Institute of Digital Game Technology – NTU (IMI)

Empowering the next generation of game leaders

WSQ DIPLOMA IN GAMES DEVELOPMENT

COURSE DETAILS & REGISTRATION SUPPLEMENT 2010

DIGITAL GAME ART

PROGRAMMING

TABLE OF CONTENT

1 GENERAL INFORMATION

IDGT (Institute of Digital Game Technology) is set up by TQ-Global (Holdings) Pte. Ltd. It aims to nurture a new generation of Asian game developers through customized professional training and R&D in advanced game technology.

IDGT have two campuses, the Singapore campus within the Nanyang Technological University and its sister campus in the Shenzhen University, People's Republic of China.

1.1 MISSION STATEMENT

IDGT is established to further the art of computer and video game production and development. This encompasses a wide range of disciplines like computer graphics, Artificial Intelligence, physical simulation, digital art & animation and game systems design.

IDGT is created to fulfil the needs of the game industry, by bridging the gap in technical skills between formal education programs offered by traditional academic institutions like universities and the immediate requirements of the game industry. By providing professional training with real world projects experience, the institute aims to produce highly desirable technical professionals with the relevant skills and knowledge for the game industry.

1.2 OBJECTIVES

Mission objectives of IDGT:

- Training ground for future leaders of the computer and video game industry
- Provide world-class R&D facility and training to advance the art of game development and production
- Provide hands-on experience for trainees to practice both hard technical skills and soft inter-personal skills
- Deliver skilled workforce to fuel the growth of the game industry
- Foster creativity and provide opportunities for talented individuals through the IDGT scholarship program

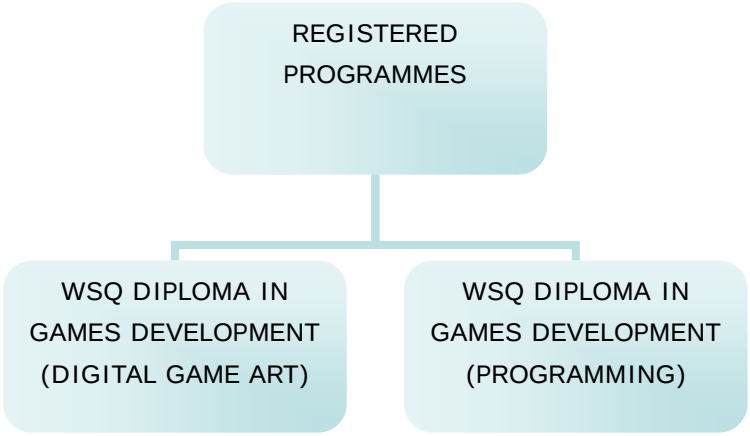
1.3 CONTACT INFORMATION

Website: http://www.idgt.org

IDGT-IMI (Singapore campus)
Tel No.: +65 6397 -1173
Email: Student Support (info@tqglobal.com.sg)

IDGT-SZU (China campus)
Tel No.: +86 0755 82910028
Anna (Anna@idgt.org)
Mia (Mia@idgt.org)
Nancy (Nancy@idgt.org)

2 THE IDGT UNIQUE EDUCATION CONCEPT



IDGT has a full standing partnership with Nanyang Technological University, Institute for Media Innovation (NTU-IMI) and Shenzhen University, School of Broadcasting.

Riding under the wings of TQ Global, IDGT's training program offers unique and highly specialised game development training with the following advantages:

1. Our training programs' emphasis on teamwork and workplace communications between trainees from both programs.
2. Our trainees will be given the opportunity to work on projects that they will encounter in a real world game production. Working with TQ Global, IDGT's trainees will have access to all materials from the games that TQ Global has developed as well guidance from technical leads working in TQ Global.
3. Academically reviewed curriculum that is recognized for its standard and quality by WDA under the WSQ framework. Collaborations with established universities like Nanyang Technological University and Shen Zhen University also ensure the high quality of IDGT's training in terms of course design and delivery.

By leveraging on the training expertise of IDGT-IMI and production experience of TQ Global Pte Ltd., we will help Singapore to grow and expand its game development capability which in turn will attract more foreign companies to invest in Singapore.

2.1 THE FIVE BASIC PRINCIPLES

There are **FIVE** basic principles in the education concept:

- **Principle 1: A realistic introduction to the game industry and game-related technology**
  Candidates often have skewed or inaccurate impression of the game industry. It is very important to set the expectations right. To instil within the trainees the passion and the desire to put in the extra effort to make the best of the education/training provided by IDGT.

- **Principle 2: A strong foundation in the basic technical skills**
  The program must provide comprehensive and meaningful training in the basic technical skills required for a competent game artist or game programmer. This includes foundation modules in game systems, computer graphics, 3D mathematics, Newtonian physics before the advanced topics such as 2D/3D rendering, simulations for virtual game worlds etc are taught.

- **Principle 3: Promote teamwork and collaboration between artists and programmers**
  In most education and training programs for games development, artists and programmers are often segregated and trained separately with little or no interactions between them. Contrary to this approach, the IDGT concept calls for close interactions between artists and programmers. Trainee artists and programmers are required to collaborate and work together to complete their group projects.

  This mirrors the actual working conditions in game studios where artists and programmers often have to communicate to share knowledge, technical requirements and concerns.

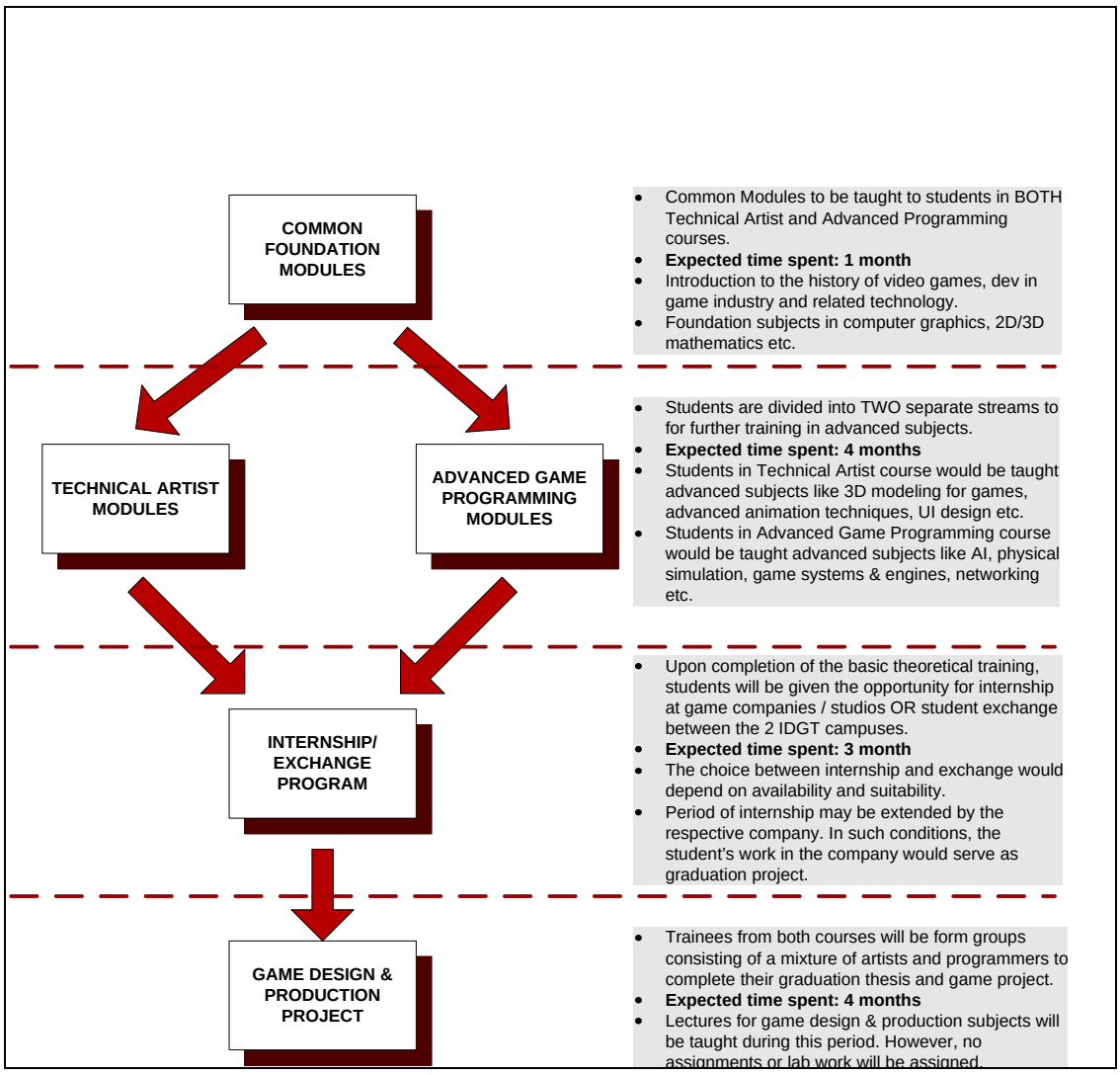
- **Principle 4: Expose trainees to tools, technology and industry practices currently in use within the game industry**
  Software tools, applications and technologies taught and used in the program would be standard tools and technologies currently in use by the game industry.

- **Principle 5: A balanced education with an equal 50-50 distribution between theoretical training and practical work**
  The education concept demands a strong emphasis on practical work and training. The comprehensive theoretical training provided would be reinforced through practice in assignments, laboratory work and finally the game project.

2.2 GENERAL COURSE STRUCTURE

To realise the principles of IDGT's unique education concept, the following design is utilised:

Figure 1: Progression Map



The rationale behind the general design:

- **COMMON FOUNDATION MODULES**

  Trainees from both courses will attend the same foundation modules together. The foundation modules would teach introductory materials and fundamental knowledge important for both courses.

- **TECHNICAL ARTIST MODULES & ADVANCED GAME PROGRAMMING MODULES**

  After the foundation modules are completed, Trainees from the two courses would be trained separately as the advanced skills and knowledge specific to each course are different. The education focus in this phase is on the individual's technical skills in their respective fields.

- **INTERNSHIP / EXCHANGE PROGRAMS**

  Internship opportunities and trainee exchange programs would be arranged for the trainees. The decision on whether to send a trainee for either internship or exchange would depend on suitability and availability. Trainees may be required to attend interviews conducted by prospective game or animation studios.

  The internship or exchange program is **intentionally** positioned before the game design & production project period. This is to allow the trainees to get some exposure to the actual game development process. This experience would be valuable when they start on their own group projects later. When the same industry practices are practiced during the game project period, trainees would be more motivated to learn as they would realize that the training provided is inline with the current industry norms.

- **GAME DESIGN & PRODUCTION PROJECT**

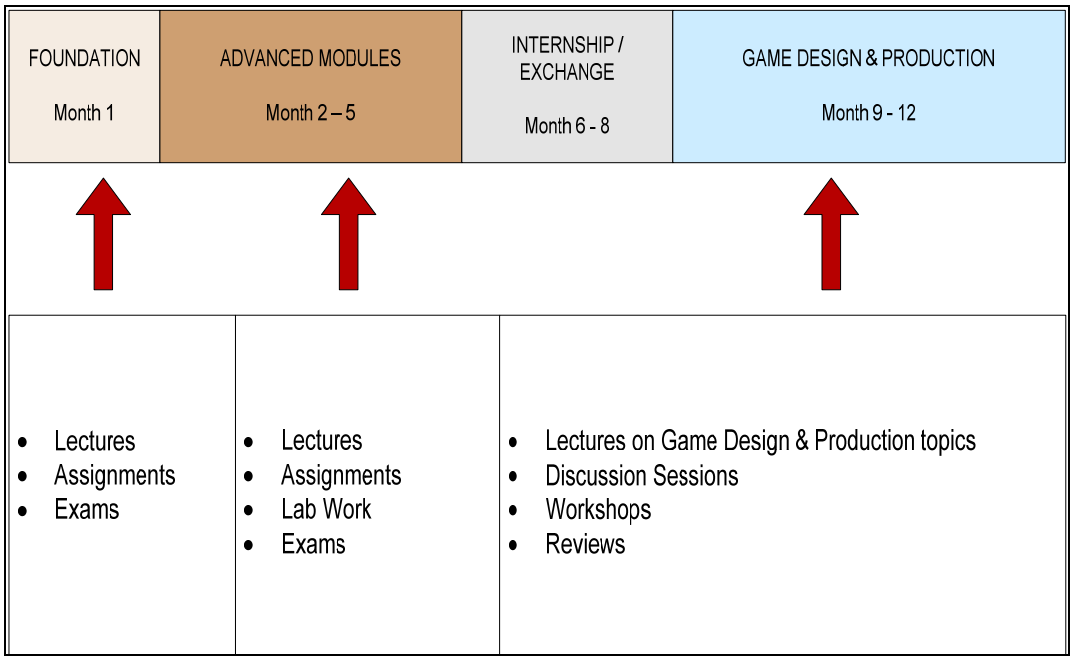
  The game design & production project would be the most important period in the training program. This is the period where the trainees would be required to work hard to produce creative and good video games to be part of their portfolio upon graduation later. Communication and teamwork would be emphasized.

  Briefings and lectures on basic game design & production would be conducted by the instructors. However, the instructors would serve more as mentors to guide the trainees.

2.3 ACADEMIC CALENDAR OUTLINE

The academic calendar in general is described in the following diagram:

Academic Calendar Outline



3 FOUNDATION MODULES

Foundation Modules

Module Code	Module Name	Description
FINT	Introduction to Video Game Development	Introduces the trainees to the world of video game development and production.
FELG	Elements of Game Systems	Introductory module to the different subsystems contained in a computer game.
FMAT	Modelling and Art Tools for Game Production	Introduces the modelling and art tools commonly used to create game assets and artwork. The software tools include 3DS Max, Maya, Photoshop, ZBrush and BodyPainter.
FGPT	Game Programming Tools & Technologies	Introduces the programming tools and technology used in game development. The software tools include Microsoft Visual Studio 2005, NVidia FX Composer, Direct3D, HLSL and XNA.
F3DM	Principles of 3D Mathematics for Games	Foundation module in basic 3D mathematics concepts and equations utilized in games.
FPCG	Principles of Computer Graphics	Foundation module in basic computer graphics concepts and techniques utilized in games.

4 DIGITAL GAME ART SPECIALISATION MODULES

Digital Game Art Specialisation Modules

Module Code	Module Name	Description
TART	Principles of Fine Art	Basic module in the principles of fine art and the application of these principles to create digital art and models for games.
TANI	Animation	Basic module in real-time animation for technical artists. Trainees will be taught important techniques and concepts needed to create assets for real-time animation in computer games.
TBWO	Modelling Buildings & World Objects	This module focuses on modeling of buildings, common infrastructures and background objects.
TEAE	Modelling Ecology & Artificial Environment	This module focuses on modeling and virtual recreations of natural environments, ecologies, trees and plants.
TCHA	Character and Animal Modelling	This module focuses on modeling of virtual characters of both humanoid and non-humanoid nature.
TVMM	Vehicle & Machinery Modelling	This module focuses on modeling of vehicular objects and other mechanical machineries.
TTMG	Terrain Sculpting & Modelling for Games	This module teaches trainees how to sculpt and create terrains for the virtual environments in games.
TMXS	MaxScript Scripting	This is an advanced module that introduces scripting for 3DS Max to trainees. They will learn how to create basic scripts that would allow them to work more productively as technical artists.
TMLS	MELScript Scripting	This is an advanced module that introduces scripting for Maya to trainees. Trainees will learn how to create basic scripts that would allow them to work more productively as technical artists.
TSDR	Shader Technology (HLSL)	This is an advanced module that introduces programmable shaders to trainees. Trainees will learn how to manipulate and modify shader programs to achieve different visual effects.

5 GAME PROGRAMMING SPECIALISATION MODULES

Game Programming Specialisation Modules

Module Code	Module Name	Description
A3DM	Advanced 3D Mathematics for Games	This module extends on the trainees knowledge gained from the module F3DM: Principles of 3D Mathematics. Advanced 3D mathematics and how to apply these mathematical concepts in computer games are taught in this module.
AVCG	Advanced Computer Graphics	This module extends on the trainees knowledge gained from the module FPCG: Principles of Computer Graphics. Trainees will be taught key advanced CG techniques as well as important tools and technologies like Direct3D and GPU programming using HLSL.
APHY	Game Physics	Interactions between objects in the virtual game world are often modeled after real-life physical interactions. Trainees will be taught Newtonian physics and the mathematics involved in resolving collision detection/response. Trainees will be also taught the application of these key theories to create realistic motion in computer games.
AANI	Game Animation	Teaches trainees in techniques required to create animations of objects and characters in games.
ASMG	Game Scene Management	This is an advanced module that teaches trainees how to manage the problems of a complex virtual game world.
AGAI	Game AI	The module focuses on teaching key AI techniques used in computer games and its specific uses. Trainees will study several important AI techniques and how to apply it to game design and development.

ANET	Multiplayer & Networking	Multiplayer and networked games are common features in many modern games. The module teaches the issues involved in the development of these features and the techniques that can be applied to resolve them.
ASEG	Sound Effects & Music for Games	Sound effects and music helps to make computer games more immersive and engaging. In this module, trainees will be exposed to the practical knowledge of how to include music and sound effects in games. Trainees will get the opportunity to apply basic sound effects in computer games.
AMUP	Multithreading & Parallel Processing	With the advent of multi-core processors and the new generation of video game consoles like Microsoft Xbox 360 and Sony Playstation 3, game developers have to embrace multi-threading and parallel processing in order to develop games on these advanced platforms. This module teaches the key multi-threading and parallel processing concepts. Trainees will also be introduced to the architectures of the next-generation video game consoles.

6 GAME DESIGN & PRODUCTION MODULES

Game Design & Production Modules

Module Code	Module Name	Description
GMGT	Building the Game Team	This is an exercise in creating a small game development team. Trainees will be exposed to team dynamics and how to create the right mix of talents for the game team.
GMDS	Game Design	This is an exercise in designing a new game. Trainees will be guided to create interesting game mechanics or game play as well as to consider design issues like creating the "fun" factor and addictiveness to the game that they will develop.
GMPR	Game Production	This is an exercise in setting up the game production pipeline. Game production techniques will be taught to trainees to help them manage the production process of their game projects.
GMDV	Game Development	This is an exercise in the actual development of the trainee's game title. The instructors will be mentoring the trainees during the actual game development process.

7 REQUIREMENTS FOR TRAINEES

7.1 ADMISSION

The admission requirements that need to be fulfilled by the prospective trainees in order to admitted into IDGT.

- **WSQ Diploma in Games Development (Digital Game Art) course**
  Candidates must demonstrate prior knowledge and background in producing digital artwork and 3D modelling using popular 3D software tools like 3DS Max or Maya.
- **WSQ Diploma in Game Development (Programming) course**
  Candidates must demonstrate technical skills and capability in writing software applications in C/C++. Knowledge of computer science subjects like software engineering & design and computing systems would be an advantage.
- **Pass the entry test conducted by IDGT**
  Entry test will be conducted by the institute to test for basic proficiency skills in the candidates.
- **Pass the interview conducted by IDGT**
  Candidates must have the appropriate aptitude, attitude and passion for computer games.

7.2 GRADUATION

Enrolled trainees must complete the following requirements in order to graduate and to be awarded with the IDGT professional certificate.

- **Pass ALL the module examinations**
  Trainees must pass the examinations conducted for the modules with examination requirements.
- **Complete and pass the review for the group game project**
  Trainees must complete their group game project resulting in a playable prototype game. Review and grading will be conducted for the games produced by the trainee groups.
- **Complete and pass the review for the graduation thesis**
  Each individual trainee must complete his or her graduation thesis. The graduation thesis would consist of the following:
  a) The game design document of the game completed during the group project work.
  b) Details of contributions made towards the completion of the game.
- **Complete ALL assignments and laboratory work**
  All assignments and laboratory work given must be completed on time. Warnings will be given for late submissions and non-completions. Reviews of trainee's work will be conducted by the instructors.

8 ENROLMENT PROCESS

8.1 HOW TO ENROL

1. Complete & Sign the Registration Form.

Please ensure that you have read and understood the Terms and Condition of the Registration Form prior to submitting and making any payment towards your course.

2. Pay the Registration Fee.

A registration fee of **S$53.50** (inc. GST) must be received in full by Institute of Digital Game Technology (made payable to **Institute of Digital Game Technology**) upon submission of the Registration Form.

3. All Application must be submitted together with the following documents.

- Copy of NRIC/ Passport. The photocopy must show your NRIC/passport number, full name, date of birth, country of birth and nationality.
- Copy of academic certificates/ qualifications.

4. Deadline for Registration.

WSQ Diploma in Games Development (Digital Game Art) and WSQ Diploma in Games Development (Programming) 2010 Registration Form deadline is **27th September 2010.**

5. Send your Registration Form & Registration Fee.

Please submit your completed Registration Form to:

Institute of Digital Game Technology–NTU (IMI)
c/o Institute for Media Innovation
50 Nanyang Drive, Research Techno Plaza
XFrontiers Block Level 02-02,
Nanyang Technological University,
Singapore 637553
Attn: Student Admin & Registration Officer

6. Entry Test and Interview Session.

All applicants that have submitted their Registration From and Registration Fee will have to sit for an entry test and interview session to assess the applicant's abilities and skills. The entry test will test for basic proficiency skill in the candidates, and the interview session will assess the candidate's aptitude, attitude and passion for computer games.

7. Confirmation & Payment of Full Course Fee

An Acceptance Letter will be sent to all shortlisted trainees. Trainees will be required to make an advance payment of the Full Course Fee before the commencement of the course. Acceptance Letter and Full Course fee are to be submitted to:

Institute of Digital Game Technology–NTU (IMI)
c/o Institute for Media Innovation
50 Nanyang Drive, Research Techno Plaza
XFrontiers Block Level 02-02,
Nanyang Technological University,
Singapore 637553
Attn: Student Admin & Registration Officer

Please note that trainees, who fail to make full payment of the Course Fee upon submitting their Acceptance Letter, will have their applications deemed incomplete and withdrawn for enrolment.

Singaporean Citizens & PR:
SGD$1,447.50 (SGD$1,548.83 incl. 7% GST)
**Singaporean and PRs are eligible for SPUR subsidy of up to 90% off the course fees*

International Trainee:
SGD $14,475.00 (SGD$15,488.25 incl. 7% GST)

8. Course Commencement

Both WSQ Diploma in Games Development (Digital Game Art) and WSQ Diploma in Games Development (Programming) courses will commence on **01st October 2010** Classes will be conducted within the Nanyang Technological University (NTU) campus, Singapore.

8.2 PAYMENT DETAILS

Payment 1: Registration Fee:

Singaporean Citizens, PR & International Trainees:

SGD$50 (SGD$53.50 incl. 7%GST)

**Registration fee is non-refundable and non-transferable.*

Payment 2: Course Fee (only for shortlisted trainees):

Singaporean Citizen & PR:

SGD$1,447.50 (SGD$1,548.83 incl. 7% GST)

**Singaporean and PRs are eligible for SPUR subsidy of up to 90% off the course fees*

International Trainees:

SGD $14,475.00 (SGD$15,488.25 incl. 7% GST)

Payment of the **Registration Fee** and **Course Fee** can be made by:

- Bank cheque*
- Money order*
- Postal order*

*made payable to **Institute of Digital Game Technology**

- Cash payment (only if application is submitted **in person** at the Institute of Digital Game Technology – NTU (IMI)).

8.3 SPUR SUBSIDY

**** Only applicable for Singaporean Citizens& PRs***

The Skills Programme for Upgrading and Resilience (SPUR) is a programme developed by Singapore Workforce Development Agency (WDA). SPUR subsidy is an enhanced funding support provided by WDA; allowing trainees enrolled in WSQ and certified courses conducted by SPUR Training providers to enjoy a course fee support of 90% of the nett course fee. WDA will also provide enrolled trainees with an enhanced training stipend for 12 months (which is the full duration of the course).

Both WSQ Diploma in Games Development (Digital Game Art) and WSQ Diploma in Games Development (Programming) trainees will receive:

a) Course Fee Grant: **SGD$ 13,028**

b) Enhanced training stipend: **SGD$ 1,000 / - month** for 12 months (total SGD$12,000)

9 TIME LINE & IMPORTANT DATES

Dates	Activities / Deadline
April – May 2010	Recruitment Drive
31st May 2010	Deadline for Registration Form and Registration Fee
June - July 2010	Entry Test and Interview Session
August 2010	Shortlisted trainees will be contacted
27th September 2010	Deadline for Acceptance Letter and Full Course Fee
01st October 2010	Commencement of course

**Please note that the information above is subjected to change without prior notice.*