



KRYSTAL INSTITUTE

DIGITAL ECONOMY CORE TECHNOLOGY



Programs and Curriculum Guide

Empowering future leaders of the global digital economy



Ver.5



国际人工智能创意大会
International AI Creativity Conference

AI Technology meets Creative Minds

2024 AUTUMN

SHENZHEN, CHINA



Event Organizer:



Supporting Organizations:



KRYSTAL INSTITUTE
DIGITAL ECONOMY CORE TECHNOLOGY

Krystal Technology Ltd.
Digital Economy Core Technology



国际数字文化科技联盟
International Digital Content Technology Alliance



Artificial Intelligence



Metaverse



Inspiring Digital Creativity



Unlocking Digital Transformation



Creating Web-based Platforms



Internet of Things



Accredited Academic Programs



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Artificial Intelligence

- M02** AI for Metaverse Creation
- M06** Vector Database and Data Management for AI and ML
- M10** Junior Adventures in AI: Exploring Artificial Intelligence
- M14** AI For Professionals: CG, Animation & Graphic Design
- M16** Intelligent Instructional Design: The Application of AIGC Technology in the Classroom
- M18** AI Image Creation Summer Camp: Crafting a Unique Animated World
- M20** AIGC and Multimedia Applications Course
- M22** AIGC and Marketing Course
- M24** Using AI for Graphic Creation
- M26** Understanding AI for Kids: Ethics, Impacts, and the Future



Inspiring Digital Creativity

- C02** Creating CG Feature Animations with Open Source AI and Design Tools
- C06** Certificate in CG Professional
- C08** Certificate in CG Artist
- C10** Creative Digital Media Design and Production
- C12** Certificate in CG Producer
- C14** Certificate in CG Technical Artist
- C16** Certificate in CG Instructor
- C18** Chinese Culture 3D Animation Adventure Camp
- C20** Blender Visual Effect Beginner Course
- C21** MicroMaster in Blender 3D Modeling and Animation Certificate Course
- C22** Introduction to Blender's Basic Structure and Operations
- C23** Low-Poly Game Characters and Modeling Production
- C25** Realistic Models Sculpting
- C27** Modelling through rendering static illustrations
- C24** Using Maya for modeling, materials editing, and lighting (Part 1)
- C28** Using Maya for modeling, materials editing, and lighting (Part 2)
- C25** FreeCAD 3D Printing Beginner Course
- C26** Basics of 3D Printing and Related Software
- C27** 3D Printing of Anime Characters
- C27** 3D Printing of Daily Products
- C27** 3D Printing of Movie Characters
- C28** Blender 3D Modelling: Introducing the Open-Source Professional 3D Production
- C29** MicroMaster in GIMP/ Inkscape Graphic Editing & Graphic Design Certificate Course
- C30** Get Started with Digital Image Processing and Related Software
- C31** Graphic Design and Printing Basics
- C31** Social Media UI Designs
- C32** Multiple Styles of Illustration Design
- C32** MicroMaster in Krita Digital Illustration Certificate Course
- C33** Digital Drawing Basics
- C33** Chibi Character Illustration
- C34** Celluloid Character Illustration
- C35** MicroMaster In UX/UI Designer (Penpot) Certificate Course
- C36** Getting Started with UX/UI Design and Penpot
- C36** Case Study: Mobile Application Design
- C37** Case Study: Websites Design
- C37** Case Study: Mobile Game Interface Design
- C38** LibreCAD Graphic Design & Product Design Beginner

- C39** Course
- C39** Micromaster in Game and Interactive Experience Design Certificate Course
- C40** Introduction to the Basic Theory and Process of Game Production
- C41** 2D Platformer Game Design
- C41** 3D First-Person Shooter Prototyping
- C41** Top-down Shooters Prototyping
- C42** Intermediate 3D Modelling with Blender
- C42** Blender Character Rigging and Animation
- C43** Blender Add-ons for Simulation and Visual Effects
- C43** HDR Image-Based Lighting in Blender
- C44** Material and Texture in Blender
- C44** 3D Modelling & Sculpting for 3D Printing
- C45** Working with Blender Compositor
- C45** Lighting in 3D Space
- C46** Blender Geometry Nodes
- C46** Spark AR Interactive Experience
- C47** Intermediate Digital Drawing with Krita
- C47** Professional Photo Editing with GIMP
- C48** Video Post-production Bootcamp
- C49** Blender 3D Animation
- C49** Blender Pre-Visualization Workshop
- C50** Physical Effects and Simulation in Blender
- C50** 3D Layout and Blocking (3D Animatic) Using Blender
- C51** Storyboarding for Animation
- C51** Blender Grease Pencil and 2D Animation Basics
- C52** Professional Video Editing
- C53** CG Animation Production and Pipeline Management
- C54** Create 3D Video Games with Godot and Blender
- C55** 2D Game Development with Krita, Godot, and Blender

Blender Institute

- B02** Introduction to Python in Blender: From Basics to 3D Scripting Mastery
- B04** Anglerfish Workshop: From Modelling to Rendering
- B06** Everything About Procedural Shading
- B08** Games Asset Creation Basics
- B10** Grease Pencil For Beginners
- B12** Geometry Nodes Fundamentals
- B14** Blender Weight Painting
- B16** Creating Realistic Characters
- B18** Blender Animation Fundamentals
- B20** All About Blender Motion Graphics
- B22** Rigging Tools On Blender Studio
- B24** Introduction of 3D Gaussian Splatting



Unlocking Digital Transformation

- O02** Business Intelligence and Enterprise Resource Planning
- O04** Office Digital Transformation
- O06** Calc For Beginners
- O07** Write For Beginners
- O08** Present For Beginners
- O09** Cultivating Business Intuition
- O10** Dbase For Beginners
- O11** Draw For Beginners
- O12** Introduction to Business Intelligence Tools
- O13** Using ERP For Human Resource Management
- O14** Sales Force Automation and Management
- O15** IT Infrastructure Management for SMEs
- O16** Finance and Accounting Systems
- O17** Facility and Order Management
- O18** Web Tools for E-shop and Content Management
- O19** MicroMaster in Office Tools Certificate Course
- O20** Introduction to Business Intelligence Tools
- O21** Digitalizing Manufacturing Planning and Management



Creating Web-based Platforms

- I02** Python Web Framework Development
- I04** Digital Media Tools Development with Python
- I06** Junior Python Data Analyst
- I08** Frontend Web Development
- I10** Backend Web Development
- I12** Cyber Security Basics
- I14** Fundamental DuPont Analysis
- I15** Web Application Deployment for Django
- I16** React for Single Page Applications
- I17** Web Application Deployment for Node Development
- I18** Python Django REST framework
- I19** From PHP to Laravel Framework
- I20** React for Frontend Design
- I21** Learning JavaScript OOP
- I22** Advanced Javascript using ES6 standard
- I23** JavaScript Design Patterns
- I24** Build Cross Platform Application with Electron
- I25** Machine Learning with R
- I26** Full-stack Web Development
- I27** Python Data Analysis and Decision Making Bootcamp
- I32** Advanced CSS and Sass for Frontend Developers
- I32** Internet of Things: Systems and Devices
- I36** Internet of Things for Juniors
- I38** Cyber Security Basics
- I40** Business Intelligence and Enterprise Resource Planning
- I42** Web Server Setup
- I43** Networking and Cloud Computing
- I44** Internet of Things
- I45** Introduction to Server Setup



Internet of Things



Accredited Academic Programs

- A06** Master Degree in AI Computer Graphic Production
- A08** Master Degree in AI Computer Graphic Production Engineering
- A10** Master Degree in AI Computer Graphic Production System Engineering
- A12** Master Degree in AI Computer Graphic Production Management and Engineering
- A14** Master Degree in AI Education
- A16** Master Degree in Enterprise Digital Transformation
- A18** MSc in Creative Technology
- A20** MSc in Office Tools and Digital Transformation
- A22** MSc in Technical Artist for Game Development
- A24** MSc in Advanced Game Programming
- A26** BSc in Creative Technology
- A28** BSc in Office Tools and Digital Transformation
- A30** BSc in Business, Finance and Technology
- A32** Higher Diploma in Office Transformation
- A34** Higher Diploma in Creative Design and Digital Applications (2 years)
- A36** Degree in Creative Design and Digital Applications (3 years)
- A38** Diploma in Creative Design and Digital Applications (1 year)



Metaverse

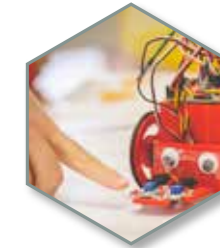
- M34** Metaverse Development
- M36** Mastering Smart Contracts: Creation, Deployment, and Management of Blockchains
- M38** Quantum Quest: An Adventure into Quantum Computing!
- M42** Creating Interactive Metaverse Experiences
- M43** Metaverse 3D UX/UI Design
- M44** Blockchain Business and Metaverse Applications
- M45** Building 3D Worlds in the Metaverse
- M46** NFT and Smart Contract Programming
- M46** Metaverse Finance and Business Opportunities
- M47** Introduction to AI-Generated Animation Production



Academic and Development Projects in Singapore

- OLE02** Graphic Design
- OLE03** Photography
- OLE04** Image Editing
- OLE05** Vector Graphic Tools
- OLE06** Raster Graphic Tools
- OLE07** 2D Animation
- OLE08** 3D Modeling and Animation
- OLE09** VR and AR
- OLE10** Video Editing
- OLE11** Game Design and Production
- OLE12** User Interface/ User Experience (UI/UX)
- OLE13** CG Long Format Production Pipeline
- OLE14** Real Time Project Management
- OLE15** Programming Languages

- OLE16** Computer Hardware and Integrated Circuit Design
- OLE17** CAD and 3D Printing
- OLE18** Computer Operating Systems
- OLE19** Data Science and Database
- OLE20** Big Data Analysis
- OLE21** Artificial Intelligence and Machine Learning
- OLE22** Robotics
- OLE23** Numerical Computing
- OLE24** Computational Thinking
- OLE25** Office Tools
- OLE26** Fintech
- OLE27** Technology and Society
- OLE28** Cybersecurity and Privacy
- OLE29** Entrepreneurship in the Digital Economy



Youth Enrichment Courses

- OLE30** DECT Digital Storytelling Course
- OLE31** Global Citizenship and Responsibilities Site Visit (Digital Arts)

About This Guide

In this guide you will find the various Programs offered by Krystal Institute for our academic partners, collaborating schools and universities. We offer a selection of curricula designed for diverse learners to engage with DECT. Whether your institution targets K-12 students or university under- and post-graduates, or even professionals looking to upskill themselves, our Programs enable them to maximise their competitiveness in the future workplace.

**Empowering the people,
providing upward mobility,
and bridging the global digital divide.**

**We deliver knowledge, skills, and tools with world
class developers and educators.**

**People we educate and nurture today,
will lead the global digital economy.**

**Working together as a team,
we make a difference and change the world.**

MOU Signing Ceremony with Shenzhen University



Become Our Training Partner

Krystal Institute welcomes the participation of academic and vocational Training Partners to host Digital Economy Core Technology (DECT) research and educational programs at their institutions. If you are an educator looking to expand your repertoire of digital skills programs, we offer a full suite of educational materials to be delivered in-person or online. Through our network of trained DECT Professionals or our "Train-the-Trainer" services, our Training Partners can gain access to an immediately deployable source of instructors to deliver our DECT Global Series programs. Training partners can also connect with our industry partners in the Greater Bay Area, Greater China and beyond to increase exposure in the global digital economy.

Our programs cover the entire spectrum of education, training, career upskilling, on-the-job training, R&D, and tool refinement & upgrading. We offer tailored partnership initiatives for educators depending on the nature of your institution.

Krystal Institute strives to create a global digital economy ecosystem that can benefit our Training Partners, students and users alike, through building mutually beneficial, life-long partnerships.

Learn more about becoming a Training Partner by contacting bd@krystal.institute.

About Krystal Institute

Krystal Institute is an academy for research and education that aims to empower the people, provide upward mobility, and bridge the global digital divide. We provide the public with knowledge essential to excel in the digital economy. We empower students by nurturing creativity and providing open-source technology which prepares them to capitalize on conceptual knowledge.

Human capital is essential for value creation in the digital economy. Through collaboration with educators, training institutions, schools, and universities, we strive to become the enabling force behind the 4th Industrial Revolution by offering comprehensive curricula designed for leaders of the global digital economy. We aim to build lasting partnerships with our Training Partners, students, and platform users to foster development of a cohesive global ecosystem.

Our founders have over 20 years of experience in technology education, research & development, and digital media production. We train over 500 individuals annually, upgrading their digital skills and shaping them to be career-ready upon completing our programs.

Our Credentials

Krystal Institute's Founders have decades of experience working with global educational institutions such as Nanyang Technological University, Shenzhen University, and the City University of Hong Kong. Our Director and Founder, Mr. Raymond D. Neoh, produced the first 3D Computer Graphics animated full-feature film in China, *Thru the Moebius Strip* (2004). To date, the Institute of Digital Game Technology and Institute of Digital Media Technology founded by Mr. Neoh has trained close to 5,000 media professionals for the Chinese digital content creation industry.

In Hong Kong, our programs span over 40 distinct fields within the Digital Economy Core Technology (DECT) umbrella, in collaboration with our Training Partners and Industry Partners. Our academic partnerships with the Chinese University of Hong Kong, University of Hong Kong, and Hong Kong Polytechnic University empower our research & development.

We work closely with industry representatives from the Hong Kong Digital Entertainment Association, Hong Kong Game Industry Association, and Hong Kong Comics and Animation Federation to design stellar programs truly needed for digital economy development. Through our K-12 Educational Program, we have successfully delivered 3 pilot programs with local primary and secondary schools for multimedia learning. With our DECT Global Series - Career Program, we offer over 1000 hours of training content approved by the Employees Retraining Board. Subsidised by the Reindustrialisation and Technology Training Program (RTTP), our DECT Global Series – Professional Program offers up to HK\$500,000 of funding for corporate upskilling in Hong Kong. Tailored based on the Hong Kong QF Framework and international tertiary education standards, our DECT Global Series – Academic Program provides degree courses ranging from diploma to master's level in conjunction with local universities and tertiary education providers.

Industry and Academic Partners

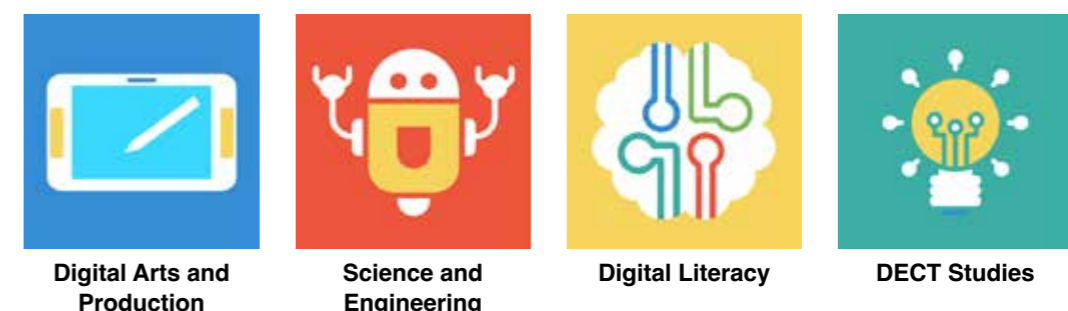
- Shenzhen University 深圳大學
- Hong Kong Productivity Council 香港生產力促進局
- The Chinese University of Hong Kong 香港中文大學
- The University of Hong Kong 香港大學
- The Hong Kong Polytechnic University 香港理工大學
- SCOPE, City University of Hong Kong 香港城市大學 專業進修學院
- HKDEA 香港數碼娛樂協會
- HKGIA 香港遊戲產業協會
- HKCAF 香港動漫畫聯會
- Business Environment Council 商界環保協會
- Hang Seng University of Hong Kong 香港恒生大學
- Gratia Christian College 宏恩基督教學院
- Hong Kong Nang Yan College of Higher Education 香港能仁專上學院
- Hong Kong College of Technology 香港專業進修學校



What is DECT?

Propagated by smartphones, drones, and Big Data, the arrival of the Fourth Industrial Revolution (or Industry 4.0) has led to the creation of a new digital economy underpinned by new technologies and skillsets. Working with global leading open source software developers, educators, and industry practitioners, Krystal Institute has defined DECT: core technologies and innovative fields that serve as the common denominator of progress in the digital economy. DECT can be divided under the themes of Digital Arts and Production, Science and Engineering, Digital Literacy, and DECT Studies.

The DECT Global Series offers exclusive programs by Krystal Institute to promote DECT education. Suitable for people of all ages and technical backgrounds, it encompasses the fields of creative arts, economics, science, technology and research, and incorporates the knowledge, skills and tools essential to the digital economy. The DECT Global Series drives the development of the digital economy through the digitization of traditional industries and digital industrialization. The Series includes the Educational Program, Career Program, Professional Program and Academic Program that provide any student with the knowledge, skills and tools to become an effective digital citizen. At the same time, we provide educators with the resources and expertise to enable students to become more competitive in the digital economy through our "Train-the-Trainer" instructor training. We provide a seamless teaching and learning experience through our proprietary learning management system, the Krystal Educational Platform.

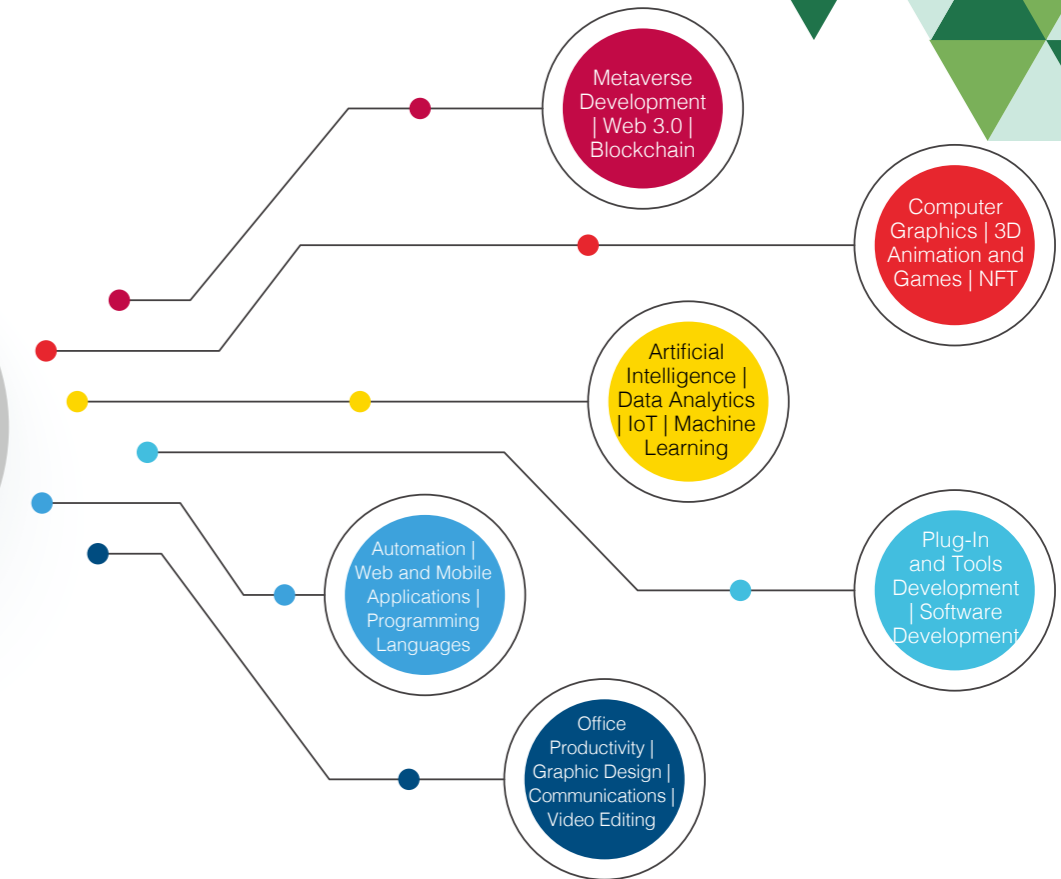


Knowledge, Skills, Tools

The DECT Global Series curricula place an emphasis on the trifecta of Knowledge, Skills, and Tools to ensure autonomy and competitiveness in the digital economy. Traditional academics encourage knowledge transfer, but a career-ready education must impart practical skills and offer a testing grounds for skill mastery. Through outcome-centric curricula and the competency-based Krystal Qualification Framework, our DECT education ensures students leave the classroom with a career-ready portfolio that showcases their talent and readiness. Moreover, investment in software and tools have long been deemed a core part of the learning process, but Krystal Institute advocates for the adoption of free, open-source tools to reduce over-reliance on paid, closed-source software. To this end, we have developed our own suite of tools – Krystal Office+ – to enhance workplace productivity and offer a ‘survival kit’ for students and professionals engaging with the digital economy.



