

COURSE MODULES

LEVEL 1.1

Drawing Foundation

This module trains students to develop the skills needed to visualise and create ideas for digital and interactive projects. Students will be exposed to various training and basic drawing techniques that will hone their ability to visualise ideas. Rudimentary exposure to digital tools will occur at the later part of this module in order to solidify the relevance of traditional skills in digital tools.

Design Principles

This module aims to develop the abilities of the students in the design principle and fundamental elements and processes of organising, displaying, and communicating ideas and information creatively to the minds of the intended audience through two-dimensional form, three-dimensional form, colour structure, and composition.

Fundamentals for Creative Professionals I

This module provides a broad introduction to the field of IDM by exploring the roles, professional practice, ethical expectations and career development paths of IDM professionals. Through a guided inculcation of interpersonal and team work skills with strong team bonding spirit, the module aims to deepen students' commitment to the sector that the course prepares them for.

In addition, students will be required to begin charting their career path in the IDM industry by considering crucial aspects such as personal preferences and aptitude, job roles and responsibilities, skills needed and further education.

Principles of Animation

This module introduces the language and principles of classical animation through analysis and decomposition of movement frame-by-frame. Students will discover the importance of effective timing and spacing, and how their manipulation can affect the feel of an action.

Programming Fundamentals I

This module introduces the fundamental concepts of programming through problem solving. It encompasses three main programming constructs, flowchart design, and introduces data types and variables. Other key topics involve product management, code debugging, development of test cases and program documentation as an integral part of software quality management.

Storytelling, Scriptwriting & Storyboarding

Storytelling, Scriptwriting & Storyboarding aims to induct students into the world of storytelling, and the industry practice of scripting and storyboarding visual communication prior to going into production stage. Students will explore new story creation through the generation of story ideas, characters, story imagery and script.

LEVEL 1.2

3D Fundamentals

This module aims to introduce and equip students with basic skills in using 3D application to create assets for interactive projects. Students will be trained in the usage of basic tools and apply appropriate methods to create 3D assets that are essential in digital content creation. Students will also be trained to apply appropriate workflows that are also utilised in the industry.

Applied Design

This module aims to develop students' ability to perceive, design and construct objects in three-dimensional space. Additionally, students will be trained to interpret and translate two-dimensional form into three-dimensional volume, mass, space, and structure. It introduces the basic elements, principles, materials and methodologies of three-dimensional design. Working with both physical medium and digital tools, students be trained in usage of materials,

physical components, application of digital design and visualisation tools, and communicate their ideas and solutions through physical mock-ups and prototyping.

Programming Fundamentals II

This module aims to widen students' programming knowledge by covering programming concepts through the creation of interactive media applications. Students refine their knowledge of programming by decomposing their programs into classes and objects. The focus of this module is to develop data structures and design algorithms to handle programming tasks.

Sketching & Rendering

This module builds upon knowledge and skills gained in Drawing Foundation. Students are introduced to permanent mediums like ink, markers and various techniques. These mediums are required in the production of both observational and ideation works while simultaneously, strengthening confidence in visualising ideas. In the second term, students are required to apply their knowledge and skills gained in the first term into digital works. Basic digital techniques and workflow used in the industry will be introduced at this stage.

Web Design

This module focuses on the core fundamentals of creating modern-day, accessible websites not only for mainstream audience, but also accessible to individuals with disabilities. Students learn the fundamentals of web design production and author cross-platform websites for multi-devices based on sound design principles. Students get to learn and understand modern web layout principles in their development work and gradually moving on to create animated interactive elements to keep up with evolving design trends.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 1	
Level 1.1 (27 hours per week)	
Design Principles	4
Drawing Foundation	4
Fundamentals for Creative Professionals I	3
Principles of Animation	4
Programming Fundamentals I	4
Storytelling, Scriptwriting & Storyboarding	4
Innovation Toolkit ^	4
Sports & Wellness ^	2
Level 1.2 (24 hours per week)	
3D Fundamentals	4
Applied Design	4
Programming Fundamentals II	4
Sketching & Rendering	4
Web Design	4
Communication & Contemporary Issues ^	4

Notes:

^ For more details on Interdisciplinary Studies (IS) electives, please log on to www.np.edu.sg/is/

IS Modules

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COURSE MODULES

LEVEL 2.1

3D Asset Creation

This module aims to equip students with the capability to create a range of assets suitable for games and interactive applications. Workflows that are commonly used in the creation of real-time assets will be introduced. Efficient and time-saving techniques and methods will also be covered. Students will experience the process of translating a design of their own into a 3D fully textured object that can be used in real-time applications.

Designing User Experience

This module aims to equip students with skills and knowledge beyond the aesthetical aspects of an interactive interface design. Students learn how to strike a balance between forms, function, usability, and aesthetics, with emphasis on proper timeline management, teamwork and organisational skills. The cognitive aspects of engagement, and the psychological aspects of play or experience are discussed.

