



Institute of Digital Game Technology - NTU (IMI)



A Career In The Global Game Industry

Diploma in Digital Game Art Development (Technical artist)

Diploma in Games Development (Programming)

COURSE DETAILS & REGISTRATION SUPPLEMENT 2010 PROSPECTUS



NTU

SHENZHEN UNI



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 has 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

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.

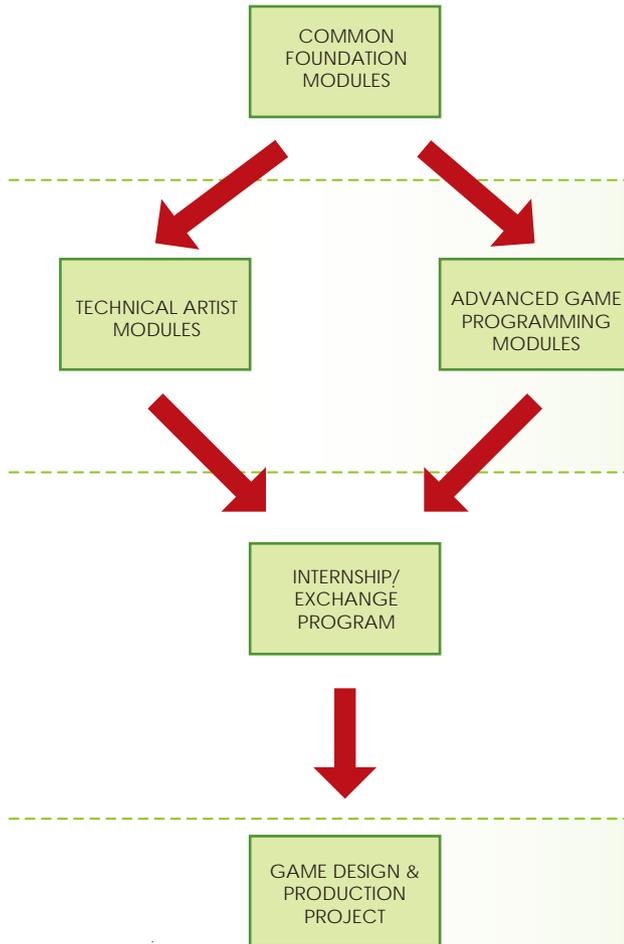
- **Principle 5: A balanced education with an equal 50-50 distribution between theoretical training and practical work**

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:



- Common Modules to be taught to students in Both Technical Artist and Advanced Programming course
- **Expected time spent: 1 month**
- Introduction to the history of video games ,dev in game industry and related technology.
- Foundation subjects in computer graphics,2D/3D mathematics etc

- Students are divided into TWO separate streams to for further training in advanced subjects.
- **Expected time spent: 4 months**
- Students in Technical Artist course would be taught advanced subjects like 3D modeling for games, advanced animation techniques,UI designetc.
- Students in Advanced Game Proframming course would be taught advanced subjects like AI,physical simulation,game systems &engines,networking etc.

- Upon completion of the basic theoretical training, students will be given the opportunity for internship
- at game companies/studios OR student exchange between the two IDGT campuses.
- **Expected time spent: 3 months**
- The choice between internship and exchange would depend on availability and suitability.
- Period of internship may be extended by the respective company.In such conditions,the student's work in the company would serve as graduation project.

- Students from both courses will be form groups consisting of a mixture of artists and programmers to complete their graduation thesis and game project
- **Expected time spent: 4 months**
- Lectures for game design & production subjects will be taught during this period.However,no assignments or lab work will be assigned.
- Discussion sessions will be conducted to allow the instructors to guide the group projects

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**

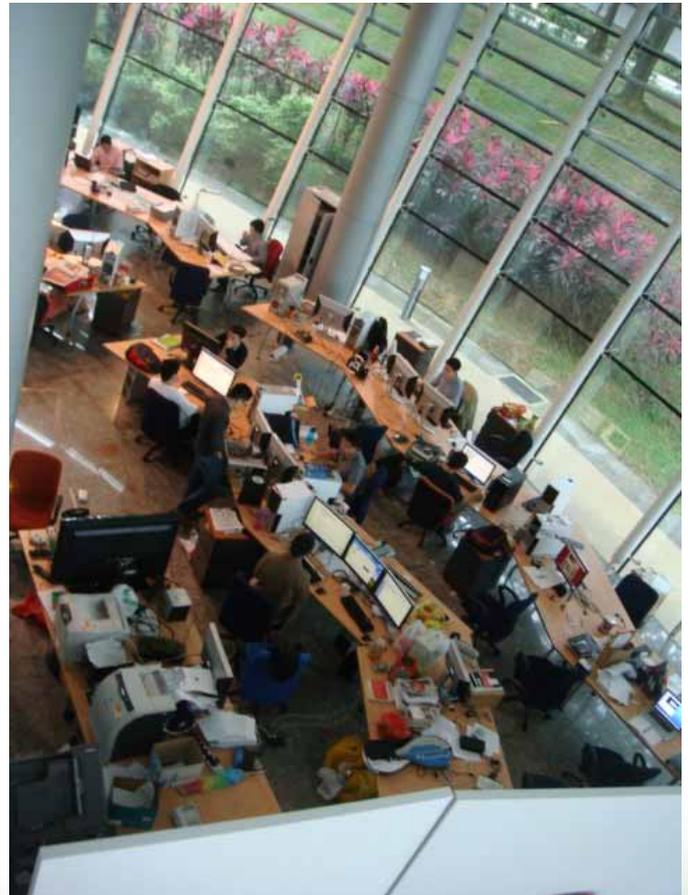
Internship opportunities and trainee exchange programs would be arranged for the trainees. The decision on whether to send a trainee for either internship or exchange would depend on suitability and availability. Trainees may be required to attend interviews conducted by prospective game or animation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