Survival Skills in the Digital Economy



Develops Five Ways of Life enabling students to construct a complete life value



Enables students to find meaning in learning through active thinking and social interaction

Knowledge, skills acquired from the program will help the students pursue high education or make a living in the digital economy

Synthesizes technology with specific subject knowledge

Integrates content with real-world applications, via project-based and inquiry-based learning

Supports problem-solving enabling students to understand how computers solve problems

Krystal Holdings covers three major areas of the digital economy, including digital education, core technology development and advanced CG production. There are strong synergies between the group's subsidiaries, forming an ecosystem with common target audiences and complementary functions.



Krystal Institute is engaged in educational and research work to empower the people, promoting upward mobility, and bridging the global digital divide. We empower students by cultivating their creativity and providing open-source technologies, enabling them to apply their acquired knowledge, skills, and tools effectively in the digital economy.

We are committed to Digital Economy Core Technology (DECT) education, focusing on equipping learners with job-relevant digital skills. To date, we have trained over 1,000 DECT graduates, with 80% successfully employed and utilizing their digital skills to advance in their careers. Through collaborations with educators, training institutions, schools, and universities, we provide comprehensive programs to cultivate future leaders in the digital economy, serving as a driving force in the Fourth Industrial Revolution.



Krystal Studio is a digital media studio that applies core technologies of the digital economy and focuses on industry transformation. Our Professional Platform addresses the issues of American companies monopolizing the market of digital content production tools, creating a new ecosystem. It serves various industries, including CG animation, medical imaging, gaming, VR/AR, architectural design, automotive, GIS, AI, robotics, fintech visualization, IoT, and 3D printing.

Over the next five years, Krystal Studio plans to establish training centers and headquarters with advanced facilities and infrastructure. Our business includes talent training, technological research and development, media production, and technology promotion. Aligned with China's digital strategy, we aim to be a driving force in the development of the digital economy, enhancing China's competitiveness and innovation in the global digital industry.

Creating a Creative Ecosystem for the Digital Economy, and our Joint Digital Future

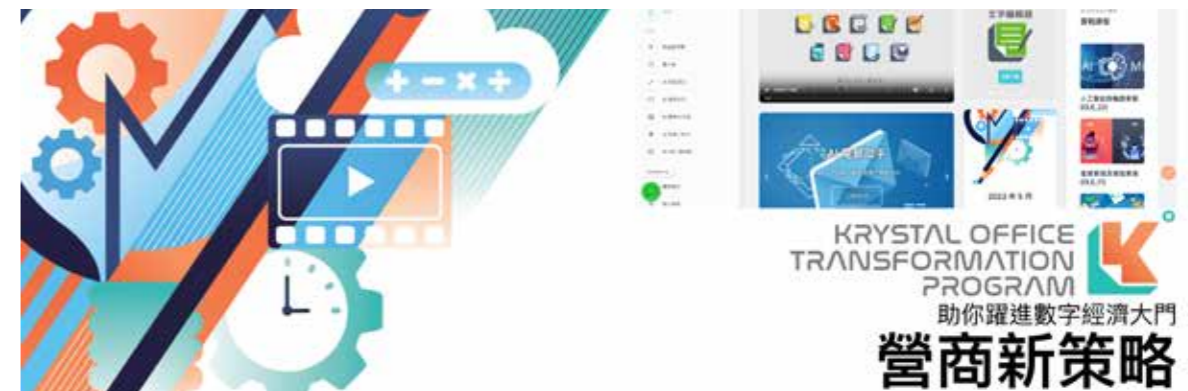


<https://krystal.technology/>



Krystal Technology offers customized digital transformation solutions to businesses, empowering them to tackle the challenges in the digital era. We provide comprehensive knowledge, skills, and tools in the digital economy, enabling enterprises to succeed in the realm of digitalization. From office software suites to enterprise resource planning and business intelligence systems, our products have been preliminarily implemented in government departments, small and medium-sized enterprises, and higher education institutions.

In the face of Hong Kong industries' high dependence on foreign software and the threat of sanctions, we advocate for technological autonomy. By offering open-source software products, we are dedicated to helping businesses achieve digital transformation and stand out in the digital economy landscape. Our professional instructors customize teaching materials to enhance the skills of practitioners, enabling them to proficiently master operational techniques and effectively utilize tools, making a positive contribution to the development of business operations.



<https://awncchina.cn>



CGGE (CG Global Entertainment Limited) is committed to the cultural and technological development of the CG industry with a global perspective. With headquarters in China and branch offices in mainland China and the United States, we serve the digital media industry, drive the growth of the Chinese industry, and facilitate global integration, fostering a global ecosystem for the digital media industry.

Our extensive portfolio includes digital entertainment projects and a diverse client base, encompassing CG film production, financing, distribution, and content planning services for China's AWN network. To promote the global animation industry and culture, we publish an annual international animation magazine showcasing top works from global animation studios and industry insights, contributing to a broader understanding of the world of animation. Additionally, we operate the AWCNCHINA website, providing timely updates on Chinese animation and the digital industry, and sharing the latest breakthroughs and reforms. CGGE strives to enhance international exchanges, cooperation, and the influence of the Chinese animation industry.





KRYSTAL STUDIO

Setting Standards and Delivering Value

Krystal Studio has been set up to design a CG production pipeline with open-source tools and AI, to set an industrial standard for CG production. Through the use of these pipelines and standards, an industry-leading portfolio of CG feature animated films and games will be produced.

Through Krystal Studio works, we can validate the effectiveness of the AI and Open Source production pipeline. Furthermore, the Studio is well-placed to accommodate the graduates from Krystal Institute's specialized programs teaching AI and creative tools usage and development. Establishing the Studio captures the synergies present across the two operations, simultaneously validating the training provided by Krystal Institute and harnessing the skills of these aspiring professionals.

With this mission in mind, Krystal Studio has laid down the following objectives for its future development.

1. Provide Real-World Application and Validation of Industrial Standards

- **Practical Experience:** Academic learning, no matter how advanced, needs to be complemented by hands-on, real-world experience. An in-house production studio provides students the opportunity to apply their skills in a real-world production setting.
- **Standard Validation:** By analyzing the performance of the production in live projects, we can get real-world data and feedback on the production pipeline. If the project faces challenges in executing certain tasks in production, it could highlight areas where our graduates and the pipeline may need enhancement and improvement.

2. Demonstrate Competency of Open-source Tools:

- **Benchmarking:** The studio can work as a benchmark to prove that open-source tools can compete with or even surpass commercial tools in terms of quality, efficiency, and innovation.
- **Feedback Loop:** Using these tools in actual production environments allows for the identification of gaps or areas of improvement. This feedback can be channeled back to developers, leading to better and more refined open-source solutions.

3. Building a Portfolio and Gaining Credibility:

- **Showcasing Potential:** By producing quality content, such as an animated feature film, using the taught tools and methodologies, Krystal Studio and Krystal Institute's graduates will gain a tangible portfolio to showcase to prospective students, partners, and the industry at large.
- **Reputation Enhancement:** Consistent production of high-quality content enhances the institution's credibility, validating its approach and reinforcing its standing in the industry.

4. Economic Viability:

- **Monetization:** The content produced can be monetized, creating a revenue stream for users who adapt the production pipeline, which can be reinvested in research, development, and further enhancing the academic programs.
- **Cost Efficiency:** Using open-source tools reduces licensing costs, making production more cost-effective compared to studios reliant on commercial software.

5. Industry Collaboration & Networking:

- **Partnerships:** The studio can form collaborations with other industry players, enhancing networking opportunities for students and the institution.
- **Guest Contributions:** Industry experts can be invited for collaborations, workshops, or to direct certain projects, enriching the learning and production experience.

6. Continuous Learning & Adaptation:

- **Staying Updated:** The fast-paced evolution of technology, especially in AI and CG, necessitates continuous learning. A production studio ensures that graduates remain at the forefront of industry advancements.
- **Adapting to Change:** Feedback from the production floor can inform and update academic curricula, ensuring the program remains relevant to the industry's current demands.

7. Nurturing Innovation:

- **Research & Development:** The studio can serve as an R&D hub, encouraging students to develop new tools, plugins, or methodologies, fostering a culture of innovation.

- **Problem-Solving in Real-time:** Addressing real-world production challenges hones the problem-solving skills of students, making them more adept at tackling unforeseen issues.

8. Talent Retention and Development:

- **Internal Hiring Opportunities:** By transitioning graduates into the studio, the institution can retain top talent, ensuring a consistent quality of work while providing students with immediate employment opportunities.
- **Skill Enhancement:** As technology and industry standards evolve, having an integrated studio ensures that professionals can undergo further training, workshops, or upskilling sessions to stay relevant.

9. Quality Control & Standard Setting:

- **Benchmark Excellence:** With control over both education and application, the institution can set high standards of excellence for both processes, striving to exceed industry norms.
- **Real-time Quality Checks:** A studio setting allows for ongoing evaluations and immediate feedback, ensuring that the end products meet the predetermined quality criteria.

10. Holistic Ecosystem for CG Production:

- **End-to-End Production:** From ideation to post-production, having a studio enables the institution to oversee every aspect of a project, ensuring coherence, quality, and a seamless integration of AI-driven methodologies.
- **Cross-disciplinary Collaboration:** Within a studio setting, artists, AI specialists, system engineers, and managers collaborate closely. This integrated approach mirrors real-world industry operations, giving students a genuine taste of professional CG production dynamics.

11. Direct Access to Market Feedback:

- **Audience Reception:** Releasing films and games to the public garners direct feedback from consumers. This feedback is invaluable in understanding market demands, preferences, and areas for innovation.
- **Iterative Improvement:** By gauging reception and critiques, the studio can refine its techniques, storylines, character designs, and more, in real-time across projects.

12. Economic Self-Sustainability:

- **Revenue Generation:** The content produced and released can generate revenue, making the studio a self-sustaining entity. This revenue can further fund scholarships, research grants, and new technologies for the institution.
- **Open Source Tool Promotion:** As the studio produces notable content using open-source tools, it can lead to a broader adoption of these tools within the industry. This not only validates the institution's approach but can also attract funding or sponsorship from tech firms interested in promoting open-source solutions.

13. Strengthening Industry-Institution Bonds:

- **Partnerships and Collaborations:** By producing notable work, the studio can attract collaborations with established industry players, leading to joint ventures, co-productions, or even internship opportunities for students.
- **Industry Workshops and Seminars:** A functioning studio can regularly host industry leaders for masterclasses, workshops, and talks, ensuring that students and professionals alike are exposed to diverse perspectives and the latest industry trends.

Bridging the Divide between AI and Creativity

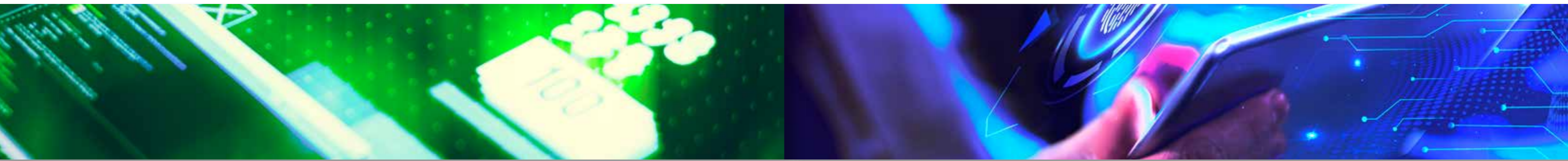
An in-house CG production studio serves as the bridge between academic learning and industry demands. By leveraging open-source tools in actual production settings, Krystal Studio not only underscores the efficacy of these tools but also ensures its graduates are industry-ready, adept, and innovative. It becomes a dynamic ecosystem of learning, production, and innovation, pushing the boundaries of what's possible in the CG world and helping lay down the CG production standard using the production pipeline developed by Krystal Studio and its affiliate companies.

By fusing real-world application in an integrated CG production studio, we position ourselves as a pioneering force in the industry. Such a setup not only equips our students with unmatched practical experience but also solidifies our reputation as a leader in cutting-edge, AI-integrated CG production standard that the industry can adapt and promote. We become a nexus of learning, innovation, and production excellence, setting new standards for the global CG production and innovation community.

Future of the Digital Economy

The digital economy has emerged as a powerful force in shaping the global economy and society. As more and more businesses, individuals, and governments move towards digital transformation, the impact of the digital economy has become increasingly significant. In recent years, the global COVID-19 pandemic has further accelerated the adoption of digital technologies, highlighting the importance of the digital economy in enabling remote work, e-commerce, and digital services.

The digital economy encompasses a wide range of activities, including online commerce, digital media, social networking, mobile services, and data analytics. It is driving innovation, transforming business models, and creating new opportunities for economic growth and development. As such, the digital economy has become a key driver of productivity, competitiveness, and job creation, as well as a catalyst for social and environmental change.



Digital Economy in Numbers

According to a digital economy white paper published by the China Academy of Information and Communications Technology (CAICT), the estimated global size of the digital economy reached US\$38.1 trillion in 2021, based on the added-value from 47 major countries. Leading the contribution was the US, with US\$15.3 trillion; China ranks second globally on US\$7.1 trillion. This amounts to a significant percentage of GDP arising from the digital economy, reaching 65% for the US and 40% for China. The monumental scale and rapid growth of the digital economy was monumental to economic recovery following the volatility experienced in the pandemic era.

Growth in the sector was driven by a combination of factors. The primary driver was the digitalization of industrial processes, which comprises 85% of value in the digital economy. Within industry digitalization, tertiary industries – which include services such as transport, distribution, marketing, and entertainment – was the leading source of expansion, making up 45.3% of value-add.

Favourable policy environments further bolster growth in the digital economy. In China’s 14th 5-year plan, President Xi Jinping highlighted the objective of developing the Chinese digital economy’s quality and efficiency to reach world-leading levels. Underpinning this are the core drivers of digital industrialization and industrial digitization. Digital governance and data valorization are two further channels that strengthen and support digital economy development.

Skill Demands from Future Jobs

As the digital economy develops, we have widened the disparity between the digital “have” and “have nots” which in turn creates a digital divide. Machines will be able to do certain jobs more efficiently, accurately, and inexpensively. These developments could result in a radically disempowered humanity. Our mission is to prevent that.

Machines will be able to do certain jobs more efficiently, accurately, and inexpensively. The world of work is rapidly evolving: 55% more work hours will be spent using technological skills by 2030, and 65% of children entering primary school today will work in new job types that don’t yet exist (WEF, 2019). Despite the newest generation being ‘digital natives’, frequent use of the internet and social media is not equivalent to work-ready digital capabilities. 12% of 15 to 25 years old report that they do not think their computer skills are good enough to use in the job they want; and 17% of NEETS (Not in Education, Employment, or Training) believe they would be in work today if they had better computer skills (Cranmer, 2016). These developments could result in a radically disempowered humanity. Our mission is to prevent that by offering the core knowledge, skills, tools, and experiences that empower digital citizens of the future.

Will AI Take My Job?

Data from Goldman Sachs Global Investment Research

Job Type	Probability of Automation (%)
• Office and Administrative Support	46
• Legal	44
• Architecture and Engineering	37
• Life, Physical, and Social Science	36
• Business and Financial Operations	35
• Community and Social Service	33
• Management	32
• Sales and Related	31
• Computer and Mathematical	29
• Farming, Fishing, and Forestry	28
• Protective Service	28
• Healthcare Practitioners and Technical	28
• Educational Instruction and Library	27
• Healthcare Support	26
• Arts, Design, Entertainment, Sports, and Media	26
• All Industries	25
• Personal Care and Service	19
• Food Preparation and Serving Related	12
• Transportation and Material Moving	11
• Production	9
• Construction and Extraction	6
• Installation, Maintenance, and Repair	4
• Building and Grounds Cleaning and Maintenance	1

Our Programs and Products

A wealth of digital talents and businesses well-versed in digital technology are crucial in accelerating the growth and development of the global digital economy. Krystal Institute offers several programs and products to aid educational institutions and businesses to smoothly transition into the new digital era. These include the Partnership Scheme, Digital Transformation Program, DECT curriculum, Learning Platforms and Train-the-Trainer Program.

DECT Partnership Scheme

Our Partnership Scheme consists of DECT Lab, DECT Center and DECT Institute, which are collaborative programs with educational institutions of different levels. Through these programs, we aspire to build a sustainable model for digital training at all levels of education.



DECT Lab is designed for primary through secondary (K-12) educational institutions. Through DECT Lab, we provide customized curricula and digital training tools for teachers and students.



DECT Center is designed for higher education institutions and vocational training schools. Through DECT Center, we aim to provide students and teachers with the best DECT tools and professional digital training.



collaboration between Krystal Institute and university research institutions, with a focus on research and development. We hope to combine the expertise of both parties to develop core technologies and digital tools for emerging leaders in the digital economy.



institutions from elementary to university level. Krystal Institute's DECT workshops, on the other hand, are designed for non-academic organizations. From private tuition providers to commercial training bodies, as long as you are a partner of our workshops, you will be able to use our curriculum and qualifications framework for your own purposes.

Digital Economy Empowerment Program

To effectively enable citizens of different ages and backgrounds to acquire essential digital skills and soft skills, we have established corresponding digital transformation programs tailored to diverse learning targets.

Student Empowerment Program (SEP)

SEP offers two learning pathways complete with comprehensive K-12 curricula, a versatile learning platform, a robust tool package and more for schools and students.

Office Transformation Program (OTP)

OTP offers a comprehensive software package with affordable alternatives to most common office tools, complete with technical training and support via a one-stop platform.

DECT Global Series Curriculum

Through the DECT Curriculum, Krystal Institute aims to provide high-quality courses covering diverse digital technology topics for students, career starters and working professionals. Our course quality is ensured through the CIR process and QF.



Educational Program (EP)



Career Program (CP)



Professional Program (PP)



Academic Program (AP)

Continuous Improvement Review (CIR)

Continuous Improvement and Review (CIR) is a key procedure in our internal curriculum development process to identify best practices and to improve the quality of instructional outcomes.

Krystal Qualification Framework (QF)

DECT Qualification Framework (QF) provides clear and precise learning objectives to enable students to learn foundational DECT knowledge in a progressive manner.

Learning Platforms

Krystal Institute provides two primary learning platforms to meet the needs of passionate self-learners. Users can freely obtain learning resources, discuss in forums, access the latest industry news and more.

Krystal Educational Platform (KEP)

A cloud-based learning platform designed to provide support for DECT education. KEP provides learning materials management, remote collaboration, analytics, and more.

Blender Studio Asia

In collaboration with Blender Studio, Krystal Institute provides Chinese-speaking learners access to localized Blender tutorials and learning materials, as well as Krystal's teaching support services.

Train-the-Trainer Program (TTT)

Krystal Institute offers the Train-the-Trainer Program (TTT) to all our educational partners to ensure the quality of DECT courses being delivered. In addition, teachers participating in the program are also able to benefit from improved digital literacy from mastering our digital skills and tools.

Our Programs and Products



DECT 實驗室

DECT Lab

DIGITAL ECONOMY CORE TECHNOLOGY



DECT Lab provides digital training and substantial DECT knowledge, skills, and tools for Primary and Secondary school teachers and students, through our tailor-made curricula. DECT Lab partners benefit from 24/7 online support on our Krystal Educational Platform and receive professional Train-the-Trainer services.

Scheme Objectives

- Enhance the interest of young people in IT and innovative thinking
- Foster an IT learning atmosphere to encourage them to choose technology-related tertiary education programs and pursue an I&T career in the future

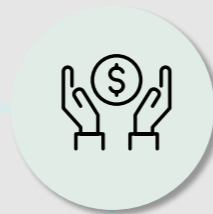
Krystal Educational Platform

A learning management system provides support for DECT education and seamless teaching.



DECT Educational Program (EP)

Comprehensive K-12 curricula to train future leaders of the digital economy.

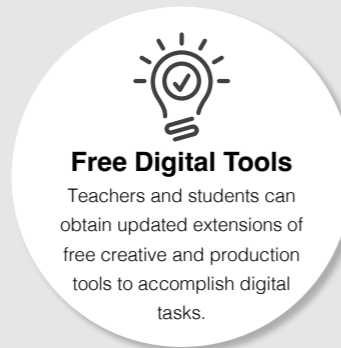


Funding Application Services

A complete proposal for applying to Government funding scheme will be provided for our partner schools.

DECT Qualification Framework

Krystal certifications are recognized by industry experts, and enhance the competitiveness of learners in the digital economy.



Free Digital Tools

Teachers and students can obtain updated extensions of free creative and production tools to accomplish digital tasks.



Various Learning Activities

Our partners can provide site visits, sponsorship opportunities, internship experiences, and guest lectures to students.

Hybrid Interdisciplinary Teaching

Up-to-date curricula lay a sound foundation for students to pursue further training in the I&T industry.



Lifelong Learning Support

Students receive lifelong tools and career planning support through the DECT Lab to excel in the future.



Up-to-date Information

Teachers, parents and students can get first-hand information about our partner organizations.

Courses Types in DECT Lab

Student Empowerment Program

Student Empowerment Program (SEP) provides necessary knowledge, skills and tools and these are the survival digital skills for students to excel amidst in the future.

Program Pathway

Core Pathway | Creative Pathway | Customized Package for Schools

Workshops

Our workshops cover a wide range of modules for secondary and primary students to experience and learn about creative technology in a relaxed way, in order to inspire their interest in learning and broaden their horizons, preparing them to excel in the future world.

Course Series

Animation Arts Series | Virtual Worlds Series | Makers Series | Digital "ABCD" Series

Funding Programs

We offer Funding Programs to aid schools in applying for funding under the Government's "Knowing More about IT" and "IT Innovation Labs in Schools" programs in order to upgrade their IT equipment and facilities, organise IT-related activities, encourage students to choose technology-related tertiary education programs, so as to cultivate talents for the future.

Program Series

DECT Early Childhood Education Program | 3-year DECT Model Primary School Program | DECT+ Model Secondary Program

Courses under DECT Qualification Framework

DECT Qualifications Framework is designed with 1 entry level and 8 standard levels, each of which provides clear and precise learning objectives to enable students to learn foundational DECT knowledge in a progressive manner. The outcome-oriented curriculum design and assessment mechanism provides objective and clear criteria to measure students' learning outcomes, as well as the knowledge and skills acquired in the modules; the Framework further allows parents and teachers to better understand and monitor the learning process of students. In the K-12 educational stage, students will take courses in the DECT Global Series - Educational Program to lay a solid foundation for entering the digital economy.

Learning Pathways

Educational Program (EP) | Career Program (CP) | Professional Program (PP) | Academic Program (AP)



DECT 技術中心

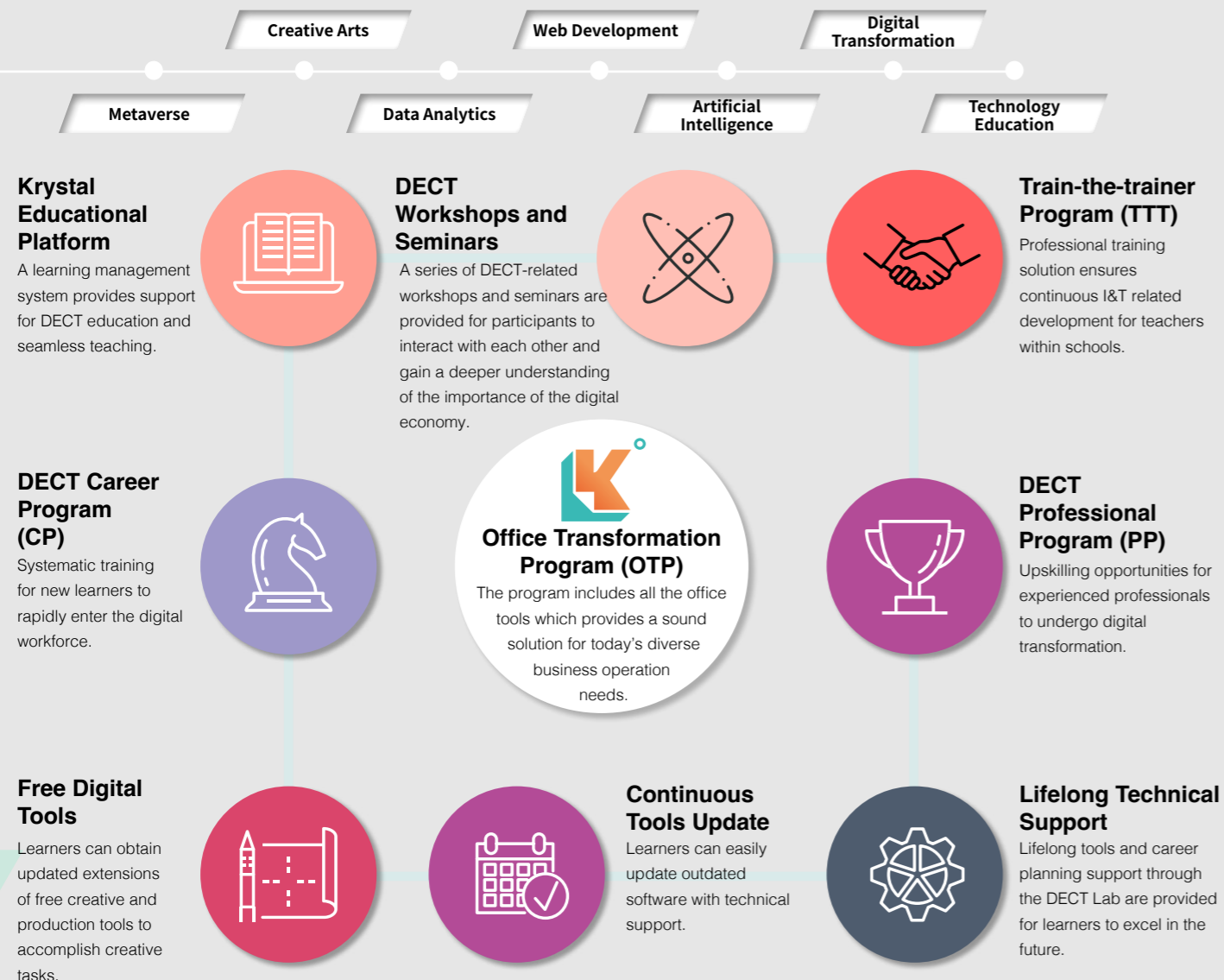
DECT Center

DIGITAL ECONOMY CORE TECHNOLOGY



DECT Center is designed for Higher Education providers and Vocational Institutions. DECT Center provides students and teachers with stellar DECT tools and training in students' respective specialisms, preparing them for digital transformation. Our curricula cover at least 7 major digital economy sectors and are rapidly expanding to incorporate forefront technology innovations.

7 Major Digital Economy Sectors



Collaborative Opportunities between Academia and Industry

Launching DECT curricula for Higher Education Institutions

Many programs currently offered by educators are unable to fulfill industry demands, and lack assurance regarding the employability of the students. Therefore, we are working in tandem with different institutions to offer an Global Series of courses and training programs on Digital Economy Core Technology (DECT), designed to be more comprehensive and well-integrated in its structure and contents. People who are interested in DECT knowledge, skills tools and the digital economy industry in the Greater bay Area are welcome to register our course to rapidly enter the digital workforce.



Reskilling talents in the Creative Media Industry

We have worked in tandem with CityU SCOPE to successfully launch 4 courses for the Employees Retraining Board (ERB), providing over 1000 hours of approved training contents. Over 500 graduates have been reskilled and launched into Digital Economy sectors such as Creative Multimedia and Software Development, achieving digital transformation.



Providing new Business Strategies to help companies with Digital Transformation

In response to today's changing workplace environment, Office Transformation Program provides a smart solution that includes common office software, allowing enterprises and companies to integrate their own work patterns to effectively improve daily work efficiency, reduce operational costs and meet diversified business needs. Clients can also access lifelong tools and get career planning support, opening up unbounded possibilities for digital transformation.

In addition, we work with organization to offer co-organized Reindustrialization and Technology training programs. To date, the tailor-made professional courses have successfully helped 20 companies and industry professionals to rapidly achieve digital transformation, seize the unlimited opportunities early and firmly.



Working closely with the industry and proactively face the challenges in the digital economy

We work closely with industry professionals to keep abreast of the up-to-date industry information and events, in order to build a well-established collaborative network for participants to attend a series of DECT-related workshops and seminars to interact and facilitate collaborations in the technology, education and multimedia fields.





DECT 研究院
DECT Institute
DIGITAL ECONOMY CORE TECHNOLOGY



DECT Institute is a collaboration with Universities and Research Institutions, focusing on technological innovation and development. Combining the expertise of both parties, we develop core technologies and digital tools for leading players in emerging digital economy sectors.

Objectives of DECT Institute



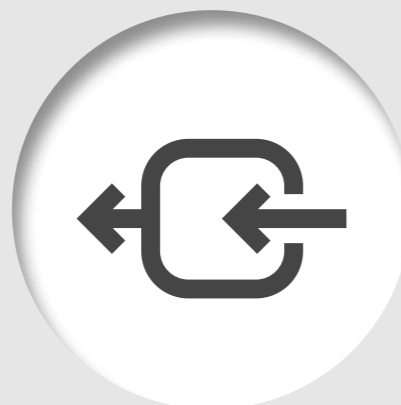
Research and Development

We work with government and institutions on a range of innovative activities and academic research to developing new DECT services or products, in order to enhance DECT readiness and competitiveness in Hong Kong and Asia.



Academic Program (AP)

Enriching programs for students of all levels to become certified digital specialists and achieve self-enhancement.



Continuous Improvement Review (CIR)

Continuous improvement review (CIR) is an important process in the internal quality assurance that puts into place to identify best practices and improve the quality of teaching deliverables.



DECT Research and Development

Revolutionizing IP valorization for digital media studios



Academic Partner: CUHK Engineering FinTech Applied Research Academy (CEFAR Academy), The Chinese University of Hong Kong

Through our broad networks in the digital media industry, Krystal Institute has observed the need for a new integrated platform that solves the interlinked pain points faced by digital media artists. The fragmented and SME heavy industry faces staggering costs in transaction of digital assets, limited knowhow in new Blockchain and NFT technologies, and difficulty in producing market-compatible digital art. The proposed solution - Krystal FinTech Platform - is an integrated marketplace with low fees, compatibility with production tools, and simplified minting processes that unlocks digital business potential for the creative industry. As Industrial Partner of CEFAR Academy, we are designing a SaaS solution that integrates artist training, IP creation, NFT minting and trading into a single multi-media marketplace.

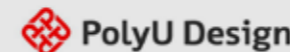
Prototyping novel artificial intelligence application in creative digital media



Academic Partner: Centre for Perceptive and Interactive Intelligence, The Chinese University of Hong Kong

As Artificial Intelligence applications become pervasive and increasingly generalized, Krystal Institute and the Centre for Perceptive and Interactive Intelligence (CPII) seeks ways to further empower creatives in their design workflow through novel open-source AI tools. In particular, while popular solutions such as ChatGPT and Midjourney enable generation of text and images, they are currently unable to fulfill animation and game studios' needs to develop multi-dimensional assets with a cohesive storylines. For more general enterprises, we further seek ways to make robotic process automation (RPA) technologies more accessible, unlocking leaps in productivity growth.

Designing strategies for enterprise digital transformation



Academic Partner: School of Design, The Hong Kong Polytechnic University

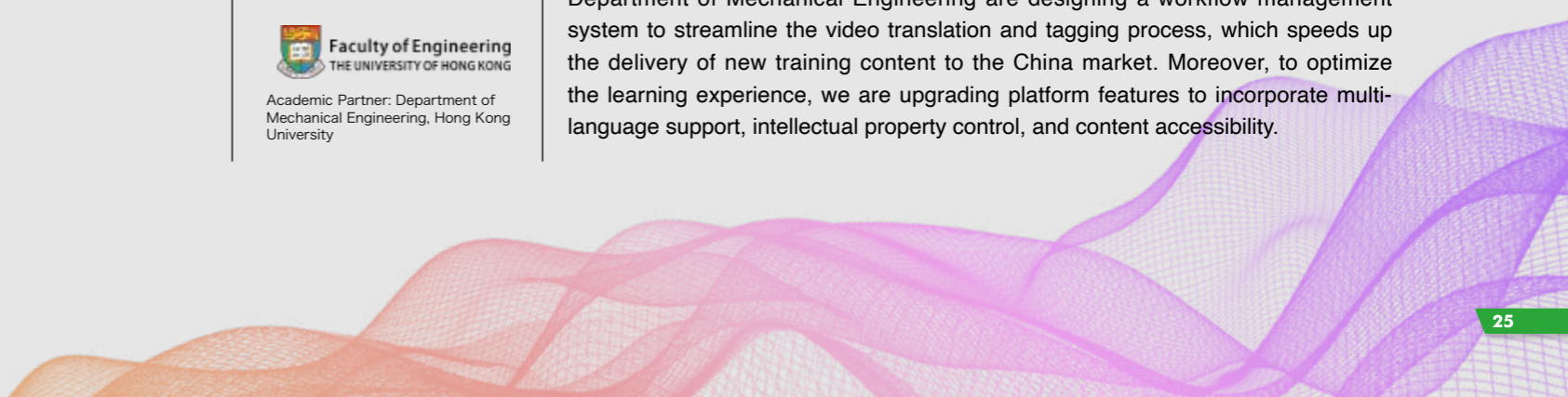
As Krystal Institute embarks on its mission to facilitate digital transformation from closed-source to open-source, our major value-add will be via maintenance, training, and technical development. Working with the School of Design, we applied creative frameworks in tackling the business and design challenges that we foresee appearing in our future path. Our study explores the d external resources.

Development of specialized MOOC for open-source learning



Academic Partner: Department of Mechanical Engineering, Hong Kong University

Krystal Institute and its affiliates are committed to open-source education. In support of this mission, we are in partnership with the Blender Foundation to promote Blender education in the Greater China region. Our flagship project is Blender Studio China, which offers over 10,000 hours of video training content on Blender functionalities and the video production workflow. Students of the Department of Mechanical Engineering are designing a workflow management system to streamline the video translation and tagging process, which speeds up the delivery of new training content to the China market. Moreover, to optimize the learning experience, we are upgrading platform features to incorporate multi-language support, intellectual property control, and content accessibility.



DECT Workshops

Cultivating Future Leaders For The Global Digital Economy's Future

Krystal Institute's Academic Partnership Program is a collaboration with academic institutions from elementary to university level. Krystal Institute's DECT workshops, on the other hand, are designed for non-academic organizations. From private tuition providers to commercial training bodies, as long as you are a partner of our workshops, you will be able to use our curriculum and qualifications framework for your own purposes.

Krystal Institute provides three different kinds of workshops for the needs of three major customer categories:



DECT Student Empowerment Workshop

• **DECT Student Empowerment Workshop** – designed for schools. Also known as the Student Empowerment Program (SEP), the workshop covers all the basic digital skills taught in Krystal Institute's academic and non-academic curricula.

DECT Career Workshop

• **DECT Career Workshop** – designed for individuals looking for self-enrichment or shopping for new skill sets for a job change. Our employee re-skilling courses are a good example of what the DECT Career Workshop offers.

DECT Professional Workshop

• **DECT Professional Workshop** – designed for employed individuals who require further training to advance their careers. Krystal Institute has various short courses covering topics such as React, CG, AI for partners of this Workshop.

Krystal Institute makes it our mission to help students improve their digital capabilities. We and our partners across the globe are constantly on the lookout for the newest digital trends and technology. Through our collaboration with Krystal Technology, we provide students with ongoing online platform support, new tools and courses. Our DECT Workshops welcome individuals, companies, NGOs, corporate training bodies – anyone, to be our partners.



Krystal DEEP

(Digital Economy Empowerment Program)

Game Changers for Countries in the Global Digital Economy

DEEP, the Digital Economy Empowerment Program, is a comprehensive program designed to equip individuals and citizens with essential digital competencies and soft skills to thrive in the digital economy.

In the future world, a well-equipped global citizen will not only develop their capabilities and skills in terms of digital technology but also in soft skills such as creativity, critical thinking, global awareness, entrepreneurship, communication, and more. These skills are essential for better adapting to future changes. Consequently, achieving future-oriented skill objectives is vital for promoting upward mobility and advancing global values (Worldwide Educating for the Future Index, 2019).

UNESCO proposed the following definition for digital literacy (UNESCO, 2018):

“Digital literacy is the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy.”

Digital Competence is also defined as follow :

“Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking.” (Council Recommendation on Key Competences for Lifelong Learning, 22 May 2018, ST 9009 2018 INIT).

Krystal DEEP: An integrated solution for the digital age, aimed at fulfilling the diverse digital needs of countries through broad-based education of a wide range of topics for the working population. Key themes pertinent to digital economy development covered by DEEP are outlined below.

1. Basic Digital Skills

The program provides participants with basic digital skills and tools such as word processing, spreadsheet management and presentation tools, image processing, design tools, and video editing tools to enable them to easily navigate the digital world.

2. Artificial Intelligence and Internet of Things

Krystal DEEP introduces participants to the world of Artificial Intelligence (AI) and the Internet of Things (IoT), two technologies that have the potential to revolutionize industries and improve the quality of life.

3. Internet Platform Technologies

This program covers a variety of Internet platform technologies that enable countries to develop their digital infrastructure and take advantage of the opportunities offered by the digital economy.

4. Metaverse

As a growing digital phenomenon, the Metaverse provides a new frontier for economic growth and innovation. Krystal DEEP introduces participants to the concept of the Metaverse and its potential applications in various fields.

5. Cybersecurity

As reliance on digital systems grows, cybersecurity is more important than ever. Krystal DEEP ensures that participants understand the importance of cybersecurity and how to protect their digital assets.

Empower the Future Digital Workforce with Krystal DEEP

Krystal DEEP is a comprehensive, cost-effective solution for digital skills development, promoting innovation, inclusion, and competitiveness. Adopting Krystal DEEP benefits a country's workforce, economy, and global position.

1. Future-oriented Workforce

Only with the skills and knowledge required in the digital economy can citizen productivity, innovation, and economic growth be enhanced

2. Enhancing Global Competitiveness

Countries investing in digital skill development maintain a leading position in the global digital economy

3 Fostering Innovation

Access to digital technology enables citizens to unleash their creativity and develop innovative solutions Participants can learn from and contribute their ideas to the global community, fostering collaboration and knowledge sharing

4. Bridging the Digital Divide

Ensuring equal access to digital opportunities for all citizens promotes upward mobility

5. Attracting Investment

Countries with skilled labor and robust digital infrastructure are better able to attract investment, create more job opportunities, and drive economic growth



6. Cost-effective Education

Open-source digital tools and software provide cost-effective solutions for countries, enabling efficient allocation of national education resources

7. Use of Open Source Tools

Harnessing the power of the global open-source community cultivates a culture of collaboration among citizens, alleviating the financial burden on both countries and individuals

8. Adaptability, Scalability and Tailorability

Countries can adapt the use of open-source tools according to their unique needs, maintaining flexibility in production

9. Encourage Collaborations

Fostering a spirit of collaboration between participants and the global community facilitates mutual learning and the development of diverse digital skills and tools

10. Inclusive Digital Transformation

Open-source digital tools are accessible to citizens from different backgrounds, bridging the digital divide among diverse socio-economic groups

11. Workforce Retraining and Upskilling

Staying informed about the latest digital trends and technologies helps citizens prepare for the challenges of the future job market through retraining

12. Enhanced Network Security Capabilities

Training in open-source network security solutions helps countries establish strong and secure digital ecosystems

13. Lifelong Learning and Support

Through continuous learning and staying up-to-date with the latest digital trends and technologies, citizens contribute to their country's digital economy



Student Empowerment Program







Core technology is the common denominator of progress in the Fourth Industrial Revolution. Krystal's Student Empowerment Programme (SEP) provides students the knowledge, skills and tools necessary to survive in the global digital economy, preparing them for excellence in their future careers.



What does the Student Empowerment Program (SEP) offer students, teachers and schools?

Students	Teachers	Schools
<ul style="list-style-type: none"> + Provide a "pencil case" with substantial tool kits + Effortlessly tackle challenges from school and the workplace in the digital economy using digital tools 	<ul style="list-style-type: none"> + Provide one-stop services and tool packages to teachers + Utilize free creative and production tools in daily teaching + Allow digital skill transformation to be more accessible 	<ul style="list-style-type: none"> + Provide students with free STEAM software for cross-curricular learning with diverse contents + Integration of in-class teaching, extra-curricular activities and DECT training for teachers + Individualized Curricula cover relevant project themes under the Government Funding Scheme and help schools organize IT-related activities

Krystal Office +

 Krystal Write 數譜文字編輯器	 Krystal Present 數譜簡報編輯器	 Krystal Calc 數譜試算表編輯器	 Krystal Dbase 數譜數據庫	 Krystal Graphic Tools 數譜矢量圖形編輯器
 Krystal Photo Editor 數譜圖像編輯器	 Krystal Draw 數譜信息圖表編輯器	 Krystal Film Editor 數譜影片編輯器	 Krystal e/Mail Hub 數譜電子郵件客戶端	

Krystal Studio



Krystal 3D

Nurturing spatial awareness through Krystal 3D builds a solid foundation for architectural design, scientific simulation, and VFX production.



Krystal Paint

Endless combinations of brushes, media, and colors offered by Krystal Paint lets students express themselves with ease.



Krystal UI/UX Tools

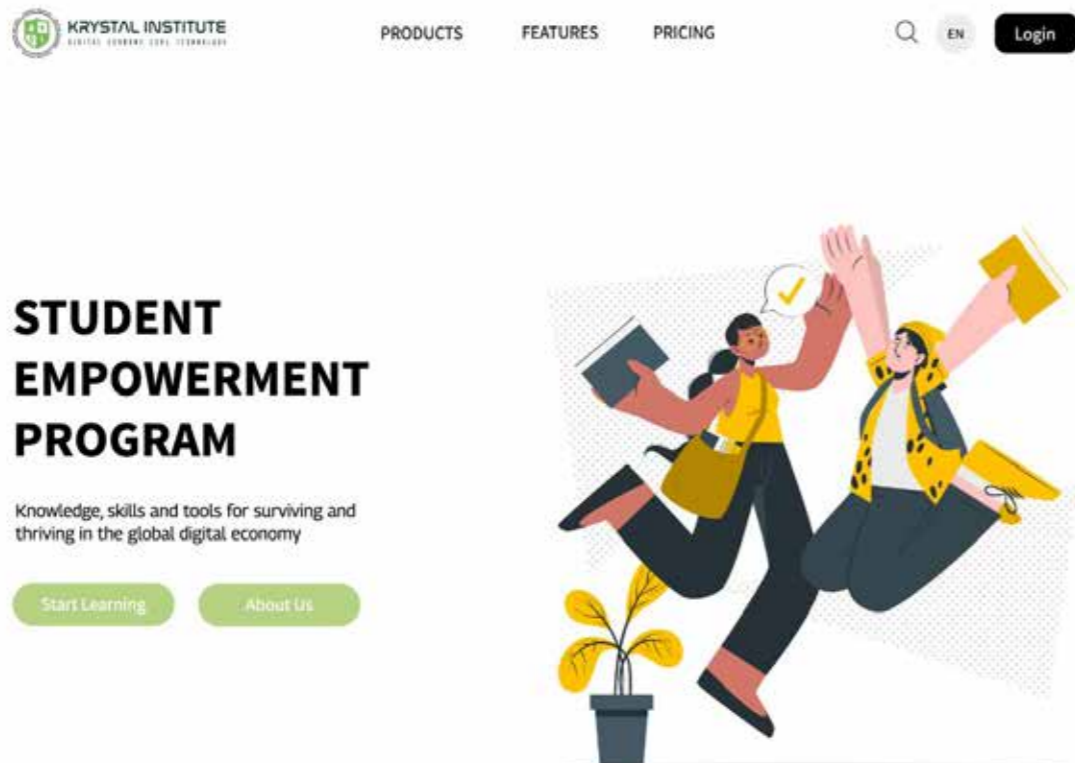
Krystal UI/UX Tools enable students to create functional and aesthetic websites, software, and product designs.





SEP Platform

Our “one-stop” platform integrates learning resources and technical support. Students can read up on the latest digital economy news, browse teaching materials and videos, discover design templates and tool tips, schedule face-to-face classes and also communicate with SEP community members, such as other students and certified specialists on our forum.



Comprehensive Learning Pathway

Educational Program

Comprehensive K-12 curricula to train future leaders of the digital economy

Career Program

Systematic training for new learners to rapidly enter the digital workforce

Professional Program

Upskilling opportunities for experienced professionals to undergo digital transformation

Academic Program

Enriching programs for students of all levels to become certified digital specialists

In the Student Empowerment Program, we advocate a student-centered curriculum design model that provides an active and digital learning environment where students are motivated to explore, experience, and give back.

Digital education in primary schools focuses on computer literacy and design thinking, fostering independent thinking, imagination and problem solving skills.

Digital education in upper primary levels further consolidates students' computational thinking and exposes them to different digital tools in multiple ways, cultivating their creativity and IT skills, and developing stronger critical thinking skills.

In junior secondary levels, digital education focuses on technology education (programming and innovative technology), allowing students to execute projects independently while using a systematic and logical approach, cultivating an international outlook and developing better critical thinking skills, logical thinking skills and problem solving skills.

Throughout the different stages of learning, students gradually develop a positive concept of self-identity and become professional learners.

The following chart shows the comprehensive learning pathways and ways to provide students with sustainable digital training.



DECT Curriculum Design in Kindergarten Education

Early childhood education lays the foundation for children's lifelong education, cultivates children's interest in self-exploration and positive values (moral, intellectual, physical, social, and aesthetic), and promotes whole-person development.

DECT digital curriculum program series for young children is a set of interesting and enlightened courses that integrate information technology, highlight positive values, and are theme-oriented.



Benefits of DECT in Early Childhood Education

- Exposing to Digital Technology
- Enriching Learning Experience
- Facilitating Creative Thinking
 - Implementing All-round Development



Our DECT courses allow children to adapt to and face the changes of the future world from an early age. Children can have interactive and fun game experiences through DECT courses, exposing them to cutting-edge technology early on to inspire their interests in free academic exploration and diverse learning.

In addition to providing DECT teaching materials, we also provide Train-the-Trainer (TTT) training for teachers that meet the minimum 60-hour training target required by the Continuous Professional Development (CRD) policy of the Education Bureau.

Designed with reference to the current "Kindergarten Education Curriculum Guide" (2017), it incorporates the application of information technology to create a variety of learning themes. Combined with the current kindergarten education curriculum concepts and development goals, DECT digital curriculum can help students get in touch with new technologies, broaden their horizons and improve digital skills through a "game-based" learning experience, and promote the development of future talents.



DECT Early Childhood Education Program

The course offers a total of 72 hours of K2 and K3 digital courses in a year, covering four core digital courses of graphic design, 2D drawing and animation, creative programming and robotics, inspiring children's interest in art and numbers from multiple angles, and providing children with interactive and fun gaming experiences.

Course Structure

Modules	Details	Learning Outcomes	Total length
Graphic Design	Colour Theory, Composition Principles, Layout Principles, Typography Principles	Learning the basic concepts of graphic design through games: Cultivating children's creativity and imagination	14 hours
2D Animation	Drawing techniques and animation concepts	Using the graphics tablet to learn digital painting: Making simple animations to cultivate children's artistic sense	22 Hours
Creative Coding	Scratch Basic Programming and Simple Animation Production (Interdisciplinary learning)	Learning the programming instructions in Scratch in the form of stories: Stimulating children's curiosity, cultivating their interest in creative programming, and improving their problem-solving ability	16 Hours
Robotics	Robot basic concepts and command	Introducing robotics through games: Using different commands to control the robot to complete each game will improve children's self-confidence and teamwork spirit	20 Hours

Course Features

1. Hybrid activity materials are provided for students using their senses to develop their sensory participations and gain hand-on experience
2. Theme-based content lay a solid foundation for lifelong learning, and build up the right values and attitudes in context
3. Understand how to use the tools and apply learnt knowledge to complete simple tasks
4. Develop student's interest in learning Arts and Mathematics
5. Nurture children's communication skills and develop curiosity about the society that we are living for



3-year DECT Model Primary School Program



This project aims to establish digital model primary schools. In a world where digital technology has become the new norm, students can use digital technology to enhance their learning performance and increase their competitiveness in higher education and employment.

In order for young people to better utilize their talents in the future era of digital technology, proficiency in the use of computer digital tools and open source software is essential for young people to embrace and adapt to the future shift in digital technology.

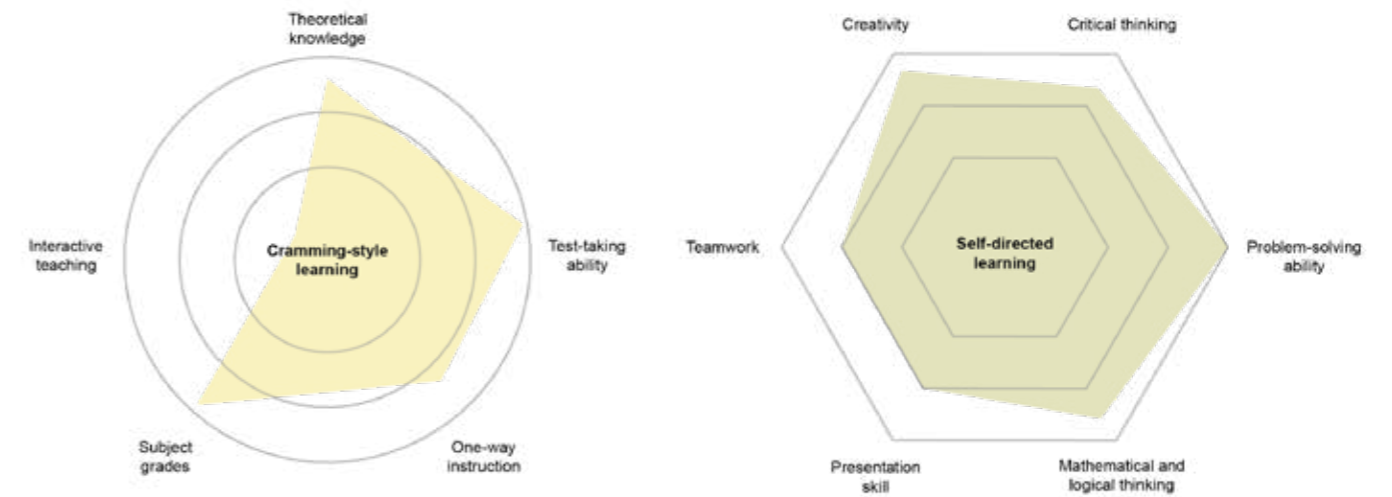
Chinese 72 Hours Face to Face

Course Features

- Provide students and teachers of P1-P6 with 1 to 2 hours per week for a total of 20 sessions of DECT theme-based courses
- Provide 12-15 hours of DECT training for teachers throughout a year
- Provide students with free and open-source STEAM software for cross-curricular learning with diverse contents
- Integration of in-class teaching, extra-curricular activities and CPD training for teachers, establish digital model primary schools

Learning Theme

- Story of Farms
- Students can learn Blender and utilize different tools and create an assortment of farm props



Compared with traditional teaching, the DECT program focuses more on developing students' interest in learning to inspire self-directed learning and achieve holistic development, including creativity, critical thinking, problem-solving skills, mathematical and logical thinking, presentation skills and teamwork.

Course Structure

Grade	Themes	Modules learned	Learning Outcomes	Total length
Primary 1	Who am I	Vector Graphics, Video Editing, Office Tools	Learn to use different thinking styles and tools to describe things that are relevant to yourself, promote self-development	20 Hours
Primary 2	A Marine Journey	Raster Painting, 3D Modelling, Office Tools	Learn to use different tools to create marine themed works, learn about different marine creatures, understand the importance of environmental conservation, develop empathy and respect for life	20 Hours
Primary 3	A Robot Journey	Vector Graphics, 3D Modelling, Video Editing, Robotics, Office Tools	Use creativity to design robots and create stories to cultivate students' curiosity and interest in science and technology	20 Hours
Primary 3	Story of Farms	Vector Graphics, Raster Painting, 3D Modelling, Database Analysis, Office Tools	To understand the natural environment and the diversity and classification of organisms, and to explore the relationship between human beings and the environment	20 Hours
Primary 5	The Digital Entrepreneur	Graphic Design, Vector Graphics, 3D Modelling, Fintech, Office Tools	To understand the importance of technology to the development of society, to understand and experience different creative work, and to prepare for the future world	20 Hours
Primary 6	The Digital Designer	Vector Graphics, 3D Modelling, UXUI, Virtual Reality (VR), Game Design, Video Editing, Office Tools		20 Hours

Course Format

- Year 1: After-school activities
- Year 2: Integration of some courses into existing subjects for theme-based learning
- Year 3: Integration with existing subjects for cross-thematic learning

Hardware Requirements

The computer equipment that schools already has will be the basic equipment for teaching and learning. Other required learning equipment are shown as below.

- 25-40 desktop computers with mouse
- 25-40 drawing tablets (e.g., UGEE Graphics Drawing Tablet hand-held drawing tablet S1060)
- 7-10 robotic kits (with extensions for 4 students)

DECT+ Model Secondary School Program



Course Description

A great variety of creative technology workshops in this programme allows students to leverage digital technology tools and inspire their interests in information technology. Besides, schools can apply to the government's "IT Innovation Lab in Secondary Schools" program using the courses provided in our program, and receive up to 1 million subsidies within 3 academic years to support the school in organizing extracurricular activities related to information technology.

What services does the DECT+ Model Secondary School Program offer to schools?

- A complete proposal for the application for the fund
- Provide support for DECT education and seamless teaching via Krystal Educational Platform
- Up-to-date curricula lay a sound foundation for students to pursue further trainings in the I&T industry
- Students receive lifelong tools and career planning support through the DECT+ Model Secondary School Program to excel in the future



Learning Objectives

- Enhance the interest of young people (including secondary schools' students) in IT and innovative thinking
- Lay a sound foundation in IT for young people during their secondary schooling, thereby promoting local

Course Features

- Provide students and teachers of S1-S3 with up-to-date DECT theme-based courses in creative technology
- Modular course design successfully integrates the areas of creative arts and technology education to realize DECT teaching
- Provide 12-15 hours of DECT training for teachers throughout a year
- Provide students with free and open-source STEAM software for cross-curricular learning with diverse contents
- Integration of in-class teaching, extra-curricular activities and CPD training for teachers, establish digital model primary schools

Youth Enrichment Program

Grade	Technological Education Themes	Featured Courses	Course Description	Learning Outcomes
Secondary 1- Secondary 3	Data Analytics	Big Data Analytics in Covid-19	The course will expose students to data science using real-world data. Students will learn the techniques of data visualization and the process of identifying patterns and trends.	ABC and 5V: Explore the properties of big data and the formats of displaying big data through covid-19 case studies Managing Big Data: Work through database management systems and work through a data analysis cycle using COVID-19 data Visualizing Big Data: Using the same dataset, visualize pandemic trends on R Studio and extract insights
	Artificial Intelligence and machine Learning	Technology and Philosophy: AI and ML	Students will learn to distinguish between AI, machine learning (ML), and deep learning (DL), as well as industrial applications and ethical challenges of AI, inviting students to explore the relationship between humans and machines.	Definition of AI: Explain and compare multiple definitions of AI and explore cases of AI in recent history ML and DL as subsets of AI: Through case studies and an avoidance of jargon, explore the mechanisms of cognitive computing and neural networks Power of AI: Discuss industrial applications of AI from medicine to media and identify the limits of AI "Ai" for "Love"? : Guide discussions of the ethical challenges of AI with students forming teams to visualize AI dystopia or utopia
	Augmented & Virtual Reality	Spark AR Interactive Experience	The course will expose students to AR using Spark AR. Students will learn about the basic operations and learn how to create simple AR filters, by practising various interactive functions of Spark AR.	Spark AR basics: Explore software and learn about its basic and advanced operations for creation
	Gamification	DIY Music Box STEAM Workshop	Students will learn basic coding logic and knowledge through using Arduino, establishing a foundation for further studies in this area.	Arduino basics: Teaching with Arduino Coding and Assembly: Familiarize with the functions of each components of the music box, coding with Arduino and put together the components into a working machine
	Robotics		The hands-on course introduces students to the operation of robotics hardware and software through the creation of robotics, providing a learning experience in designing and implementing robotics solutions such as the Arduino development board or Raspberry Pi, to build their robots.	Physics for Robots: Understand the basic principles of motion for robotics application and apply basic circuit components, such as using the Arduino development board or Raspberry Pi to build robots Talking with Robots: Program and control robotic systems using high-level or drag-and-drop programming languages It's Alive!: Applying knowledge in robotics hardware and software, design and implement a navigation solution in robots while troubleshooting in teams Everyone can be an Engineer: Review and stylize the robotic design process used during the above project



Introduction to Godot

Students will learn how to utilize different tools create game scenes in Godot and the actual creation process works through demonstrations, to create their first games.



Big Data Analysis

Students will learn about the reasons for the data explosion, the attributes of big data, and how to extract useful information from large amounts of data, with a discussion of the social implications of big data.

Our Pilot Institutions



Early Childhood Education

In an era of rapid evolution in the education sector, educational centers face challenges in expanding their product offerings to meet the diverse needs of students and learners.

Krystal Institute collaborates with Kids Leaderland to provide a variety of digital courses. The DECT Early Childhood Digital Education Series is a collection of interactive introductory courses that blend information technology, emphasize positive values, and are theme-based.

In the 10-hour DECT Digital Storytelling Workshop, children aged 4-7 learn digital skills to enhance their creativity. They develop problem-solving abilities through logical thinking and early exposure to emerging technology, enriching their learning experiences.

Primary Education

To enhance students' competitiveness in higher education and the digital economy, we offer various short-term digital experience courses. These courses allow students to learn digital skills in their spare time or during summer camps and gain familiarity with digital technology.

For example, in our Blender course, students learn to use 3D animation software, Blender. They gain insights into the fundamental concepts and processes of 3D animation technology. In the course, they learn to use various tools for basic modeling and animation, enhancing their interest and understanding of 3D animation technology.





Krystal OTP

Krystal OTP includes all the office tools needed to keep daily office tasks running efficiently and economically.

Krystal Office+ provides a total solution for today's multidimensional business operation needs.

Services Overview



Krystal Office+

Krystal Office+ contains all the common office tools, meeting daily office needs efficiently and economically.



Krystal ERP

Different categories of ERP analysis tools are covered



Krystal BI

Krystal BI helps our users run their businesses in a more effective and profitable way.

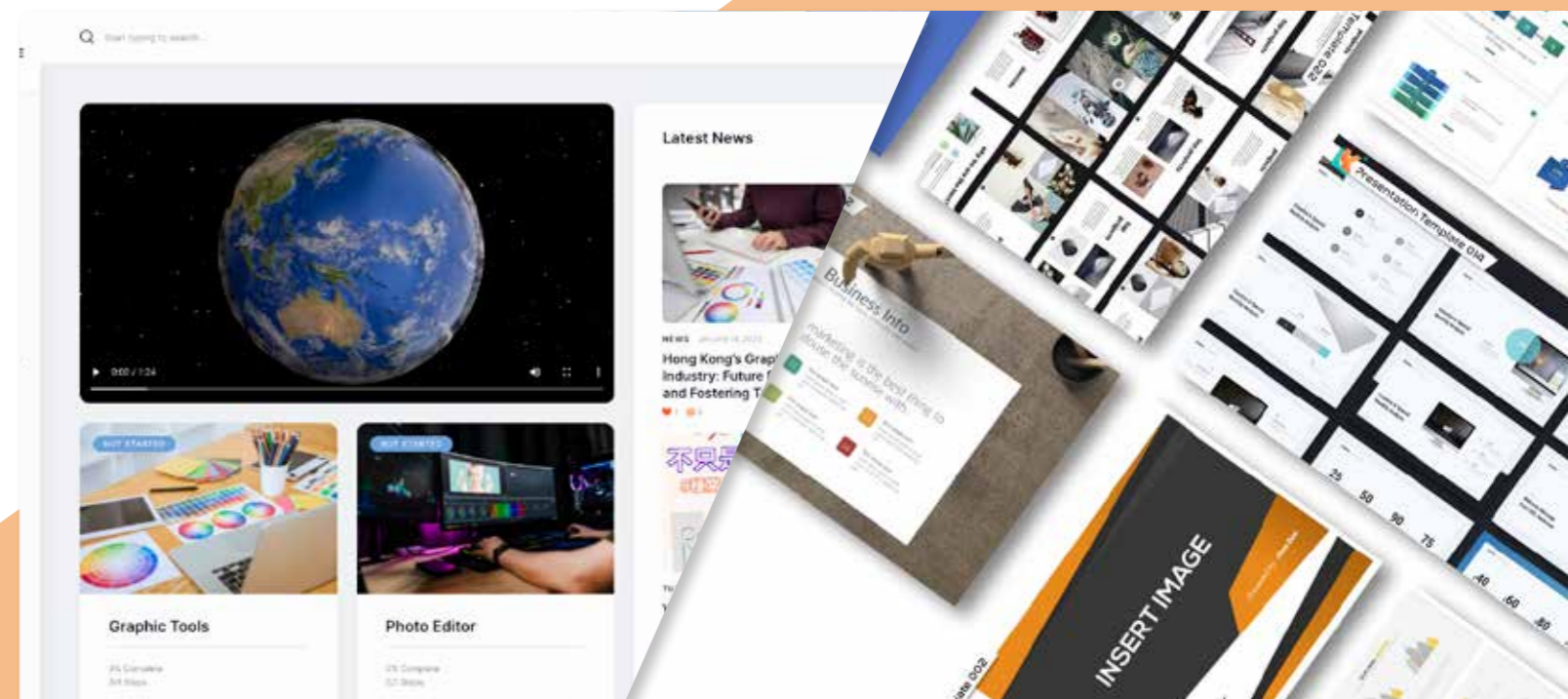


IT Box

Krystal Technology provides hardware and software support and maintenance for your office.

OTP Platform

Our OTP Platform is a one-stop solution for all your office transformation needs. Krystal OTP Platform serves as your resources and support platform. Tools updates, news, video training materials, templates, design ideas, user tips, course bookings, discussion forums, are all available in one place. Users can get certification on tools, acquire services and get consultation on problems encountered during production or setup.



Office Tools

Krystal Office+ includes all the office tools needed to keep daily office tasks running efficiently and economically. Modern offices require not just basic office software, but design, photo and video editing capabilities to face all challenges.

Krystal Office+ provides a total solution for today's multidimensional business operation needs.



Krystal Write
數譜文字編輯器



Krystal Present
數譜簡報編輯器



Krystal Calc
數譜試算表編輯器



Krystal Film Editor
數譜影片編輯器



Krystal Graphic Tools
數譜矢量圖形編輯器



Krystal Draw
數譜信息圖表編輯器



Krystal Photo Editor
數譜圖像編輯器



Krystal Dbase
數譜數據庫



Krystal eMail Hub
數譜電子郵件客戶端



Krystal ERP

Krystal ERP offers a total solution that meets the diverse needs of every business, lowering operational costs and enhancing the efficiency of business processes. As an open-source application, companies who use Krystal ERP are free to customise with minimal costs or technical hurdles.

Business automation suite
Krystal ERP is an integrated solution to run all aspects of business.

Java based
A commonly-used open sources programming language facilitates customisation

Web-based
Users may access, use and update the data anywhere, anytime.

Krystal support
Supply online materials, courses and workshops for users to learn.



Krystal BI



Krystal BI (Business Intelligence) is the new generation of self-service big data analysis tools, featuring easy and smooth operation and strong data analysis performance.

Krystal BI will help enterprises analyze data, improve business, and then unleash the potential of resources to solve the difficult problems encountered in business operations.

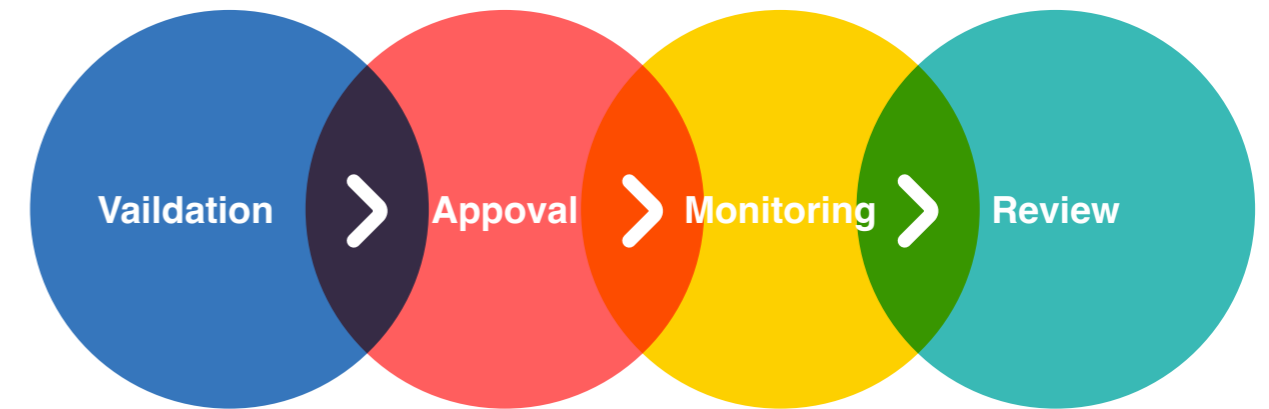


DECT Qualification Framework

DECT Qualifications Framework is designed with 1 entry level and 8 standard levels, each of which provides clear and precise learning objectives to enable students to learn foundational DECT knowledge in a progressive manner. The outcome-oriented curriculum design and assessment mechanism provides objective and clear criteria to measure students' learning outcomes, as well as the knowledge and skills acquired in the modules; the Framework further allows parents and teachers to better understand and monitor the learning process of students. In the K-12 educational stage, students will take courses in the DECT Global Series - Educational Program to lay a solid foundation for entering the digital economy.



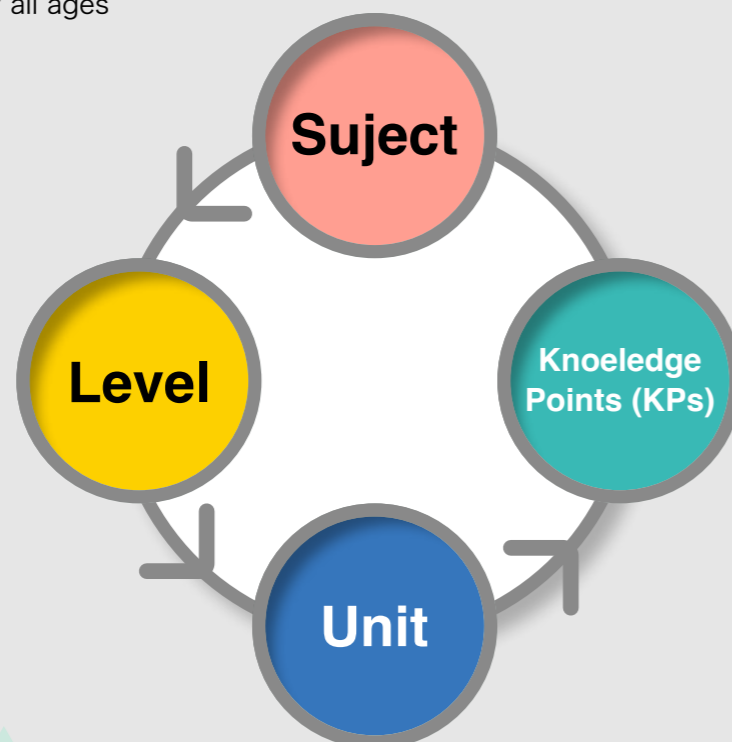
Procedure



Features of the DECT Qualification Framework

- Provide guidance for curriculum designers in writing courses and ensure our courses can meet the QF standards
- Level indicators are set to provide objective and clear standards for assessing students' academic performances
- Outcome-based project design accurately determines students' learning level as it provides a more objective and clear indication of the knowledge and skills that a student possesses in the subject
- accomplish evaluation items to achieve the learning objectives
- Age is not considered as a main factor to classify students at any levels as DECT courses reach people of all ages

Structure of the DECT Qualification Framework



Example of Certificate and Transcript



DECT Readiness Level

	Knowledge	Skills and tools	Responsibility and Holistic Development	Qualifications
DRL8	<ul style="list-style-type: none"> Process foremost and highly specialized DECT knowledge, theoretical concepts, method processes, trends and developments in different occupations and/ or knowledge domains Analyze, integrate and develop new specialized DECT knowledge and insights in a board range of abstract contexts Process and evaluate detailed research critically to perform complex tasks with original thinking while being aware of the importance of digital skills transformation Develop nuanced and rounded arguments independently with critical awareness of interdisciplinary and methodological knowledge and provide new study directions and strategies in the digital economy Contribute to the change of boundaries of knowledge through original research with an extensive amount of work, of which a part deserves national or international approved publication 	<ul style="list-style-type: none"> Select specialized DECT skills and tools to perform professional tasks in a broad range of complex and unpredictable situations, such as in an operational environment Identify, analyze, and generate flexible and inventive solutions and/ or use existing procedures to generate data and address complex problems in digital economy vocations Integrate original DECT tools with existing tools and skill infrastructure to demonstrate mastery and innovation Prototype original DECT tools and validate in laboratory environment/ simulation Provide an original contribution of the robustification of original DECT tool modules Deploy original DECT tool systems in operational environments and ensure technological and social progression by demonstrating digital economy value addition Perform highly skilled tasks with discretion, originality, professionalism and creativity 	<ul style="list-style-type: none"> Take responsibility for the completion of own works, assigned tasks and/ or study Take responsibility for the management of unpredictable contexts and professional development of people, groups, and communities Exercise self-management in complex and unpredictable study contexts Realize personal development, mostly autonomous and based on intrinsic motivation Take responsibility for contributing to professional knowledge and practice and/ or for reviewing the strategic performance of teams Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research 	Doctor
DRL7	<ul style="list-style-type: none"> Process foremost and highly specialized DECT knowledge, theoretical concepts, method processes, trends and developments in different occupations and/ or knowledge domains Analyze, integrate and develop new specialized DECT knowledge and insights in a board range of abstract contexts Process and evaluate detailed research critically to perform complex tasks while being aware of the importance of digital skills transformation Deepen arguments independently with critical awareness of interdisciplinary and methodological knowledge and provide new study directions and strategies in the digital economy 	<ul style="list-style-type: none"> Select specialized DECT skills and tools to perform professional tasks in a broad range of complex and unpredictable situations, such as in practical workplace settings Identify, analyze, and generate flexible and inventive solutions and/ or use existing procedures to generate data and address complex problems in digital economy vocations Integrate original DECT tools with existing tools and skill infrastructure to demonstrate mastery and innovation Prototype original DECT tools and validate in laboratory environment/ simulation Provide an original contribution of the robustification of original DECT tool modules Perform highly skilled tasks with discretion, professionalism and creativity 	<ul style="list-style-type: none"> Take responsibility for the completion of own works, assigned tasks and/ or study Take responsibility for the management of unpredictable contexts and professional development of people, groups, and communities Exercise self-management in predictable study contexts Realize personal development, mostly autonomously and based on intrinsic motivation Take responsibility for contributing to professional knowledge and practice and/ or for reviewing the strategic performance of teams 	Master
DRL6	<ul style="list-style-type: none"> Process advanced and specialized DECT knowledge, theoretical concepts, methods, processes, trends and developments, related to an occupation and/ or a knowledge domain Analyze, apply and integrate specialized DECT knowledge and insights in a board range of contexts 	<ul style="list-style-type: none"> Select specialized DECT skills and tools to perform professional tasks in a range of complex and unpredictable situations, such as in practical workplace settings Identify, analyze, and generate flexible and inventive solutions and/ or use existing procedures to generate data and address complex problems in digital economy vocations 	<ul style="list-style-type: none"> Take responsibility for the completion of own works, assigned tasks and/ or study Take responsibility for the completion of the work or study activities with others and for the management of unpredictable contexts Exercise self-management in unpredictable study contexts 	Bachelor

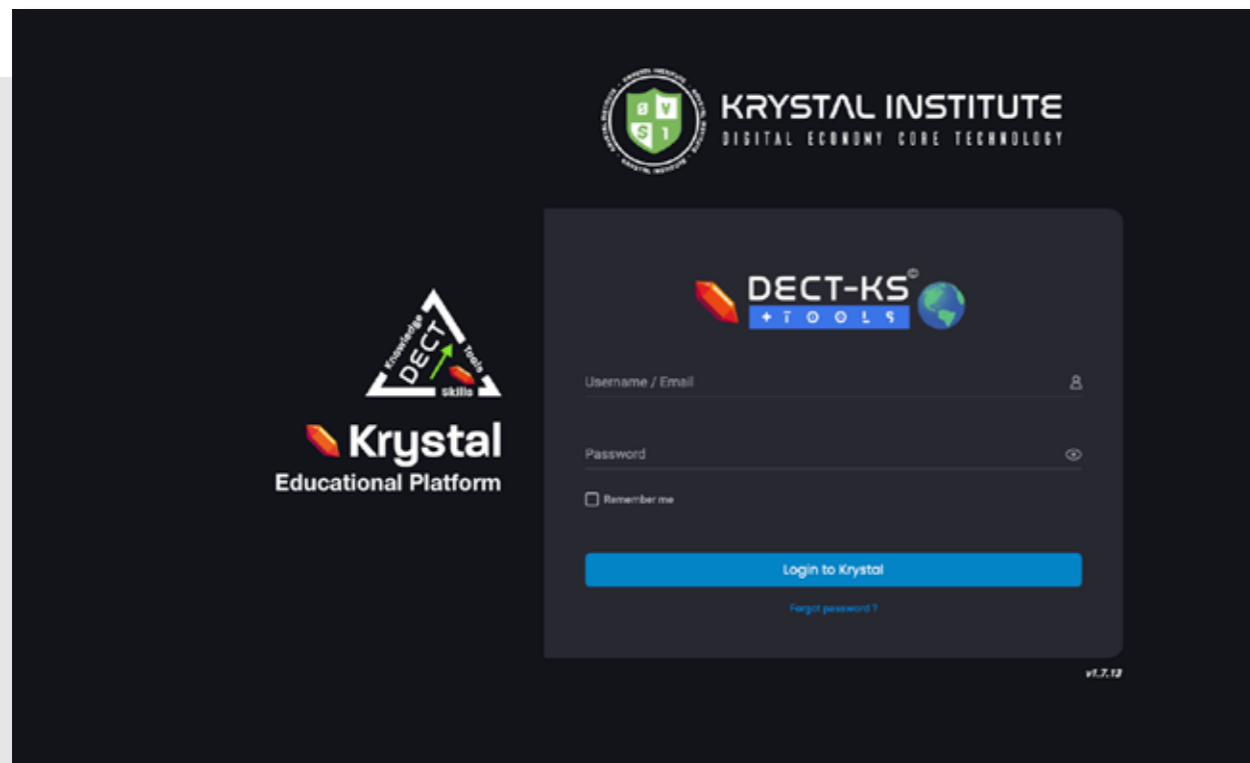


DRL6	<ul style="list-style-type: none"> Process and evaluate detailed research critically to perform complex tasks while being aware of the importance of digital skills transformation Develop basic arguments by applying pervasive results of research and methodological knowledge 	<ul style="list-style-type: none"> Integrate original DECT tools with existing tools and skill infrastructure to demonstrate mastery and innovation Prototype original DECT tools and validate in laboratory environment/ simulation Perform skilled tasks with discretion and creativity 	<ul style="list-style-type: none"> Realize personal development on one's initiative, by reflecting own learning results in professional practices and take action to address it 	Bachelor
DRL5	<ul style="list-style-type: none"> Understand comprehensive and specialized DECT knowledge, theoretical concepts, method processes, trends and developments, related to an occupation and/ or a knowledge domain Analyze and apply specialized DECT knowledge in a broad range of contexts Process and evaluate detailed information logically to carry out of a broad range of tasks related to an occupation and/ or a knowledge domain 	<ul style="list-style-type: none"> Select specialized DECT skills and tools to perform professional tasks in a range of unpredictable contexts Identify, analyze, and generate creative solutions and/ or use existing procedures to address complex problems in digital economy vocations Perform skilled tasks with discretion and creativity 	<ul style="list-style-type: none"> Take responsibility for the completion of own works, assigned tasks and/ or study Take responsibility for the completion of the work or study activities with others and for the management of unpredictable contexts Exercise self-management in predictable study contexts Realize personal development by reflecting own learning results 	Associate, Higher/ Professional/ Advanced diploma
DRL4	<ul style="list-style-type: none"> Understand specialized DECT knowledge, theoretical concepts, methods, processes, trends and developments, related to an occupation and or a knowledge domain Apply specialized DECT knowledge and process information logically to carry out of a broad range of tasks related to an occupation and/ or a knowledge domain 	<ul style="list-style-type: none"> Perform professional tasks using DECT skills and tools in a variety of familiar and some unfamiliar contexts Identify, analyze, and generate solutions to real-world problems systematically in digital economy vocations 	<ul style="list-style-type: none"> Take responsibility for the completion of assigned tasks and or study Share responsibility for the completion of the work or study activities with others Exercise self-management in predictable study contexts Realize personal development on request, where necessary with support 	Diploma of Secondary Education
DRL3	<ul style="list-style-type: none"> Understand DECT knowledge, general concepts, methods, processes, trends and developments, related to an occupation and/ or a knowledge domain Apply DECT knowledge and process information logically to carry out a range of tasks related to an occupation and/ or a knowledge domain 	<ul style="list-style-type: none"> Perform professional tasks using DECT skills and tools in predictable and structured contexts Observe, analyze, and solve real-world problems 	<ul style="list-style-type: none"> Take responsibility for the completion of assigned tasks and/ or study Share responsibility for the completion of the work or study activities with others Ask for support for further personal development 	Certificate of Vocational Education
DRL2	<ul style="list-style-type: none"> Understand basic DECT knowledge, facts, views, general concepts and principles, related to day-to-day contexts and/ or a knowledge domain Apply basic DECT knowledge and process relevant information to carry out simple tasks related to a knowledge domain 	<ul style="list-style-type: none"> Perform simple tasks using DECT skills and tools in predictable and structured contexts Recognize, observe and solve simple real-world problems 	<ul style="list-style-type: none"> Take responsibility for the completion of assigned tasks Share responsibility for the completion of the work or study activities with others 	Foundation certificate
DRL1	<ul style="list-style-type: none"> Understand basic DECT knowledge, facts and views related to day-to-day contexts 	<ul style="list-style-type: none"> Perform simple tasks using basic DECT skills and tools in predictable and structured contexts 	<ul style="list-style-type: none"> Carry, with guidance, responsibility for the completion of assigned tasks 	
Entry Level	<ul style="list-style-type: none"> Understand basic DECT knowledge related to day-to-day contexts 	<ul style="list-style-type: none"> Use a limited range of basic DECT skills and tools to carry out simple tasks 	<ul style="list-style-type: none"> Carry, with guidance, responsibility for the completion of simple tasks 	Kindergarten/ Beginners



Krystal Educational Platform

Krystal Education Platform (KEP) is our proprietary cloud-based learning platform. It is designed to work seamlessly with free creative and development tools in providing support for DECT education. KEP provides homework and learning materials management, remote collaboration, analytics, and more in real time.



