**

Systems programming is an essential part of any computer-science education. This unit uses operating system concepts to teach the foundations of systems programming and advanced concepts for producing softwares that provide services to computer hardware. Through this study, you will be able to demonstrate knowledge of the principles and techniques of process management, memory and file management, protection & security, and distributed systems.

**Prerequisites:** INB270 or ITB003 or INB371  
**Antirequisites:** ITB745, ITB706, INN365  
**Assumed knowledge:** Fundamentals of computer architecture; high level programming languages (such as C, C++, Java Python) is assumed knowledge.  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB370 SOFTWARE DEVELOPMENT**

Understanding software development is an integral part of the IT industry for software engineers. Software development relies on object technologies, programming techniques and numerous code libraries provided by language developers and third party vendors. Integrated Development Environments, unit testing frameworks, automated and continuous build tools and versioning systems are all becoming part of the tool set modern software developers must be familiar with. This unit is designed to introduce these technologies and techniques to show how software can be rapidly developed.

**Prerequisites:** INB270 or ITB003  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**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:** 2011 SEM-1

**INB372 AGILE SOFTWARE DEVELOPMENT**

This unit introduces you to the software development process. You will look at each of the major activities involved in developing a software system. You will also learn how to manage and control the software development process for a large project when a number of team members are involved in the development. This unit develops the professional practice of working on large software systems.

**Prerequisites:** INB370  
**Antirequisites:** INN372, ITB612, ITB712  
**Assumed knowledge:** Good programming, debugging, testing and software development skills.  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB374 ENTERPRISE SOFTWARE ARCHITECTURE**

This unit aims to introduce you to the field of enterprise architecture. It attempts to give you a grounding in the basic knowledge and skills required by an enterprise architect. This includes a solid understanding of the IT challenges currently facing medium to large size organizations, the theory and technologies currently used to address them and an appreciation of the business imperative for which they are utilized.

**Prerequisites:** INB270 or ITB003  
**Equivalents:** ITB717  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB381 MODELLING AND ANIMATION TECHNIQUES**
The development of computer graphics tools is a significant application within the IT, Games and related industries, relying heavily on software engineering methodologies. These tools, such as CAD systems, 3D modelling systems and games engines, are used in such industries as advertising, engineering, manufacturing, simulation for education and training, computer games, film special effects, etc. Modelling techniques are intrinsic to a 3D graphics system, especially one used for real time animation. With increased CPU and GPU power, the ability to animate in real time is allowing more sophisticated interaction and the merger of games/simulation and film. The unit will provide you with the knowledge and skills to use an industry standard graphics API to implement graphics applications and to develop a basic real time animation system using an industry standard language.

**Prerequisites:** INB371 and MAB281  
**Equivalents:** ITB746  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**INB382 REAL TIME RENDERING TECHNIQUES**

This unit will provide you with knowledge and skills in basic to advanced techniques in real-time rendering using shading languages. You will be able to implement a high-quality real-time rendering system in an industry standard API.

**Prerequisites:** INB371, INB381 and MAB281  
**Antirequisites:** ITB648 and ITB649  
**Equivalents:** ITB747  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-1

**INB383 AI FOR GAMES**

The aim of this unit is to provide students with an intermediate to advanced level course in computer game AI, involving algorithmic and utility-based approaches to solving a wide range of problems in the interactive entertainment and game industries. You will gain both practical and theoretical knowledge about a range of AI techniques applied in computer games. You will be able to identify and explain different types of AI agents, describe their algorithms using a pseudo code convention, identify and explain different structures and algorithms used to represent and solve a range of problems in computer game AI.

**Prerequisites:** INB371 or MAB281  
**Antirequisites:** INB304 completed in semester 1 2009  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 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:** 2011 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)  
**Equivalents:** ITB259, ITN259  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2011 SEM-2

**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 and Caboolture  
**Teaching period:** 2011 SEM-1 and 2011 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:** 2011 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: 2011 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: 2011 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: 2011 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: 2011 SEM-2

KIB225 CHARACTER DEVELOPMENT, CONCEPTUAL DESIGN AND ANIMATION LAYOUT
This unit emphasizes production in practice. By considering type and generic attributes within a technological context, you will be guided through the key concepts involved in the development of working drawings and final artworks.

Prerequisites: KIB111 or KIB203 or KIB107 or (KIB105 and KIB108 and KVB106)  Equivalents: KIB106, KIB807  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2011 SEM-2

KMB106 MUSIC AND SOUND FOR MULTIMEDIA
This unit deals with studio recording techniques, computer-assisted composition, the role of music in non-linear structures, the effect of sound in digital media productions, sound effects and Foley techniques, musical acoustics, and digital sound theory.

Assumed knowledge: Sound recording and operation of audio editing software is assumed knowledge.  Credit points: 12  Contact hours: 2.5 per week  Campus: Kelvin Grove  Teaching period: 2010 SEM-2

KMB107 SOUND, IMAGE, TEXT
This unit focuses on the rich and varied relationship between sound and image in a number of media and artforms, including film, music video, theatre, installation, mixed media performance and many more.

Equivalents: KMB638  Credit points: 12  Contact hours: 2.5 per week  Campus: Kelvin Grove and Caboolture  Teaching period: 2011 SEM-2

KMB119 MUSIC AND SOUND PRODUCTION 1
This unit introduces students to the fundamentals principles of music and sound production through a mix of theory and practice. Students gain an understanding of sound recording, sound production and live sound reinforcement and develop listening skills essential for music and sound production.