- LECTURES
- Assignments
- Exams

- LECTURES
- Assignments
- Lab Work
- Exams

- Lectures on Game Design & Production topics
- Discussion Sessions
- Workshops
- Reviews

3 REQUIREMENTS FOR STUDENTS

ADMISSION

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

- **WSQ Diploma in GamesDevelopment (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 computergames.



GRADUATION

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

- **Pass ALL the module examinations**

Students must pass the examinations conducted for the modules with examination requirements.

- **Complete and pass the review for the group game project**

Students must complete their group game project resulting in a playable prototype game. Review and grading will be conducted for the games produced by the student groups.

- **Complete and pass the review for the graduation thesis**

Each individual student 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 students' work will be conducted by the instructors.



4 FOUNDATION MODULES

Module Code	Module Name	Description
FINT	Introduction to Video Game Development	Introduces the students 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.

5 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. Students 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. Students 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 students to help them manage the production process of their game projects.
GMDV	Game Development	This is an exercise in the actual development of the student's game title. The instructors will be mentoring the students during the actual game development process.

6 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. Students 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 students 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 students. Students 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 students. Students 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 students. Students will learn how to manipulate and modify shader programs to achieve different visual effects.

7 GAME PROGRAMMING SPECIALISATION MODULES

Module Code	Module Name	Description
A3DM	Advanced 3D Mathematics for Games	This module extends on the students' 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 students' knowledge gained from the module FPCG: Principles of Computer Graphics. Students 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. Students will be taught Newtonian physics and the mathematics involved in resolving collision detection/response. Students will be also taught the application of these key theories to create realistic motion in computer games.
AANI	Game Animation	Teaches students in techniques required to create animations of objects and characters in games.
ASMG	Game Scene Management	This is an advanced module that teaches students 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. Students 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, students will be exposed to the practical knowledge of how to include music and sound effects in games. Students 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. Students will also be introduced to the architectures of the next-generation video game consoles.

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) 2009 Registration Form deadline is 30th JUNE 2010.

5. Send your Registration Form & Registration Fee. Please submit your completed Registration Form to:

Institute of Digital Game Technology-NTU (IMI)
50 Nanyang Drive, Research Techno Plaza
XFrontiers Block Level 02-02
Singapore 637553
Attn: Student Admin & Registration Officer

6. Entry Test and Interview Session.

All applicants that have submitted their Registration Form 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 students. Students 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)
50 Nanyang Drive, Research Techno Plaza
XFrontiers Block Level 02-02
Singapore 637553
Attn: Student Admin & Registration Officer

Please note that students, 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 Students:

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 the 15th September 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 Students:

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

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

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

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 Students:

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 students enrolled in WSQ and certified courses conducted by SPUR Training providers to enjoy a course fee support of 90% of the net course fee. WDA will also provide enrolled students 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) students will receive:

- a) Course Fee Grant: SGD\$ 13,028
- b) Enhanced training stipend: SGD\$ 1,000 / - month for 12 months (total SGD\$12,000)



A Career In The Global Game Industry

Students Works



Students Perspective



Mr. Victor Ang
(technical artist student, IDGT 2009)

"IDGT gave me the opportunity to not only learn the hard skills required to work in the game industry, but also the soft skills such as managing a production team and the importance of team work."



Mr. Lee Zhen Yang
(technical artist student, IDGT 2009)

"The skills I have learnt from this course not only enable me to create and breath life into my characters, but also taught me valuable things such as the production pipeline."



Ms. Hoo Qing Yu
(game programmer student, IDGT 2009)

"Through this course, I hope to pick up the array of game programming skills in half a year, undergo industrial attachment for three months, followed by working full time with artists for four months on a final project to deliver a game. The variety of experiences that I could obtain from this course was the main reason why I chose this course."

9 ACCREDITED COURSES

- *WSQ Diploma in Games Development (Digital Game Art) course*
 - a) CI - GD - 416S - 0: Document game design
 - b) CI - AN - 407S - 0: Create advanced textures for 3D models
 - c) CI - AN - 321S - 0: Create and optimise 3D models
 - d) CI - GD - 509S - 0: Develop technical design document
 - e) CI - AN - 421S - 0: Design and create animation rig for 3D objects
 - f) CI - AN - 410S - 0: Design Characters
- *WSQ Diploma in Game Development (Programming) course*
 - a) CI-GD-420S-0: Modify and maintain code for game engines
 - b) CI-GD-419S-0: Modify and optimise graphics rendering
 - c) CI-GD-321S-0: Scripting Artificial Intelligence behaviours for games
 - d) CI-AN-325S-0: Apply shaders for 3D models
 - e) CI-GD-416S-0: Document game design
 - f) CI-GD-509S-0: Develop technical design document
 - g) CI-GD-412S-0: Design in-game audio



Empowering the next generation of game leaders



www.idgt.org

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