Digital Design & Illustration

This module will leverage knowledge and skills students gained from earlier art modules, while exploring contemporary visual design styles in their ideation works. Students will also be trained in design and production techniques using raster, vector and 3D applications.

Digital Video & Audio

This module introduces basic digital shorts production. Students will first learn audio-video production theory followed by practical production in labs and on location in the field. Production know-how, processes, cameras, microphone systems, audio-video editing software, and lights will be provided. In-class practical audio, camera and editing exercises followed by continuous assessments, two assignments and a test are all designed to reinforce student learning.

Fundamentals of Creative Professionals II

This module gives a course-based experience in which students can engage with the local community and industry. This includes participation in community service events or in Service-Learning projects that leverage students' discipline knowledge and skills to meet identified needs. Through iterative and guided reflection on the service experience, students gain a broader appreciation of their discipline and an enhanced sense of personal voice, empathy and civic responsibility. Industry talks and seminars are organized to keep students up-to-date on emerging trends so as to build up their interpersonal, team and networking skills with the community and industry.

LEVEL 2.2

Experiential Design

This module aims to expose and introduce students to designing media content and applications for various digital platforms. It covers the concept of designing a product or installation for an immersive experience such as virtual reality/augmented reality technology. Students will be tested on their observational and research skills to seek out current/future technological advancements, and to come up with proposals and prototypes for actual implementation.

Interactive 3D Experience (I3E)

This module continues to develop students' ability to design and author highly interactive experience applications. The programming focuses on interactivity authoring through the eyes of designers for animation, visual effects, multimedia and games. It covers advanced authoring, digital storytelling techniques, user experience design, and project management techniques. Additionally, students will pick up a game engine and create prototypes for games and interactive projects.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 2	
Level 2.1 (26 hours per week)	
3D Assets Creation	4
Career & Professional Preparation II	2
Designing User Experience	4
Digital Design & Illustration	4
Digital Video & Audio	4
Elective Module #	4
Fundamentals for Creative Professionals II	
Interdisciplinary Studies (IS) elective ^	2
Level 2.2 (22 hours per week)	
Elective Module #	4
Elective Module #	4
Experiential Design	4
Interactive 3D Experience	4
Interdisciplinary Studies (IS) elective ^	2

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COURSE MODULES

LEVEL 3.1

Concept Development

This module introduces various idea generation and concept development techniques. Students learn the pre-production skills of concept illustration and visual development through the application of knowledge skills in drawing, storytelling and composition to communicate a concept effectively to an audience. Emphasis is placed on the creation of original, unique and useful concepts. Students will produce a range of concept collaterals.

Fundamentals of Creative Professionals III

This module provides a stepping stone to the students in their IDM career. Students are given an insight into the IDM industries and are kept abreast of the updates and the necessary skill sets required in their career path. They also have the opportunity to be exposed to the various institutes of higher learning to further enhance their skill sets.

Production Management

This module introduces the interactive digital media and game industry, the production pipeline, and various professional roles and career paths, and exposes students to various documents required in the production of interactive experience and games. It examines the roles of different participants in the development process and how the technical development and the artistic development proceed in tandem.

Social Media & Branding

This module introduces students to creative sections in advertorial, communications and media. Students broaden their knowledge in designing for various aspects of visual communications. Students apply creative thinking skills and expand their creative mindsets through questioning and reasoning data.

LEVEL 3.2

Internship or Studio-based Production

The primary aim of this final year industry-based project is to nurture the spirit of innovation and enterprise in students and broaden their experience beyond classroom learning. It also provides students with the opportunity to apply the knowledge and skills gained in the past semesters. Using the demo programme prototyped in the earlier semester under the Concept Development module, students will develop an idea into a full working product. Local or overseas attachments are also possible.

GAME DESIGN SPECIALISATION

Game Effects Design

This module aims to equip students with the capability to create a range of effects for a variety of needs in game development. As part of effects design, students will be introduced to concepts in motion design as well as principles and methods of visual representations that are readily understandable, perceived and aesthetically pleasing.

Game Level Design

This module introduces the fundamental concepts of game level design with a 3D game engine from the start at a conceptual beginning and arrives at a polished end to build multiple levels, first for a puzzle/ arcade game and then for an action game. It covers the game engine technology, and the process of designing compelling worlds that immerse the player in interactive environments. Visceral worlds that tell a story through their aesthetics are combined with a refined design that allows the player to flow through a level. It introduces the use of art and audio (SFX and music) in games, writing concept documents, pitching concepts, and writing scrum-like milestones.

Game Mechanics

This module studies the game mechanics – the rules intended to produce an enjoyable gameplay, and introduces the principles and methodologies behind the rules and play of games. It first studies the simplest types of games, board and card games, and examines the basic math and rules that make these simple games enjoyable.

Students will then use this theoretical knowledge to create simple yet practical games that show their comprehension of what is enjoyable in games. It pays attention to the psychological design considerations, play testing, game tuning, player analysis, and the integration of visual, audio, tactile and the textual elements. Once students have mastered the

basics of physical game mechanics, they will expand their expertise by looking at various arcade-action games and other simple action games. They will then create prototypes of games and will hold focus groups to get feedback on their designs.

Real-time Environment Design & Lighting

In this module, students will build upon skills and knowledge attained in 3D fundamental modules into the creation of digital environments for real-time applications. Environment lighting concepts will be covered to equip students with the ability to create realistic as well as surreal environments. Effective concepts and workflows will be covered in this module in order to facilitate level design processes.

IMMERSIVE INTERACTIVE MEDIA SPECIALISATION

Developing Dynamic Web Application

This module aims to broaden the students' skillsets by introducing server-side development to create a web product. This module covers various client- server architectural concepts that involves rich client, application server and database. Students will hone their programming skills by learning server-side programming, object-oriented programming, database design and development. In addition, students will experience the full stack development process and workflow.

Developing Mobile Experience

This module introduces various mobile digital technologies and their unique characteristics and features. It also aims to further develop the programming skills of students using the programming language of mobile technology. The module focuses on the specific and core features of mobile technology that will give rise to fun, rich and engaging mobile experiences such as the accelerometer, GPS, magnetometer, advanced multi- touch gestures and modern user interfaces.

Interactive Development

This module targets the enhancement of students' programming mindsets by combining their knowledge of programming and design to produce interactive and engaging applications. This is coupled with the learning of web animation and interactive chart production to create rich media products that enhances the user experience.

Motion Graphics & Effects

This module inducts students into the world of digital effects. Aimed at value-adding to the storytelling experience, students are first introduced to the impact of visual effects on storytelling in films, followed by the principles and elements of motion design. Exercises, assessments and assignments are aimed at developing research, conceptualisation and storytelling skills for the creation of compelling and exciting time-based media.

ELECTIVE MODULES

3D Prototyping

This module introduces the aspects of rapid prototyping by allowing students to partake in designing 3D models and implementing them into a physical 3D product.

Students are exposed to various prototyping methods and cover product design and using 3D printing as an enabling technology.

Capstone Project

In this module, students are required to complete a substantial project that is the culmination of their education in the School of InfoComm Technology. The project can be a real-world problem proposed by a client, or it can be proposed by students in pursuit of their personal interests.

Digital Audio Design

This module introduces the production techniques for audio and sound effects, ambient sounds, background music and dialogue to enhance the user experience and/or to advance a story and create mood, place, and emphasis. It covers its associated technologies, the equipment used, the procedures, and explores the manipulations of various

envelopes on amplitude, filter and modulation and the use of low frequency oscillator and noise in designing sound. It also covers subtractive synthesising, and studies the processing and reactions of sounds in an interactive environment.

Digital Photography

This module aims to develop students' ability to visualise, plan, compose imagery and, see all things creatively through digital photography. It focuses on developing students' ability to observe and attend to details swiftly while introducing the mechanics of the digital camera, and the art and techniques of digital photography. It also covers the history of photography, visual thinking, composition techniques, creative effects, lighting, digital workflow, black and white photography, and studio photography.

Emerging Technologies

This module provides an overview of emerging technologies with emphasis in web, interactive, and immersive technologies, and the impact they have on the users. It is designed to help students keep abreast of the latest IT developments to stay current and relevant in the fast moving industry. To achieve this objective, the syllabus for this module will be guided by technology research and feedback from industry partners, and both seminar-style and hands-on workshop teaching approaches may be adopted depending on the nature of the topic covered.

Serious Games & Gamification

This module focuses on designing games that aim to change human behaviours, knowledge, and attitudes as well as the way people work and businesses compete in diverse areas including education, training, marketing and advertising. It examines the process of creating an engaging learning situation and making learning fun and entertaining through game-based thinking and game mechanics, from the perspectives of pedagogies and persuasive aspects.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 3	
Level 3.1 (26 hours per week)	
Capstone Project or 2 Elective Modules #	8
Concept Development	4
Fundamentals for Creative Professionals III	2
Production Management	4
Social Media & Branding	4
Interdisciplinary Studies (IS) elective ^	2
World Issues: A Singapore Perspective ^	2
In the second year, students may choose to specialise in either Game Design or Interactive Media. **	
Level 3.2	
Internship or Studio-based Production	22
GAME DESIGN SPECIALISATION	
<ul style="list-style-type: none"> • Game Effects • Game Level Design • Game Mechanics • Real-time Environment Design & Lighting 	
INTERACTIVE MEDIA SPECIALISATION	

- Developing Dynamic Web Application
- Developing Mobile Experience
- Motion Graphic & Effects
- Interactive Development

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