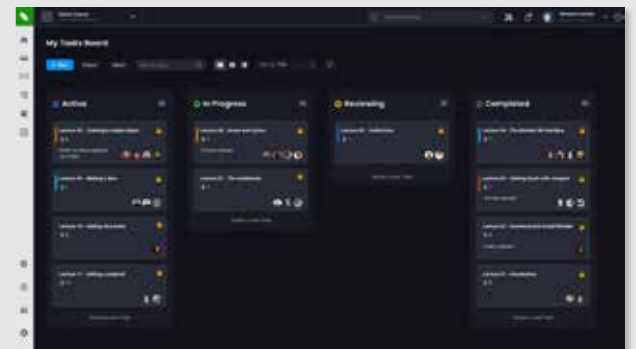
Features

- Provide a secure platform that supports all the functions of running and managing an educational institution
- Provide a collaborative platform for students, parents and teachers to communicate in real time
- Manage "One Stop-real time information" on all vital information needed to run an educational institute
- Provide A.I-backed virtual assistant to facilitate guidance
- Provide a variety of software tools to enable digital classroom engagement
- Allow students and teachers to access all curriculum resources and services on the platform
- Build up strong school communities through a variety social tools
- Generate students' and teachers' performance tracking and reports automatically based on data warehouse
- Provide comprehensive dashboards with analytics backend
- Provide Qualification Framework (QF) to track students' learning journeys
- Provide comprehensive and integrated software stream for teachers and students
- Serve as a real-time activity tracking and communication channel for the college
- Bring Business Intelligence (BI) to educational institute through In-depth and customizable data analytics
- Provide robust permission controls for all education stakeholders

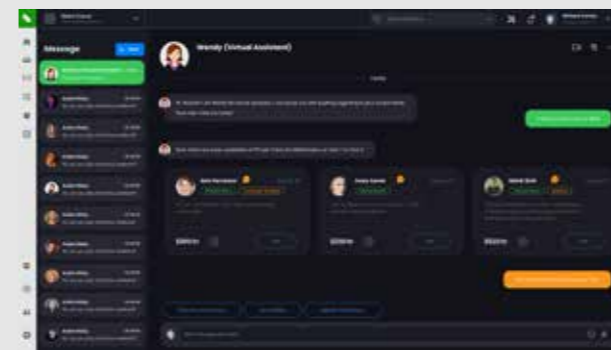
	Students	Parents	Teachers	Principals
Features	<ul style="list-style-type: none"> • Classwork and course progress tracking • Secure assignment submission • Free learning resource downloading • Chatroom for in-class interaction and collaboration 	<ul style="list-style-type: none"> • A.I Chat box for inquiry • Notification of updated information • Reminder settings on the calendar • Student periodic reports reception 	<ul style="list-style-type: none"> • Classwork and assignment delivery and reception • Create a new course with group clearance • Upload of teaching material for quick access • Student performance report generation 	<ul style="list-style-type: none"> • Dashboard for monitoring classroom occupancy • Dashboard for tracking course enrollment • School portfolio generation



Classwork and course progress tracking



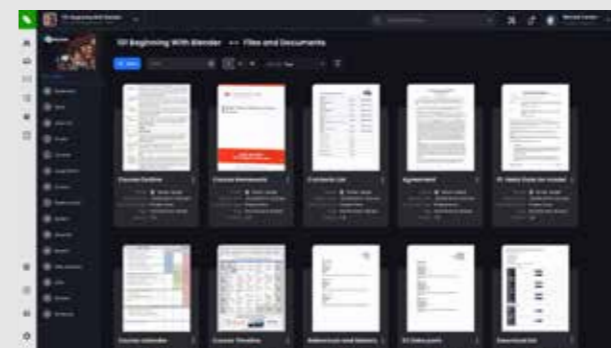
Chatroom for in-class interaction and collaboration



A.I Chat box for inquiry



Create new courses with group clearance



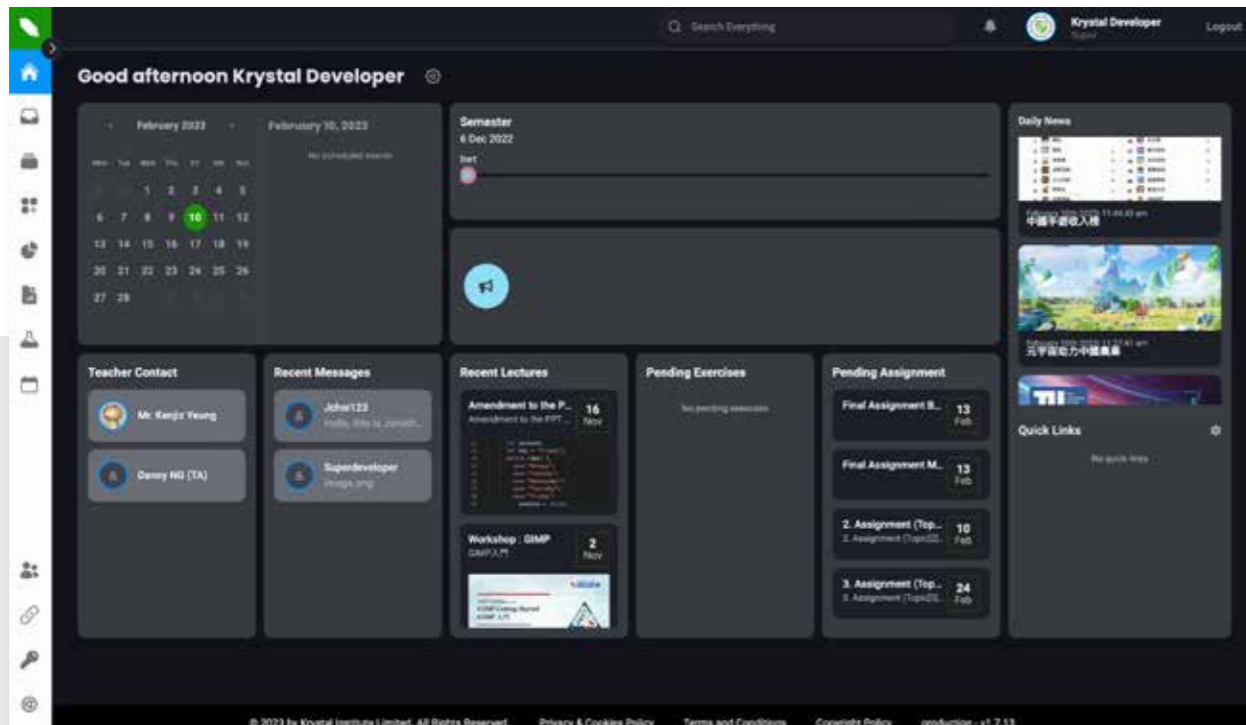
Upload of teaching material for quick access



Dashboards for monitoring classroom occupancy

Case Study: Example of using the ERB Online Learning Platform

We provide an online learning platform for ERB teachers and students to supplement DECT education and reinforce seamless teaching.

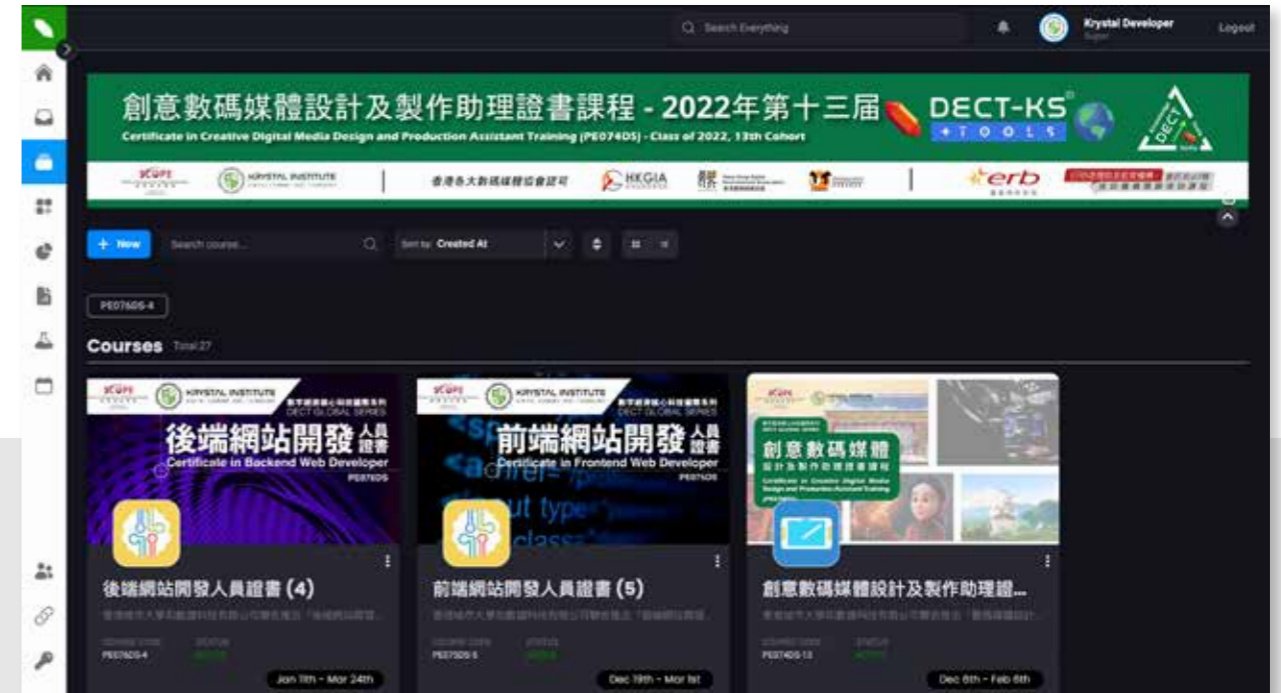


Teachers and students can browse real-time industry news, industry interviews and information on DECT technology innovations in "Daily Updates" to develop sensitivity and insight into DECT industry developments.

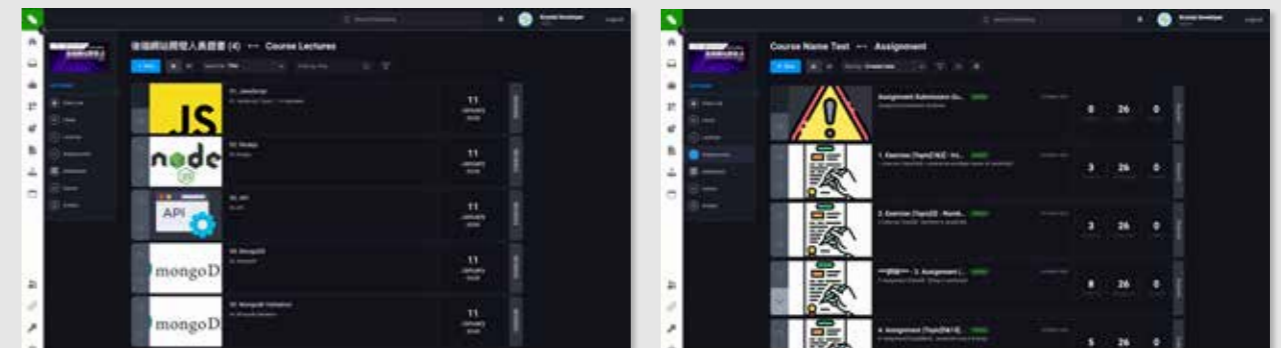


Courses

Different course titles and related information are displayed to allow teachers to effectively manage courses, group teaching and upload teaching materials.

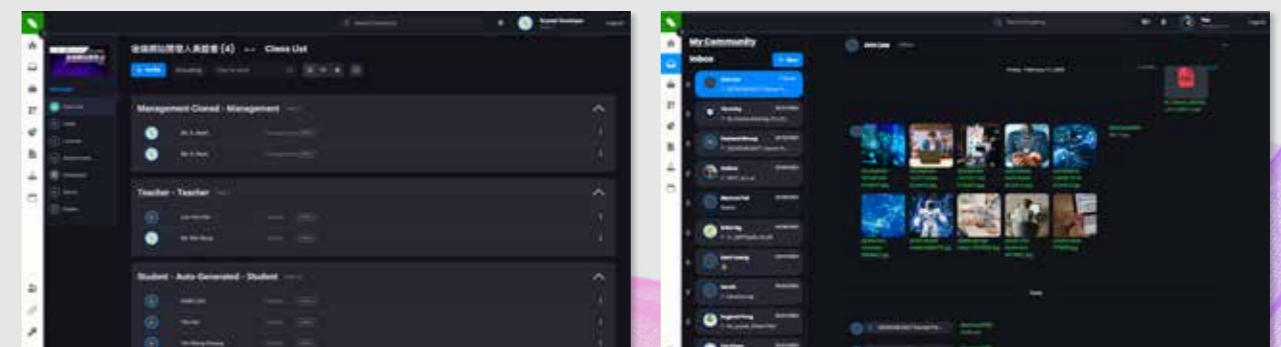


After accessing the course homepage, teachers and students can browse course sessions, class lists, class messages, assignments and other relevant information. In addition, students can submit assignments online and download class materials for independent learning.



Class List

Teachers and students can click on profile avatars to add friends, send messages, and boost classroom interactivity.



Continuous Improvement and Review (CIR)

Continuous Improvement Review (CIR) is a key procedure in our internal curriculum development process to identify best practices for curriculum delivery and to improve the quality of instructional outcomes.

Objectives of Continuous Improvement and Review (CIR)

- Inculcate the practice of seeking continuous improvement in the delivery of training and assessment
- Identify best practices and role models to provide quality continuing education and training

Systems in Continuous Improvement and Review (CIR)

Internal Quality Assurance System

- Ensure the contents of the courses and assessments meet the standards in the DECT Qualification Framework
- Establish a system to monitor quality of training delivery of educators, to ensure quality of accredited courseware and educators are consistent with actual training or assessment
- Establish the “Plan-Do-Check-Act (PDCA)” system to ensure consistent training delivery and documentation standards are in place

Educator Management System

- Ensure the most qualified educators are recruited and inducted to design, deliver and/or assess the DECT program
- Monitor, appraise and manage performance of educators
- Provide professional training and development to educators

Outcome Evaluation System

- Update on actions taken based on organisation audit or previous CIR
- Establish and implement continuous review and feedback mechanisms

KI-related Administrative System

- Provide learner support system that covers course advisory, progression pathway, course schedule, fees and refund policy, retest/appeal procedures, career advisory, placement support (if applicable)
- Establish a system to ensure accurate evidence, dates of training and assessments are available for review when requested
- DECT certificate printing and distribution system

Procedure in Continuous Improvement and Review (CIR)



Procedure	Details	Documentary Evidence
Receipt of Notice	Information and evidence gathering	Training and assessment schedules
1st CIR	<p>Detailed write-up preparation elaborating on the process and procedures for implementing the CIR standards in the following systems:</p> <ul style="list-style-type: none"> • Standard Operating Procedure Manual • Flowchart • System Implementation • System Review • Monitoring System • Performance and Evaluation system 	<ul style="list-style-type: none"> • CVs and evidence showing qualifications of instructors, assessors and curriculum developers declared • CVs and evidence showing qualifications of trainers, assessors and curriculum developers declared • Process of review by Krystal Institute to ensure currency of courseware, relevance to industry, target audience and contextualization • Administrative System that shows evidences of accurate and timely assessment submission and certification issuance processes • Outcomes tracking such as attrition rate, passing rate, surveys conducted etc • All evidence of implementation of the various systems such as training observation checklist with requirements clearly communicated to all educators, or learners' profiling checklist in determining contextualization of courseware, etc • Documentation of outcomes of all the various systems such as systematic documentation of all CVs and qualifications of qualified educators (against declaration submitted at accreditation) • Supplementary evidence sources or supporting documents which may be requested for the CIR audit are: <ul style="list-style-type: none"> • Course files (course materials submitted at point of course application, includes Assessment Plan, Slides, Participants' Handouts and Teacher Guide) • Assessment booklets • Conduct of assessment reports • Supervising assessor reports • Training and assessment records
2nd CIR	audit and training/ assessment observation looking for implemented systems, evidence of each implemented system and outcome of each implemented system	• Slides and handouts related to the implemented systems (for presentation)
Report and outcome	Study findings in the report, take note of rectifications and timeline in CIR outcome letter and take corrective actions	

Examples of using PDCA Management

Internal Quality Assurance System					
Plan	Define system objectives	<ul style="list-style-type: none"> Ensure courseware and assessment are aligned to DECT Qualification Framework standards Manage training delivery and assessment activities Provide comprehensive course files (including course structure, slides, teacher guides and documentations) to ensure the contents of the courses and assessments meet the standards in the DECT Qualification Framework 			
Do	Track and monitor key performance metrics and documents	Quality of design and delivery of courseware	<ul style="list-style-type: none"> Course structure Slides Teaching guides Tools Assignments Assessments Assessment plan Assessment schedule Syllabus Curriculum guide Learner profile checklist 	Quality of trainers, assessors and curriculum developers	<ul style="list-style-type: none"> Appraisal form for instructors Training and assessment records Employers' feedback Supervisory assessor reports Employer testimonial Instructor resume and certificates Training observation checklist
Check	Regularly validate the effectiveness of performance		Regular reviews to ensure currency, for continuous improvement, for contextualisation to be relevant to a particular industry or target audience and so on		Regular reviews to ensure implementation outcome of training and development, performance management system and so on
Act	Implement process improvement	Post-delivery improvements	Improvements made to the internal quality assurance system, particularly the management and implementation of assessments, to ensure the four principles of assessments - reliability, fairness, validity and flexibility	Post-assessment improvements	Improvement of positive and negative factors encountered in the implementation of the evaluation process, evaluation validation and so on

System-Evidence-Outcome Approach

For the four systems in Continuous Improvement and Review (CIR) stated above, Krystal Institute is adopting the system-evidence- outcome approach to evaluate their results.

System(s)	<ul style="list-style-type: none"> For all the stated system of review, each of the stated system should be fully implemented The process/procedures for all the implemented systems should be clearly documented and articulated to all relevant personnel, e.g. a standard operation procedure manual of the implemented system
Evidence of System Implementation	<ul style="list-style-type: none"> For any of the implemented system, there should be adequate evidence indicating the process of the implemented system, e.g. specific completed forms or tools used in the process of implementing the system
Outcome of System Implementation	<ul style="list-style-type: none"> For any of the implemented system, there should be clear indication of the outcome(s) arising from the implementation of the system Analysis should be done accordingly on the outcome(s) for continuous improvement purposes All the processes pertaining the outcome of system implementation should be clearly documented

Self-Assessment Checklist

Internal Quality Assurance System		
1.1 System to ensure courseware and assessment meet the standards in the DECT Qualification Framework	<ul style="list-style-type: none"> System in place to manage developers Process in place to conduct internal evaluation of courseware to ensure alignment to DECT Qualification Framework standards 	<input type="checkbox"/> yes <input type="checkbox"/> no
1.2 System to manage training delivery	<ul style="list-style-type: none"> System in place to monitor training delivery by educators 	<input type="checkbox"/> yes <input type="checkbox"/> no
1.3 System to manage assessment activities	<ul style="list-style-type: none"> System in place to monitor assessment activities and to ensure reliability of assessment conducted 	<input type="checkbox"/> yes <input type="checkbox"/> no
Educator Management System		
2.1 HR system in place to ensure most qualified educators are available to design, deliver and assess DECT programmes	<ul style="list-style-type: none"> System in place to recruit and induct qualified educators 	<input type="checkbox"/> yes <input type="checkbox"/> no
2.2 HR system in place to monitor , appraise and manage performance of educators	<ul style="list-style-type: none"> System in place to manage the performance of educators 	<input type="checkbox"/> yes <input type="checkbox"/> no
2.3 HR system in place to train and develop educators	<ul style="list-style-type: none"> System in place to cater for ongoing professional development 	<input type="checkbox"/> yes <input type="checkbox"/> no
Outcome Evaluation System		
3.1 System to establish and implement continuous review and feedback mechanisms	Clear articulation and analysis on these 4 areas: <ul style="list-style-type: none"> Training programme Course material Instructors Facilities and logistic support 	<input type="checkbox"/> yes <input type="checkbox"/> no
KI-related Administrative System		
4.1 Learner Support System in place	Learner support system that covers: <ul style="list-style-type: none"> Course advisory Progression pathway Course schedule Fees and refund policy Retest/Appeal procedures Career advisory (if applicable) Placement support (If applicable) 	<input type="checkbox"/> yes <input type="checkbox"/> no
4.2 System in place to ensure accurate and timely submission of assessment results	<ul style="list-style-type: none"> Assessment data are accurate and submitted in accordance to agreed timeline (within 1 month) Data must be submitted upon completion of assessment Unless WOA has given approval 	<input type="checkbox"/> yes <input type="checkbox"/> no
4.3 DECT certificate printing and distribution system	<ul style="list-style-type: none"> DECT certificate is printed and distributed according to agreed service timeline 	<input type="checkbox"/> yes <input type="checkbox"/> no

Train-the-Trainer Program

Provide DECT Professional TTT Training and Support for Teachers

Program Objectives

Train-the-trainer Program is the cornerstone for maintaining Krystal's ecosystem of programs. It is a scalable professional development model through which our comprehensive DECT contents and learning management system provide support to teachers.

Our objective is to create a lifetime partnership with our users and students. We believe that knowledge, skills and tools are necessary for our users to survive and thrive in today's digital economy. By keeping our curriculum relevant, forward-looking, multidisciplinary, and supported with research and continuous development, we give our users the required survival and digital skills needed to succeed and excel in the global digital economy.

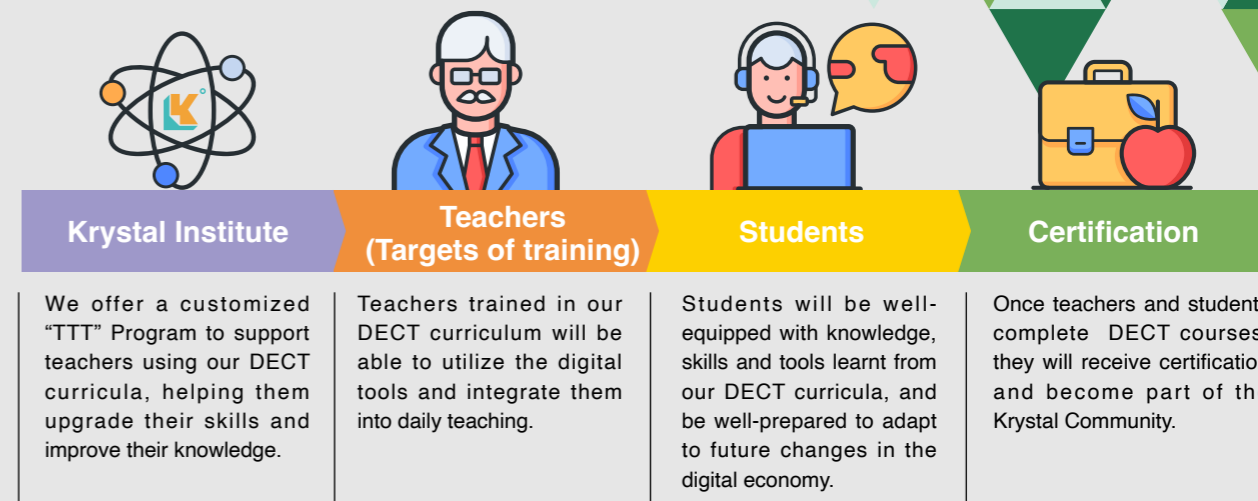
Program Features

- Provide a goal-oriented education — Project-Based Learning
- Stimulate collaboration and communication, not competition
- To establish bond, trust and care between teachers and students
- Provide continuous research and development to keep learning materials up-to-date and relevant

Advantages of our Train-the-Trainer Program

Krystal Educational Platform	Tailor-made training and teaching materials	Free Creative and Production Tools
+ Our learning management system provides support for DECT education and seamless teaching.	+ Includes teaching guides, slides, syllabi, classroom activity materials, assignments, assessments and so on + Our DECT courses are designed to align with the Education Bureau's teaching guidelines and promote the use of digital technology to enhance existing teaching content	+ Empower students with creative and production tools that they can use throughout their education and careers, so that they are able to accomplish creative tasks in real-life scenarios

TTT Process



TTT Outcomes



Our Pilot Partners

We successfully launched our pilot curricula and teacher training programs at several organizations and schools, integrating digital tools into daily teaching and learning. Teachers and students who participated gave positive feedback, saying they were able to learn new knowledge, skills and tools.



Hong Kong Taoist Association
Shun Yeung Primary School



Hong Kong Taoist Association
Wun Tsuen School



HKTA The Yuen Yuen Institute
No.3 Secondary School



CityU School of Continuing and
Professional Education

International Alliance of Blender Educators



The International Alliance of Blender Educators (IABE) is a dynamic global initiative that strives to educate and inspire the next generation of Computer Graphics (CG) artists using the powerful Blender platform. With a steadfast commitment to standardized education, certification programs, and fostering student engagement, IABE plays a vital role within the Blender community. We nurture talent, broaden access to education, and ensure that industry standards are upheld, thereby contributing to the continued growth and excellence of Blender practitioners worldwide.

IABE has set forth the following objectives.

Standardized Blender Curriculum

Developing a standardized Blender curriculum for students aged 8 to 18, ensuring a consistent learning experience across regions.

Comprehensive Qualification Framework

Delivering essential and inclusive guidance and fostering feedback within the Blender Community to enhance the quality of QF design.

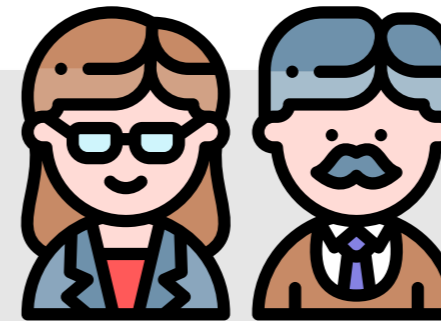
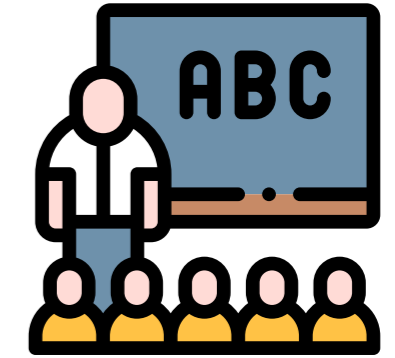
Inclusive Teaching Materials for K-12 Teachers

Equipping K-12 teachers with a comprehensive set of teaching materials to enhancing students' classroom learning experiences.

Values of Standardized Programs and Qualification Framework

Students

- Engaging with all modules of the curriculum, ensuring a deep understanding of Blender's capabilities
- Gaining a competitive edge in the workplace
- Arousing their interest in creative design



Teachers

- Benefiting from inclusive materials and training by incorporating them into their teaching methodologies
- Creating engaging lessons and improving student learning experiences

Train-the-Trainer

- Developing systematic training modules for teachers and ensuring consistency in Blender education
- Establishing trust and collaboration within the educational community, fostering a strong network of Blender educators



Our Commitments

Lifelong Digital Learning

Benefit from a wealth of educational materials, learning resources, workshops, webinars, seminars and exchange programs.

Career Advancements

Certified educators are able to teach in diverse educational settings and working with partners all over the world

Community Engagement

Play an active role in community events, collaborations, and knowledge-sharing sessions to foster innovations

International Alliance of DECT-AI Educators



The International Alliance for DECT-AI Education is an organization with a vision to shape the future of the global digital economy.

Our mission is to advocate for and provide DECT-AI (Digital, Creative, Network Development, and Educational Technology) education, addressing the ever-expanding digital divide, and empowering individuals to thrive in the digital age. Our objectives include promoting curriculum standardization, advocating for open-source tools, offering certification, and building a global educational community to foster collaboration and share best practices.

By equipping individuals with the skills and knowledge they need, we are laying the foundation for a world where technology uplifts, innovation is democratized, and the digital economy is accessible to all.

- Objectives**
- Promotion of DECT-AI Education**
Advocate for the significance of DECT-AI education in shaping the global digital economy's future.
 - Standardization of Curriculum**
Develop and offer a comprehensive curriculum and teacher's guide to ensure a uniform and high-quality learning experience.
 - Empowerment through Open Source**
Utilize and promote open-source tools (e.g., LibreOffice, GIMP, Inkscape, Openshot, and Thunderbird) to enhance accessibility and affordability.
 - Certification and Quality Assurance**
Provide certification for educators and students, guaranteeing the quality and applicability of learning outcomes.
 - Global Collaboration**
Foster a global community of educators, students, and stakeholders, promoting collaboration, sharing best practices, and continuous improvement.

Roles and Responsibilities



Empowering the Global Community



Continuous Evolution and Adaptation



Expanding Our Reach



Community Building and Networking



CG Animation Competition for Children in China China's Space Dream

Program Objectives

- Students**
- Cultivating Animation Talent**
Students can acquire creative tools and enhance their CG animation skills.
 - Boosting Creativity and Skills**
Students can unleash their creativity and create animated works and original stories throughout the competition.
 - Inspiring Interest in Animation and Technology**
Students can experience the joy of animation creation using Blender through the animation competition, sparking their interest in animation and technology.
 - Promoting Artistic Exchange**
Students can get to know friends and mentors from different regions during the competition, collaborating with them to expand their horizons.

- Society**
- Discovering Animation Talent**
The competition aids the industry in identifying talented young animators, providing systematic training to inject new talent into the field.
 - Promoting Interdisciplinary Collaboration in Animation Industry**
The competition can invite children's TV stations or other media platforms to produce peripheral content for promotion, increasing the competition's visibility.
 - Driving Growth and Innovation in the Animation Industry**
The competition fosters interaction among industry professionals and artistic creators, supporting the development of the animation ecosystem.
 - Raising Awareness of the Animation Industry Among the Public**
By showcasing students' creative works on social platforms, the audience can actively participate, interact, vote, and provide feedback.



<https://cgge.media>



Nurturing the future leaders of the global digital economy

DECT Curriculum for Primary and Secondary school

The challenges facing traditional primary and secondary Education

The challenges facing traditional primary and secondary school curricula in preparing students for a rapidly advancing technological world are multifaceted. These challenges stem from both the content of the curricula and the methods of instruction, as well as broader systemic issues. Here are some key challenges:

- 1. Rapid Technological Advancements:** The pace of technological innovation is accelerating. Technologies such as artificial intelligence (AI), machine learning, big data, and the Internet of Things (IoT) are transforming industries and societal structures at an unprecedented rate. Traditional curricula, which often focus on rote learning and standardized testing, may not keep pace with these rapid advancements, leaving students under prepared for the future job market.
- 2. Curriculum Relevance and Updating:** One of the major challenges is keeping the curriculum relevant and up-to-date with the latest technological advancements. The pace at which technology evolves often outstrips the speed at which educational curricula are updated. This delay means students may not be learning the most current skills or understanding emerging technologies.
- 3. Skills Gap:** There is a growing skills gap in the workforce, particularly in the fields of science, technology, engineering, and mathematics (STEM). The current education system may not provide enough emphasis on these areas, leading to a shortage of qualified professionals in industries that are critical for future economic growth.
- 4. Digital Literacy and Fluency:** As digital technology becomes integral to almost all aspects of life, digital literacy is becoming a fundamental skill, akin to reading and writing. Traditional curricula may not adequately focus on developing digital literacy and fluency, which are essential for navigating the modern world.
- 5. Changing Nature of Work:** The nature of work is evolving, with a shift towards more flexible, project-based, and remote work environments. Skills such as digital collaboration, online communication, and digital project management are becoming increasingly important, yet they are often not addressed comprehensively in traditional education systems.
- 6. Problem-Solving and Innovation:** The future requires not just technical skills, but also the ability to think critically, solve complex problems, and innovate. While traditional education often emphasizes memorization and standardized testing, there is a growing need for education systems to nurture creativity, critical thinking, and adaptability.
- 7. Emphasis on Rote Learning:** Many traditional curricula focus heavily on rote memorization and standardized testing. This approach may not adequately foster critical thinking, problem-solving, and creativity, which are essential skills in a technology-driven world.

- 8. Lack of Focus on Digital Skills:** While some schools have begun to incorporate digital literacy and computer science into their curricula, this is not universally the case. Many curricula still lack a comprehensive approach to teaching essential digital skills, including coding, data literacy, and safe online practices.
- 9. Teacher Training and Resources:** Adapting to a curriculum that includes rapidly changing technology requires teachers to be continually learning and updating their skills. However, professional development opportunities may be limited, and teachers may lack the necessary resources and support to effectively teach new technologies.
- 10. Budget Constraints:** Many schools, especially in underfunded and rural areas, face significant budget constraints. This lack of funding can mean outdated technology, insufficient digital devices for students, and a lack of investment in the latest educational technology tools.
- 11. Digital Divide:** There is a significant digital divide in access to technology and high-speed internet among students from different socio-economic backgrounds. This divide can lead to disparities in technological fluency and digital literacy, further exacerbating educational inequalities.
- 12. Ethical and Societal Implications:** As technology becomes more integrated into society, understanding its ethical and societal implications is crucial. Traditional curricula may not focus enough on digital ethics, cyber safety, data privacy, and the social and environmental impact of technology.
- 13. Global and Cultural Awareness:** The interconnected nature of the modern world necessitates a curriculum that fosters global awareness and cultural competence. Traditional education systems may struggle to integrate these aspects into their curricula effectively.
- 14. Preparing for Future Careers:** The job market is evolving rapidly, with new careers emerging that didn't exist a decade ago. Traditional curricula may not be aligned with these future career paths, particularly in fields related to technology and digital media.
- 15. Lifelong Learning:** There's an increasing need for education systems to instill the concept of lifelong learning, as the skills acquired in school may quickly become outdated. Traditional education often views learning as a process that concludes with graduation, rather than a continuous, lifelong journey.

DECT vs STEM vs STEAM education

Aspect / Education Type	DECT	STEM	STEAM
Digital Economy Focus	DECT education is specifically designed to prepare students for the digital economy, integrating skills like digital marketing, e-commerce, and digital entrepreneurship.	Typically lacks a focus on digital economy skills.	Also generally lacks a focus on digital economy skills.
Advanced Digital Literacy	Emphasizes comprehensive digital literacy, including advanced use of digital tools, cybersecurity, and digital ethics.	Focuses more on scientific and mathematical literacy; digital literacy is often secondary.	Similar to STEM, with a greater focus on creativity but not necessarily on advanced digital literacy.
AI and Data Science	Includes in-depth study of AI, machine learning, and data science, applicable across various subjects.	May include basic computer science but often lacks a focus on AI and data science.	Similar to STEM, may lack specific focus on AI and data science.
Global Digital Trends	Curriculum includes understanding global digital trends and their impact on society and economy.	Less emphasis on global digital trends.	Less emphasis on global digital trends.
Interdisciplinary Digital Projects	Encourages interdisciplinary projects with a strong digital component, integrating technology with all subjects.	Interdisciplinary within STEM fields, but less integration with digital technology.	Integrates arts with STEM but may not always include a strong digital technology component.
Advanced Digital Literacy	Emphasizes comprehensive digital literacy, including advanced use of digital tools, cybersecurity, and digital ethics.	Focuses more on scientific and mathematical literacy; digital literacy is often secondary.	Similar to STEM, with a greater focus on creativity but not necessarily on advanced digital literacy.
Real-World Digital Problem-Solving	Focuses on solving real-world problems using digital technologies, preparing students for future digital challenges.	Problem-solving is often confined to theoretical or lab-based STEM scenarios.	Creative problem-solving, but not always with a digital focus.
E-Commerce and Digital Marketing	Includes practical skills in e-commerce and digital marketing, reflecting current industry trends.	Typically does not include e-commerce or digital marketing.	Typically does not include e-commerce or digital marketing.
Digital Entrepreneurship	Encourages digital entrepreneurship, teaching students to start and manage digital businesses.	Lacks focus on entrepreneurship, especially in the digital realm.	Lacks focus on digital entrepreneurship.
Adaptability to Technological Changes	Curriculum is designed to be highly adaptable to rapid technological changes.	More static, focusing on established STEM principles.	More static, focusing on established STEM and arts principles.
Ethical Digital Citizenship	Strong emphasis on ethical digital citizenship, covering aspects like data privacy, digital rights, and responsible online behavior.	May cover basic digital citizenship but not as comprehensively.	May cover basic digital citizenship but not as comprehensively.

Addressing these challenges requires a systemic overhaul of traditional education models, encompassing curriculum reform, teacher training, investment in technology, and a shift in educational paradigms to prioritize critical thinking, creativity, and adaptability alongside technological proficiency.

DECT education stands out for its comprehensive focus on the digital economy, advanced digital literacy, and real-world problem-solving using digital technologies. It prepares students not just in technical skills but also in understanding and adapting to global digital trends, digital entrepreneurship, and ethical digital citizenship, areas that are less emphasized in traditional STEM and STEAM education.

DECT Curriculum Roadmap for Primary 1-6



Designing a comprehensive DECT (Digital Economy Core Technology) curriculum for primary education involves creating a strategic and progressive roadmap that integrates a variety of academic disciplines with digital skills. The aim is to ensure that students develop foundational digital competencies in the early years, such as typing, and then gradually build more advanced skills. This curriculum should encompass language, mathematics, science, arts, history, geography, citizenship, civil education, and creative skills, all delivered through a DECT framework. Additionally, computational, creative, and critical thinking should be integral to the curriculum.

Primary 1: Introduction to Digital Tools and Basic Concepts

- *Digital Literacy*: Basic computer operation, understanding the keyboard and simple typing skills.
- *Language Arts*: Introduction to digital storytelling, using interactive apps for phonics and basic reading.
- *Mathematics*: Using digital tools for counting, simple arithmetic, and shape recognition.
- *Science*: Exploring natural phenomena through interactive simulations and videos.
- *Arts and Creativity*: Simple digital drawing and music exploration.
- *Social Studies*: Basics of community, family, and local history through digital storytelling.

Primary 2: Building Fundamental Skills

- *Digital Literacy*: More advanced typing skills, introduction to basic word processing and digital art tools.
- *Language Arts*: Enhanced reading and comprehension through interactive stories and games.
- *Mathematics*: Introduction to problem-solving using digital games, basic geometry concepts.
- *Science*: Exploring habitats and environment using interactive digital content.
- *Arts and Creativity*: More complex digital drawing, introduction to basic animation concepts.
- *Social Studies*: Understanding local geography and history, basic civic concepts through digital mediums.

Primary 3: Intermediate Digital Integration

- *Digital Literacy*: Introduction to simple presentations, basic use of spreadsheets, and coding with block-based platforms like Scratch.
- *Language Arts*: Digital content creation, starting with blogs or digital storytelling.
- *Mathematics*: Introduction to data representation using simple charts and graphs in spreadsheets.
- *Science*: Conducting simple experiments and data recording digitally.
- *Arts and Creativity*: Introduction to digital photography and video editing.
- *Social Studies*: National history and basic world geography, using interactive maps and timelines.

Primary 4: Expanding Digital Skills and Knowledge

- *Digital Literacy*: Enhanced skills in word processing, creating more sophisticated presentations, and basic website design concepts.
- *Language Arts*: Collaborative digital writing projects, such as class blogs or wikis.
- *Mathematics*: More complex problem-solving with digital tools, introduction to basic algorithms.
- *Science*: In-depth exploration of scientific concepts using digital models and simulations.
- *Arts and Creativity*: More advanced digital arts projects, such as creating simple animations.
- *Social Studies*: In-depth study of regional geography and history, digital project creation.

Primary 5: Advanced Digital Applications

- *Digital Literacy*: Advanced word processing features, complex data organization in spreadsheets, introductory coding in Python or similar languages.
- *Language Arts*: Analyzing and creating various forms of digital media, such as podcasts.
- *Mathematics*: Introduction to more advanced mathematical concepts using digital tools, such as basic geometry software.
- *Science*: Complex scientific topics explored with advanced digital tools and data analysis.
- *Arts and Creativity*: Advanced digital art techniques, including 3D modeling basics.
- *Social Studies*: Comprehensive study of global geography and history, using digital research tools.

Primary 6: Mastery and Preparation for Secondary Education

- *Digital Literacy*: Mastery of basic office tools, introduction to creating simple databases, and understanding basic network concepts.
- *Language Arts*: Advanced digital storytelling, including interactive elements, and collaborative writing projects.
- *Mathematics*: Applying mathematical concepts in real-world scenarios using digital tools.
- *Science*: Undertaking comprehensive science projects using digital data collection and analysis.
- *Arts and Creativity*: Completing a comprehensive digital arts project, such as a short animated film.
- *Social Studies*: Deep analysis of historical events and current global issues using digital platforms.

Key Features Across All Years

- *Progressive Skill Development*: Each year builds on the digital literacy and competencies acquired in the previous year.
- *Interdisciplinary Learning*: Digital skills are integrated into all academic subjects, ensuring their practical application.
- *Ethical and Safe Use of Technology*: Regular discussions on digital ethics, privacy, and online safety.
- *Adaptive Learning Opportunities*: Use of digital platforms that cater to individual learning styles and paces.
- *Preparation for Transition to Secondary Education*: Focus on developing skills that will be essential for success in a more advanced digital learning environment.

This detailed roadmap ensures a coherent and progressive development of DECT skills throughout primary education, laying a strong foundation for students' future academic and digital endeavors when they move into the secondary education..

DECT Curriculum Roadmap for Secondary Form 1-6



Designing a comprehensive DECT (Digital Economy Core Technology) curriculum for secondary education (Form 1 to Form 6) requires a roadmap that progressively develops real-world digital competencies, interwoven with academic disciplines. This curriculum aims to equip students with advanced digital skills, such as proficiency in office tools, alongside developing their knowledge in language, mathematics, science, arts, history, geography, citizenship, and civil education. Additionally, it introduces advanced technological skills like 3D modeling and animation, AI (including building and fine-tuning LLM models), deep learning, data analytics, programming, and internet skills. The end goal is to ensure that each year builds upon the skills and knowledge acquired in the previous one. Upon graduation, the students will be able to apply these skills to solve real-world problems effectively.

Form 1: Foundational Digital Skills and Academic Integration

- *Digital Literacy*: Basic office tool skills - word processing, simple presentations, and spreadsheets.
- *Language Arts*: Digital storytelling, blogging, and basic digital communication skills.
- *Mathematics, Science, Arts, History, Geography, Citizenship, Civil Education*: *(1) Introduction to research and presentation skills using digital tools.
- *Creative Skills*: Introduction to basic 3D modeling and digital arts.
- *Programming and Internet Skills*: Introduction to programming concepts with block-based coding, basic internet safety.

Form 2: Enhancing Skills and Academic Application

- *Digital Literacy*: Advanced features of office tools, introduction to collaborative tools and cloud computing.
- *Academic Disciplines*: Deeper integration of digital tools for project work and collaborative learning.
- *Creative Skills*: More complex 3D modeling projects, introduction to animation.
- *Programming and Internet Skills*: Basic web design principles, further development of programming skills.

Form 3: Intermediate Digital Literacy and Specialized Academic Projects

- *Digital Literacy*: Complex spreadsheet functions, data organization, and basic data analysis.
- *Academic Disciplines*: Application of digital skills in academic research, emphasis on digital presentations and collaborative projects.
- *AI and Data Analytics*: Introduction to data visualization tools, basic AI concepts.
- *Programming*: Intermediate programming concepts, introduction to Python or similar languages.

Form 4: Advanced Digital Integration and Specialization

- *Digital Literacy*: Mastery of office tools for complex academic and real-world tasks.
- *Academic Disciplines*: Integration of advanced digital tools in all subjects for in-depth research and complex project work.
- *3D Modeling and Animation*: Advanced projects, introduction to more sophisticated animation software.
- *AI and Data Analytics*: Basic machine learning concepts, deeper exploration of data analytics.
- *Programming*: Advanced programming projects, introduction to database management and web development.

Form 5: Pre-University Skills and Advanced Applications

- *Digital Literacy*: Real-world application of digital skills in a simulated or actual professional environment.
- *AI, 3D Modeling, and Data Analytics*: Advanced projects in AI, including machine learning and deep learning; advanced 3D modeling and animation projects; comprehensive data analytics studies.
- *Programming and Internet Skills*: Full-scale web development projects, advanced database management, introduction to cybersecurity concepts.