Equivalents: KMB108, KMB621  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2011 SEM-1

KMB129 MUSIC AND SOUND PRODUCTION 2
This unit builds on Music and Sound Production 1. It introduces students to sound synthesis and signal processing and extends the students understanding of the approaches and aesthetics underpinning creative music and sound production. Students will further develop practical skills in music and sound composition and deepen their knowledge of the hardware and software commonly used in creative production.

Equivalents: KMB105, KMB619  Credit points: 12  Contact hours: 3 per week  Campus: Kelvin Grove  Teaching period: 2011 SEM-2

KVB105 DRAWING FOR DESIGN
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
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:** 2011 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:** 2011 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.

**Antirequisites:** MAN120  **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:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

MAB121 CALCULUS AND DIFFERENTIAL EQUATIONS

Building upon the foundations established in MAB120 or Senior Maths C, this unit addresses the significant role of mathematical modelling using differential equations for the description and resolution of simple and complex problems relevant to real world situations. The formulation and solution of such problems is supported by appropriate advanced mathematical concepts used for function approximation, differentiation and integration. Undertaking this unit will allow you to develop your problem solving skills, especially in the context of advanced mathematical techniques applied to ordinary differential equations used to model real world problems. You will also gain a deeper understanding of the concepts of the derivative and the integral, and how these may be used in applied contexts.

**Antirequisites:** MAN121  **Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics C (or equivalent) or MAB120 or MAB100 or MAB125  **Equivalents:** MAB111, MAB126, MAB131, MAB182  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

MAB122 ALGEBRA AND ANALYTIC GEOMETRY

Building upon the foundations established in MAB120 or Senior Maths C, this unit addresses the significant role of mathematical modelling using vectors, matrices and multivariable calculus for the description and resolution of simple and complex problems relevant in the real world. The formulation and solution of such problems is supported by appropriate advanced mathematical concepts used for function approximation, differentiation and integration. Undertaking this unit will allow you to develop your problem solving skills, especially in the context of advanced mathematical techniques applied to vectors, matrices and multivariable functions used to model real world problems.

**Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics C (or equivalent) or MAB120 or MAB100 or MAB125  **Equivalents:** MAB112, MAB127, MAB132  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM

MAB281 MATHEMATICS FOR COMPUTER GRAPHICS

Computer graphics is a rapidly growing field of the computer science industry. It has applications in computer games, virtual reality, CAD systems and geometric modelling. Fundamental to all of these applications is mathematics. Thus, to be a working professional in this area you will need a working knowledge of the basic mathematics and concepts that are central to this field. This unit is also ideal for non-specialists as it demonstrates some of the various fields of applications of mathematics in everyday life. The aim of this unit is to introduce you to the mathematics of computer graphics and relate this to the solutions of problems that arise in the many applications of computer graphics.

**Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics B (or equivalent) or MAB105 is assumed knowledge  **Credit points:** 12  **Contact hours:** 4 per week  **Campus:** Gardens Point  **Teaching period:** 2011 SEM-2

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) **Antirequisites:** MAN312 **Credit points:** 12 **Contact hours:** 4 per week **Campus:** Gardens Point **Teaching period:** 2011 SEM-1

**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 manageral 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, MGX223 **Credit points:** 12 **Contact hours:** 3 per week **Campus:** Gardens Point and Caboolture **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**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, MGX225 **Credit points:** 12 **Contact hours:** 3 **Campus:** Gardens Point and Caboolture **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**MGB334 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, MGX324 **Credit points:** 12 **Contact hours:** 3 **Campus:** Gardens Point and Caboolture **Teaching period:** 2011 SEM-1

**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:** 2011 SEM-1

**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:** 2011 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: 2011 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 co-major in Physics or preparing for a career in secondary education.

Prerequisites: PQB250 or PCB250, and MAB311
Equivalents: PCB362

hours: 4 per week    Campus: Gardens Point    Teaching
period: 2011 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: PQB250 or PCB250 or PCB150
Equivalents: PCB469

hours: 4 per week    Campus: Gardens Point    Teaching
period: 2011 SEM-2

STB551 ENGAGING WITH THE INNOVATION INDUSTRY
Working in the innovation industry requires a suite of skills beyond an in depth technical and/or business knowledge of a disciplinary area. Successful facilitators of innovation exchange require well developed professional portfolios and high level capabilities in the generic or soft skills including communication (written, oral and aural), thinking approaches (analytical, critical and lateral), adaptability, flexibility, leadership, learning approaches and team-based skills. This unit helps prepare you to become a professional in the innovation industry whether as an entrepreneur seeking funding for development of intellectual property or as facilitator of innovation exchange between inventor, venture capital sources and the global marketplace.

Credit points: 12    Teaching period: 2011 SEM-1

STB709 INNOVATION AND COMMERCIALISATION PROJECT
The Innovation and Commercialisation Project is a capstone unit that provides a concrete opportunity for students to consolidate and contextualise the knowledge and skills they have acquired in the course and apply them to a substantial project. The unit serves to provide work experience and link University study with the professional practice of innovation commercialisation context. New venture areas of industry, focussed as they often are on emergent technologies and the commercialisation of innovation, require graduates capable of high levels of critical thinking and evaluation coupled with a sound technical and business knowledge and skills base of relevance to the particular innovation context. The capacity to conduct rigorous analysis into the research, development and commercialisation of products and processes is a fundamental aspect of converting real-world science and technology into products for the global marketplace.

Prerequisites: STB551
Credit points: 12    Teaching period: 2011 SEM-1, 2011 SEM-2 and 2011 SUM

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**Prerequisites:** STB551  
**Credit points:** 12  
**Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM