# BACHELOR OF GAME DESIGN

## SUBJECT LIST

**ACADEMY OF INFORMATION TECHNOLOGY PTY. LTD.**
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# YEAR 1

**START DATES:**
February, May, or September

## TRIMESTER 1 — SUBJECTS

### 3D Character Lab
**(AMA1003)**
*Industry Production Subject*

In this practical subject students will learn the entire 3D workflow (pipeline) required to create their own uniquely designed 3D characters. The areas covered will include props and background development, using industry standard 3D software, 3D interface navigation, fundamental 3D theory, character design, modelling, texturing, lighting, skinning, camera animation and rendering. These skills will provide a firm foundation for creating 3D objects and characters. Students will also be introduced to essential skills required for professional practice, including project management, presentation skills, naming conventions and file management.

### Game Design Mechanics
**(GAM1006)**
*Foundational Theory*

In this subject, students will be introduced to game theory, genre, history and context. They will research and report on the nature of the game industry and analyse the mechanics of game design. They will critically review case studies of a variety of games, with gameplay taking a leading role in discovering several classes of games, their structures and characteristics. The activities in this subject will encourage collaboration and self-reflection, leading students to develop communication skills and to engage in critical thought.

### Level Design
**(GAM1000)**
*Key Knowledge/Skill Building*

This practical subject introduces the foundational skills and concepts required for game level design. During the subject, students will learn about the principles of level design, progression and gameplay, as well as exploring the elements required to create effective environmental narratives. The skills of iterative design, responding to a brief, and reflecting and adapting after feedback will all be focused on as students follow an industry-standard production process, and construct a high fidelity game level using pre-built assets.

# TRIMESTER 2 — SUBJECTS

## Game Scripting
**(GAM1009)**
*Key Knowledge/Skill Building*

In this subject, students will be introduced to the core concepts and fundamentals of games programming. This will involve acquiring fundamental knowledge of game-specific programming languages, understanding data types and how to manipulate them with functions and variables using those languages, and an understanding of scripting game logic. This subject should enable the building of tools to create games within the game engine and is an essential skill for game designers to master. The subject overall will require problem-solving skills, debugging, professional communication, peer evaluation, iteration, and application of feedback.

## 3D Animation Mechanics
**(AMA1013)**
*Key Knowledge/Skill Building*

In this subject, students will expand on their existing 3D skills and extend these to animation. The principles of animation will be applied to 3D characters, props, accessories and background assets, using advanced 3D industry standard software. Fundamental animation theory and techniques will be explored and applied, so that students can create convincing body mechanics and engaging, stylised performances. Time management and communication skills will also be developed as students learn to balance workload with due dates of deliverables and present their work for feedback.

## 3D Rigging
**(AMA1033)**
*Key Knowledge/Skill Building*

In this subject, students will learn what it takes to bring 3D models to life, utilising the fundamental theories and practises of animation rigging to create a skeleton for organic and hard surface models. Students will apply controllers to the skeleton to create an animation-ready rig that could be applied in interactive or cinematic media. Students will use problem solving and planning skills, and will demonstrate communication skills in presenting their work.

# TRIMESTER 3 — SUBJECTS

## Game Development Lab
**(GAM1103)**
*Industry Production Subject*

The Game Development Lab consists of project based learning, in which students design a range of 3D assets and integrate them into a game engine. The project will be planned and implemented in response to a brief and will involve identifying game development team roles and 3D sculpting of models using industry standard 3D modelling software. Models will be textured, then undergo optimisation and retopology to ensure their effective operation in a game engine environment where introductory level game engine programming will be applied. Students will utilise a production cycle, responding to a brief and modifying assets through multiple iterations in response to testing and peer review. Ethical considerations will be taken into account and applied to the design of game assets. The subject will engage students in collaboration, planning, and project management. It will include agile methodology, presentation and professional communication skills, and response to feedback on industry standards.

Student Work: Rory Chockman

# YEAR 2

**START DATES:**
February, May, or September

## TRIMESTER 4 — SUBJECTS

### Sound Design
**(MDA2010)**
*Advanced Knowledge/Skill Building*

In this subject students will be introduced to the creative and technical aspects of sound in digital media. Students will record sound, process sounds, and implement a variety of sounds in a range of contexts. Students will learn to apply sound design principles which enhance and compliment communication, meaning and emotion in their works.
The skills developed in this subject can be applied to film, animation or games and will enable students to create dynamic and engaging soundtracks in a variety of genres. Content will include sound editing tools, techniques, selection of appropriate musical scores, location recording procedures, sound processing and noise reduction, compression and reverberation, and sound production workflow. Students will be required to reflect on their work and make improvements in response to feedback. Teamwork and time management, copyright and legal considerations and critical listening skills will be included.

### 3D Asset Development
**(AMA2013)**
*Advanced Knowledge/Skill Building*

In this subject, students will develop advanced techniques in 3D asset creation for games. They will build on previous learning in the process of 3D sculpting to create high-quality details and contours in objects and characters. Advanced polygon optimisation techniques will also be explained as students apply ideal methods of creating low polygon models suitable for games. Advanced 3D modelling, rigging and surfacing skills will be developed and refined to create more sophisticated assets, which will be implemented in real-time. Skills in photogrammetry will also be explored as real-life objects are converted to 3D models ready for implementation in games. On completion of this subject, students will have produced portfolio pieces consisting of complex 3D game models that demonstrate the confidence and competence of industry-standard workflows for creating 3D assets for games. Subject content will also include drawing, providing and responding to feedback, peer review, research and following a brief.

### Console Game Development
**(GAM2009)**
*Advanced Knowledge/Skill Building*

In this subject students will acquire skills in developing games for use in consoles. This will involve learning scripting techniques, artificial intelligence, programming for controllers, optimisation, and console development.
The specific requirements of console game design will be defined and students will work to both understand and apply game design and programming techniques to suit this format. This subject will bring a higher level of expectation in audio-visual development of game elements. Students will work through a production cycle, respond to a brief, implement project management, planning and time management skills and respond to testing and feedback with iterative improvements to their game designs and programming.

## TRIMESTER 5 — SUBJECTS

### Multiplayer Game Development
**(GAM2011)**
*Advanced Knowledge/Skill Building*

In this subject, students will work on multiplayer game technologies to enable interaction in real time between players. Working within a game engine, students will learn about technical areas concerned with networking, interpolation and synchronisation. Server side and client side logic will be explored, and the types of multiplayer games will be examined as the design elements of cooperative and competitive game structures are considered. The subject will require students to engage in teamwork and collaboration, problem solving skills and communication through presentation of their work. Students will also consider ethical issues, reflect on and respond to feedback and peer review of their work.

### Technical Art
**(GAM2015)**
*Advanced Knowledge/Skill Building*

In this subject students will acquire advanced design skills in a game engine environment. Fine control of visual elements will be covered, enabling the creation of complex organic forms such as hair and fur, rippling water, cloth and foliage, creating advanced shaders and scripting VFX. Particle effects will be explored to enable the creation of objects such as smoke, rain and fire, and may include photogrammetry to capture real world objects in digital 3D form. Students will apply problem solving skills and manage a project as they integrate complex technical processes into a game design pipeline.

# TRIMESTER 5 — SUBJECTS (contin'd)

### Culture and Creativity
**(MDA2029)**
*Analysis/Reflection Theory*

The interface between creative arts and culture will be examined in this subject, as theories of genre, communication, cultural reference and semiotics are applied to a selection of prominent examples taken from historical and contemporary sources. Students will encounter the theoretical underpinning of creative arts practice and will critique works by evaluating their contents through the lens of a range of theoretical perspectives. Social, political and ideological considerations will be discussed and applied to case studies of creative arts in a variety of forms including film, animation, games and social media. Students will research and analyse audience behaviours and demographics, explore examples of significant directors, designers and artists, providing critique of their work and drawing comparisons to other artists and movements. Academic writing skills will be developed as students engage in meaningful discussion of contemporary art and media as it applies to culture and creativity, and conversely, the effects of culture on creative media. They will research matters that are of importance to their ethical perspective and artistic preferences. They will use critical thinking skills to present, debate and argue positions regarding social analysis and ideology.

# TRIMESTER 6 — SUBJECTS

### Cinematic Animation Lab
**(GAM2203)**
*Industry Production Subject*

This practical subject will guide students through the advanced implementation of game art in a game engine. It will include pre-built assets, facial animation, facial rigging, motion capture, voice recording and animation for cut scenes. Students will develop pre-production elements such as staging, beats and layout. A cinematics sequencer track will be implemented, and students will learn to post produce their games by refining sound, lighting, colour correction and general editing and clean-up of cinematic game elements. This process will involve iterative development, consultation and responding to feedback. Teamwork and collaboration will be required, and problem solving, critical analysis and project management skills will be utilised by the game team.

# YEAR 3

**START DATES:**
February, May, or September

## TRIMESTER 7 — SUBJECTS

### Professional Freelancing
**(MDA3011)**
*Business Management Theory*

Freelancing has become one of the major forms of employment in the areas of media and games. This subject will provide valuable information on how to manage as an independent entrepreneur in the creative industries. The focus will be on legal requirements, finance and monetisation, types of business models, documentation and admin, budgeting, pitching and promotional skills. Examples of successful freelance artists will be examined, and students will research industry and analyse their findings to identify likely areas of opportunity within their field. They will learn about networking, professional communication, planning and presentation skills.

### Emerging Insights
**(MDA3010)**
*Deep Knowledge/Skill Building*

In this subject students will immerse themselves in the future of the creative media industry. They will research and report on new and emerging technologies, their potential applications and benefits, and will provide an overview of their capacity to change the nature of the media or games industries. They will investigate contemporary theories and processes and consider how they may shape the next generation. Students will also trial new and current technologies to arrive at findings on how they could be implemented to produce media, or modify working practices. This subject will also involve market analysis to predict trends and directions in the marketplace, which will assist students in planning their future creative and career directions in media and games. Their research will include hands on experience of technologies to explore their potential uses in the context of games, film and animation. Students will analyse and evaluate the feasibility and costs associated with the use of these technologies. They will develop skills required to maintain knowledge currency, through experimentation, analysis, industry networking, professional communication, presentation and reporting.

### Virtual Production Lab
**(MDA3301)**
*Industry Production Subject*

The emerging field of virtual production enables realistic combinations of objects, characters and environments to produce composite images. In this subject virtual production technologies and techniques will be studied in detail as students engage with the blending of virtual environments with live action images. The subject will cover virtual environments, virtual props and assets, background projections using green screen or live projection, integration of live action images with virtual elements through camera tracking, matching sound, lighting and colour. Facial motion capture and the use of digital doubles using 3D modelling and animation will be introduced, and the animation and surfacing of 3D creatures and other assets will be enhanced by incorporating particle effects such as explosions, fire, smoke and rain. Advanced game engine functions will be used to composite image elements and animate components to produce realistic virtual multilevel images. Students will utilise creative thinking, problem solving skills, collaboration and teamwork, self-reflection and response to feedback.

## TRIMESTER 8 — SUBJECTS

### Forge 1
**(PRO3001)**
*Industry Production Subject*

Forge 1 is part one of a subject that runs across two terms, where students will learn to operate in a professional team, under workplace-like pressure, applying their knowledge, skills and aptitudes to complete a project to contemporary industry standards. In Forge 1, the focus will be on researching client needs and preparing a range of pre-production material required for the development of an industry project. Planning and project management skills will be sharpened, and pre-visualisation of narrative content will be developed to deliver comprehensive planning materials for a substantial production that will be completed in Forge 2 in the final term of study.

# TRIMESTER 8 — SUBJECTS (contin'd)

## The Professional Internship Program
**(PRO3005)**
*Elective*

The Professional Internship Program aligns students with professional industry organisations where they will work to develop relevant skills oriented to their chosen careers. The elective program aims to enhance the contextual capabilities, skills and knowledge students have developed throughout their course. It will provide an opportunity for students to apply what they know, be mentored, receive feedback and seek opportunities for development in a real-world setting, as well as be exposed to emerging trends and technology that impact their industry. This program can only be undertaken in the final term of the associated qualification. Prior to commencement of the internship, AIT will determine a suitable placement company based on the student's individual needs, to ensure their supervision, safety and wellbeing are adequate.

## Professional Project
**(PRO3004)**
*Elective*

This is an elective subject which does not require students to attend class. While support and feedback will be provided, this subject is undertaken off campus and requires students to work with minimal academic interaction. It may be completed independently or in collaboration with peers. In this subject, students complete an industry project of their choosing, related to their area of study. The project will be conceived and developed for a relevant contextual setting, and be presented as a proposal of a specific task, or solution to a problem or opportunity faced by an organisation or industry. The subject is an opportunity for students to develop and demonstrate self-regulated, independent research and study skills, time and project management and professional communication.

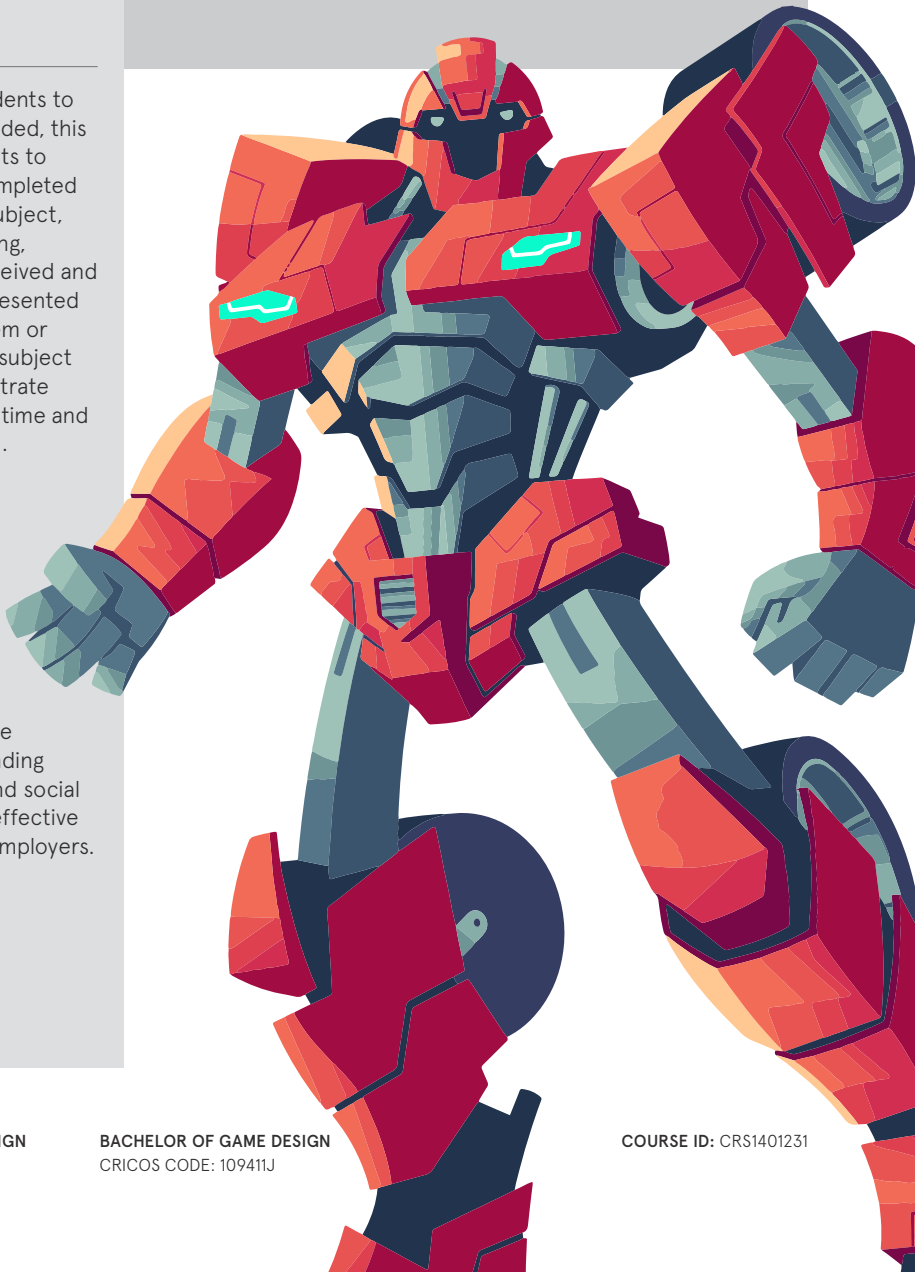
## Industry Launchpad
**(PRO3003)**
*Deep Knowledge/Skill Building*

This subject helps students search for and prepare themselves for employment. It provides guidelines for how to prepare effective resources for enhancing their prospects in finding employment. Students will be introduced to interview techniques and personal branding through the development of a professional internet and social media presence. They will also learn how to produce effective presentations of their high-quality work, targeted at employers.

# TRIMESTER 9 — SUBJECTS

## Forge 2
**(PRO3002)**
*Industry Production Subject*

Forge 2 is part two of a subject that runs across two terms, where students will learn to operate in a professional team, under workplace-like pressure, applying their knowledge, skills and attitudes to complete a project to contemporary industry standards. During Forge 2, students will focus on developing an industry project, based on the pre-production elements that were completed during the Forge 1 subject. The production, to be completed in teams, will be developed in a double subject and presented to industry representatives at the completion of the project. A key aim of the subject is to develop the student's speed and efficiency in a collaborative work environment. The process of brief, plan, execute, present and reflect will help students become accustomed to project-based work. The subject also challenges students to innovate, to learn from both success and failure, to "know themselves", and to learn how to work with others. Students will be mentored, critiqued and assessed during this process, with industry experts providing feedback on project outcomes.



# ACADEMIC CALENDAR

# VISIT OUR WEBSITE

**DIPLOMA OF GAME DESIGN**
CRICOS CODE: 109413G

**ASSOCIATE DEGREE IN GAME DESIGN**
CRICOS CODE: 109412H

**BACHELOR OF GAME DESIGN**
CRICOS CODE: 109411J

**COURSE ID:** CRS1401231

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