Form 6: Specialization, Capstone Projects, and Career Readiness

- *Capstone Projects*: Comprehensive, interdisciplinary projects that require students to apply all their acquired skills to real-world problems.
- *Career and Higher Education Preparation*: Focus on how digital skills apply to various careers, preparation for university-level coursework in related fields.
- *Continued Skill Development*: Advanced coursework in areas of student interest, such as AI model building, deep learning, advanced data analytics, and complex programming challenges.

Key Features Across All Years

- *Continuous Skill Development*: Each year builds on the digital literacy and competencies acquired in the previous one.
- *Interdisciplinary Learning*: Digital skills are integrated into all academic subjects, ensuring their practical application.
- *Ethical and Safe Use of Technology*: Regular discussions on digital ethics, privacy, and internet safety.
- *Adaptive Learning Opportunities*: Use of digital platforms that cater to individual learning styles and paces.
- *Preparation for Future Challenges*: Emphasis on problem-solving, critical thinking, and preparing students for the digital demands of higher education and the modern workforce.

This detailed roadmap ensures a coherent and progressive development of DECT skills throughout secondary education, preparing students for the challenges and opportunities of the digital economy.

Curriculum of DECT Global Series

With the advent of the Fourth Industrial Revolution, we firmly believe that education for all ages is key to providing the knowledge, skills and tools necessary to survive and thrive in the global digital economy. Krystal Institute's DECT Global Series offers courses designed for learners of different ages, and with varying levels of digital literacy. Our courses are grouped into 6 large thematics that offer specialized digital skills in each area, allowing students to further develop their skill areas of interest.

4 Learning Stages

The DECT Global Series is designed to provide lifelong and progressive digital training for our students. Our curriculum is divided into 4 parts: Educational Program (EP), Career Program (CP), Academic Program (AP) and Professional Program (PP).

Education Program (EP)

Delivers a complete K-12 DECT education. EP teaches fundamental digital skills in a fun and engaging way to spark the interest of young learners, encouraging budding talents to seek further study or employment in digital fields of interest.

Career Program (CP)

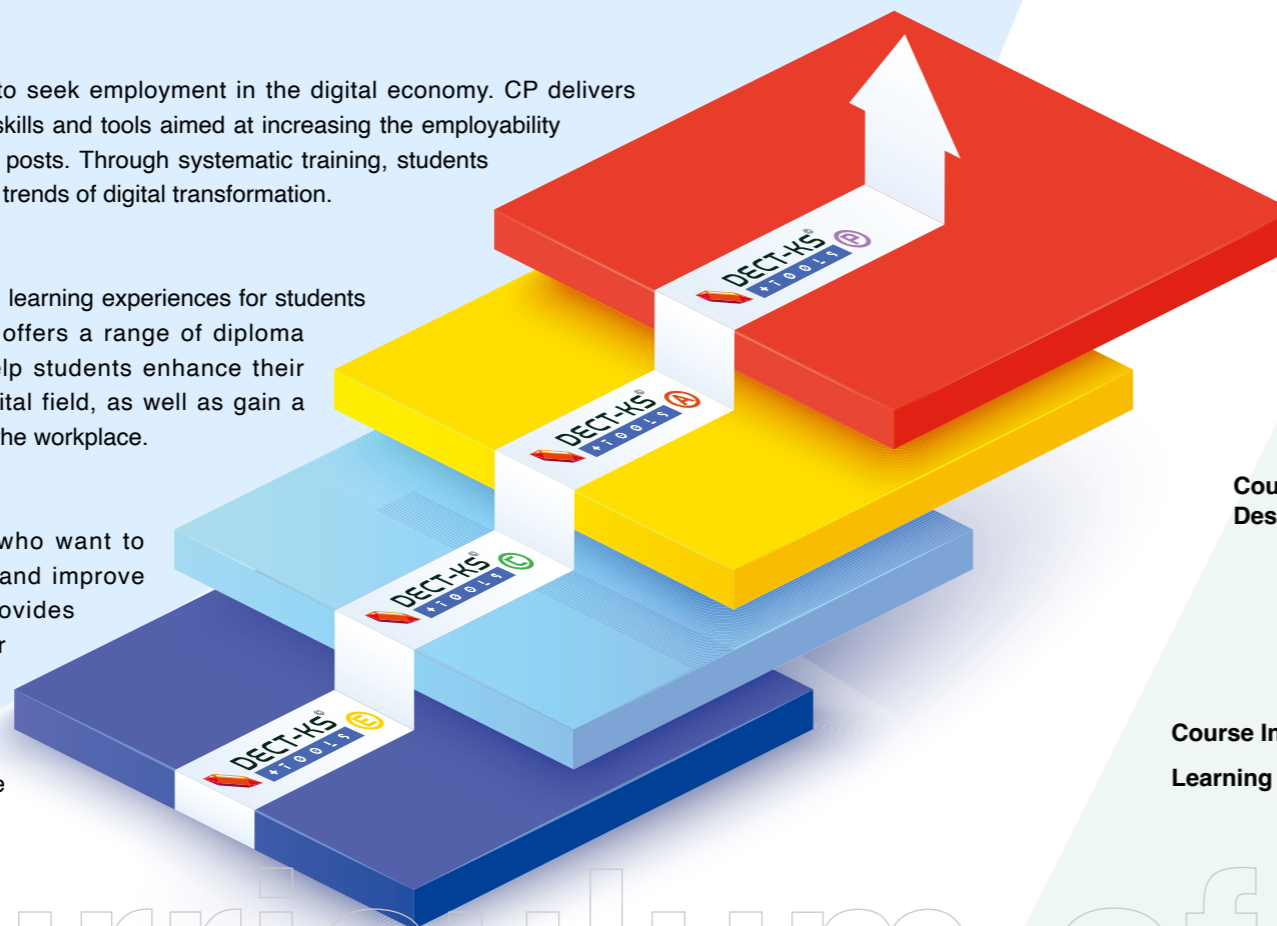
Designed for those who wish to seek employment in the digital economy. CP delivers professional digital knowledge, skills and tools aimed at increasing the employability of students for their desired job posts. Through systematic training, students are well-prepared for the current trends of digital transformation.

Academic Program (AP)

Offers certification and enriching learning experiences for students in their areas of interest. AP offers a range of diploma to master-level courses to help students enhance their knowledge in their chosen digital field, as well as gain a competitive edge over others in the workplace.

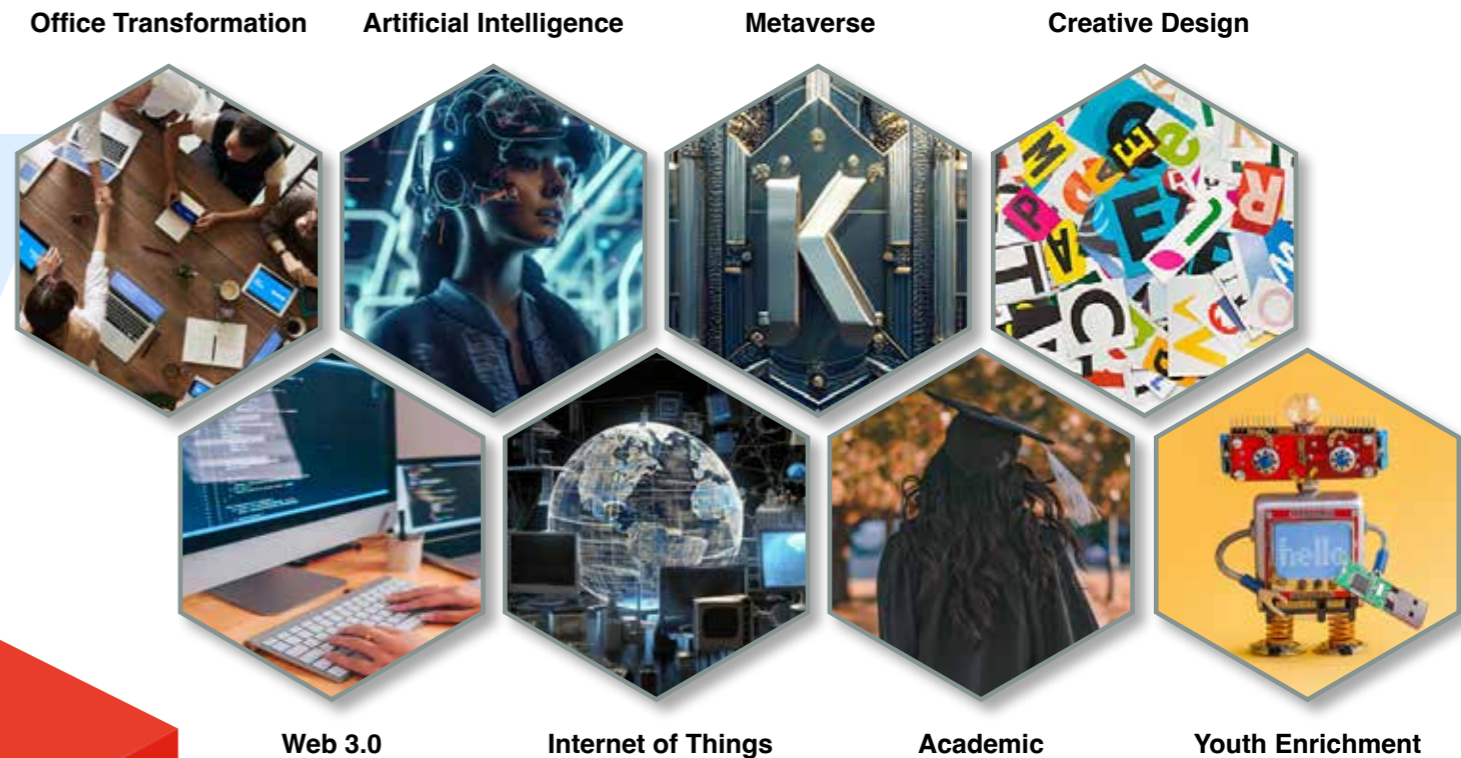
Professional Program (PP)

Designed for the employed who want to hone their professional craft and improve their competitiveness. PP provides courses tailored to meet sector or function-specific needs, empowering students to gain substantial skills, knowledge and tools and carve out their niche.



6 Thematics

Courses under EP, CP, AP, PP are grouped under 6 large thematics for students to pursue their interests and master knowledge, skills and tools in their desired fields.



Course Title and Description

Working with Blender Compositor

This course will teach students how to use the compositor in Blender. The compositor refers to Blender's nodal compositing system. Students will learn how to use the compositor to make color adjustments and how to use layers, masks, and encrypted mattes to limit the range of adjustments and effects to make changes to specific areas of a scene.



Course Information

Chinese 15 Hours Face to Face

Learning Outcomes

Learning Outcomes

1. Familiarity with the interface of compositor in Blender
2. Master using the compositor to make color adjustments, create logs and vignettes, etc.
3. Be able to adjust and render images independently using the Blender compositor

Skill Areas

Digital Tools

Learning Stage



Artificial Intelligence



Artificial Intelligence

Entering the Age of AI

The rapid rise of Artificial Intelligence (AI) is changing the way we live and work. AI technology is becoming more sophisticated and its capabilities are expanding; while the technology industry is seen as the major beneficiary of AI's development, for businesses AI offers additional benefits beyond automation and efficiency. AI can be used to enhance security and reduce fraud through predictive analytics; to improve customer experience through personalization and targeted advertising; and to optimize operations through predictive maintenance and supply chain optimization. With the democratization of Generative AI tools such as ChatGPT and DALL-E emerging in the marketplace, we are undoubtedly entering the age of AI where disruption will remain the norm.

Why should I study AI?

Our courses provide students with the practical knowledge, latest technologies, and open-source tools needed to cultivate AI skills and thrive in the digital economy and IT industry.

1. Unlock groundbreaking innovations: AI is a transformative technology that has the potential to revolutionize industries and drive innovation. By studying AI, you can be part of the cutting-edge developments that shape the future of technology.
2. Address complex challenges: AI enables individuals to tackle complex problems by leveraging machine learning, deep learning, and data analytics. With AI skills, you can analyze large datasets, extract meaningful insights, and make informed decisions to address real-world challenges.
3. Expanding career prospects: The demand for AI professionals is skyrocketing across industries, including healthcare, finance, retail, and more. AI-related roles, such as AI specialists, data scientists, and AI consultants, offer exciting career opportunities and growth potential.
4. Driving technological advancements: AI is at the forefront of technological advancements, from autonomous vehicles to natural language processing. By studying AI, you contribute to pushing the boundaries of technology and advancing society as a whole.



AI and Digital Innovation

AI is also transforming the tech and creative industries and challenging practitioners to adapt and create in new ways. As AI capabilities expand, professionals will be required to synthesize many existing creative technologies, including machine learning, computer vision, natural language processing, data analysis, and robotics.

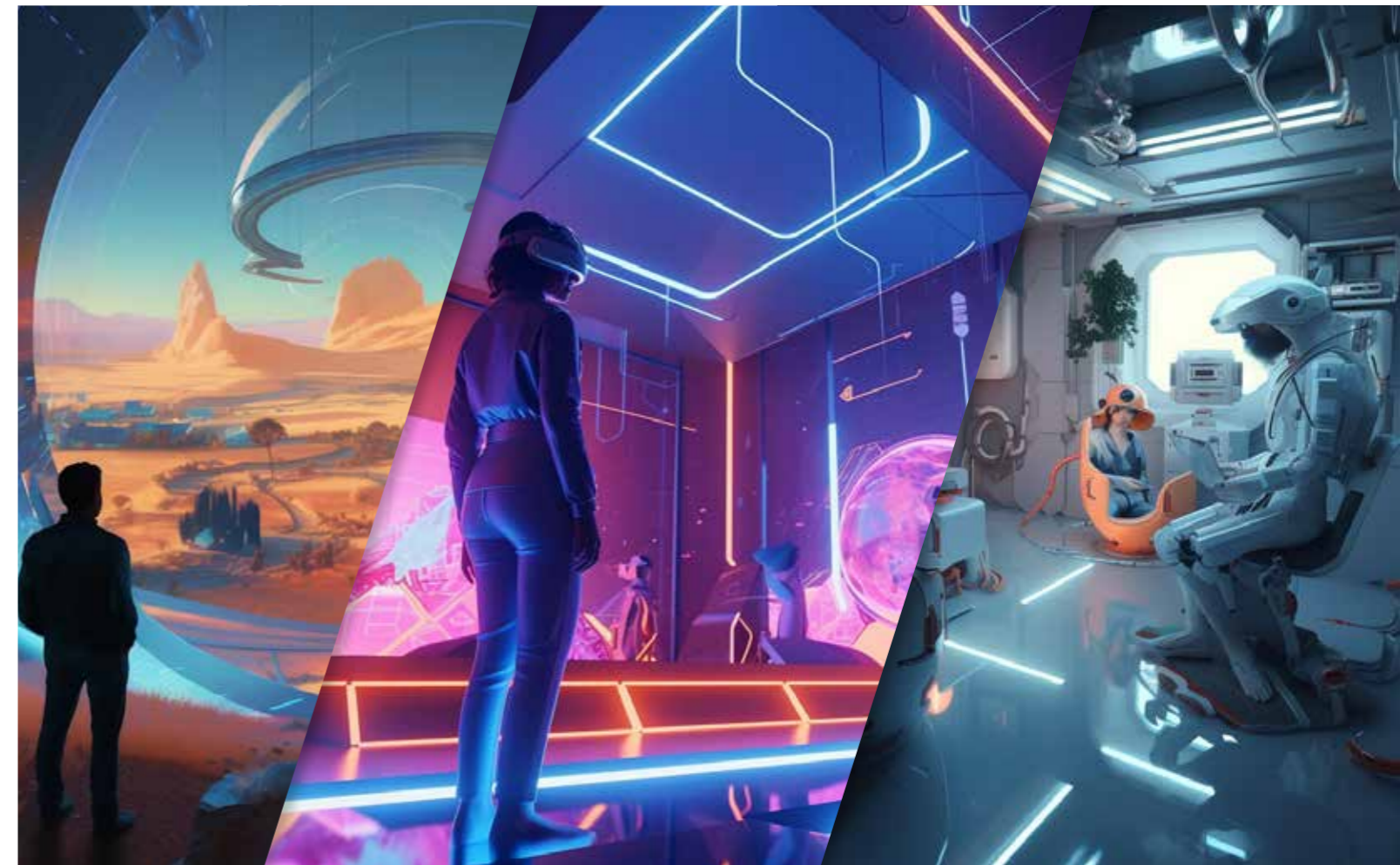
AI is a cross-disciplinary technological field, and its development involves the integration of many existing digital technologies, including cloud computing, big data, and the Internet of Things. As AI continues to advance, it will have a profound impact on industries ranging from healthcare to finance, and will create new opportunities for innovation and growth. With AI, we are entering a new age of digital innovation that promises to transform the world in ways we have yet to imagine.

Latest Developments

- ChatGPT, a text generation AI tool, has surpassed 100 million users in 2 months since its launch
- GPT3.5's training phase required computing power of about 3640PF-days, using about 10,000 GPUs + 285,000 CPUs, with OpenAI spent \$1 billion to rent Azure services alone; ChatGPT is expected to cost the company \$12 million per month until January 2023
- The rapid development of AIGC will give rise to a huge market for high-performance networks, chips, training data storage and data transfer

Curriculum Highlights

Educational Program	<ul style="list-style-type: none"> • Junior Adventures in AI: Exploring Artificial Intelligence • Data Science and Database • Artificial Intelligence and Machine Learning • Networking and Cloud Computing • Cybersecurity and Privacy
Career Program and Professional Program	<ul style="list-style-type: none"> • AI for Content Creation • Using AI for Graphic Creation • AI for Music Generation • Introduction to AI-generated animation production • AI for Metaverse Creation • Vector Database and Data Management for AI and ML • AI For Professionals: CG, Animation & Graphic Design
Academic Program	<ul style="list-style-type: none"> • Higher Diploma in Office Transformation • BSc in Business, Finance and Technology • MSc in Office Tools and Digital Transformation • BSc in Office Tools and Digital Transformation



AI for Metaverse Creation

The objective of this curriculum is to equip students with the necessary skills and knowledge to create immersive experiences in the Metaverse using various AI tools. The course covers a broad range of topics including Virtual Reality (VR), Extended Reality (XR), Web3, Non-Fungible Tokens (NFT), Blockchain, Decentralized Autonomous Organizations (DAO), and various AI tools.

Chinese · English 400 Hours Face to Face



Course Outline:

Module 1	Introduction to the Metaverse and Virtual World Design Principles	<ul style="list-style-type: none"> • Course objectives and outcomes • Overview of the Metaverse and its potential • Introduction to virtual world design principles • Creating a virtual space in Blender
Module 2	VR and XR Design	<ul style="list-style-type: none"> • Introduction to VR and XR design • Designing for VR and XR interfaces • Creating 3D models in Blender • Creating textures in GIMP and Krita
Module 3	MR Design and Development	<ul style="list-style-type: none"> • Introduction to MR design • Creating MR experiences using Unity and Godot • Implementing AR elements in a virtual world • Introduction to blockchain and its use in the Metaverse
Module 4	UI/UX Design	<ul style="list-style-type: none"> • Introduction to UI/UX design principles • Designing for user experience in the Metaverse • Introduction to Inkscape and Kdenlive • Designing and prototyping UI/UX interfaces
Module 5	NFTs and Web3	<ul style="list-style-type: none"> • Introduction to NFTs and their use in the Metaverse • Introduction to Web3 and its use in the Metaverse • Creating NFTs using Get3D and PifuHD • Integrating NFTs into a virtual world using smart contracts and DAOs
Module 6	AI for World Building	<ul style="list-style-type: none"> • Introduction to AI-powered world building • Using Blender AI for generative modeling • Using Midjourney for texture synthesis • Using Stable Diffusion for image manipulation
Module 7	Video Editing and Machinima	<ul style="list-style-type: none"> • Introduction to video editing in the Metaverse • Using Black Magic DaVinci and Natron for video editing • Introduction to Omniverse Machinima • Creating a short film using Machinima techniques
Module 8	Creating Personalized Avatars	<ul style="list-style-type: none"> • Introduction to avatar design and customization • Using Luma AI and Point-E for facial recognition and avatar generation • Using Dream Fusion and Godot for avatar animation and integration
Module 9	Building Virtual Real Estate	<ul style="list-style-type: none"> • Introduction to building virtual real estate • Using UPBGE for real-time rendering • Creating a virtual store and marketplace using Metamask • Implementing blockchain-based ownership and exchange of virtual real estate
Module 10	Final Project and Presentation	<ul style="list-style-type: none"> • Working collaboratively in teams to create a virtual world in the Metaverse • Incorporating various use cases of the Metaverse • Demonstrating knowledge and skills acquired throughout the course • Final project presentation and evaluation



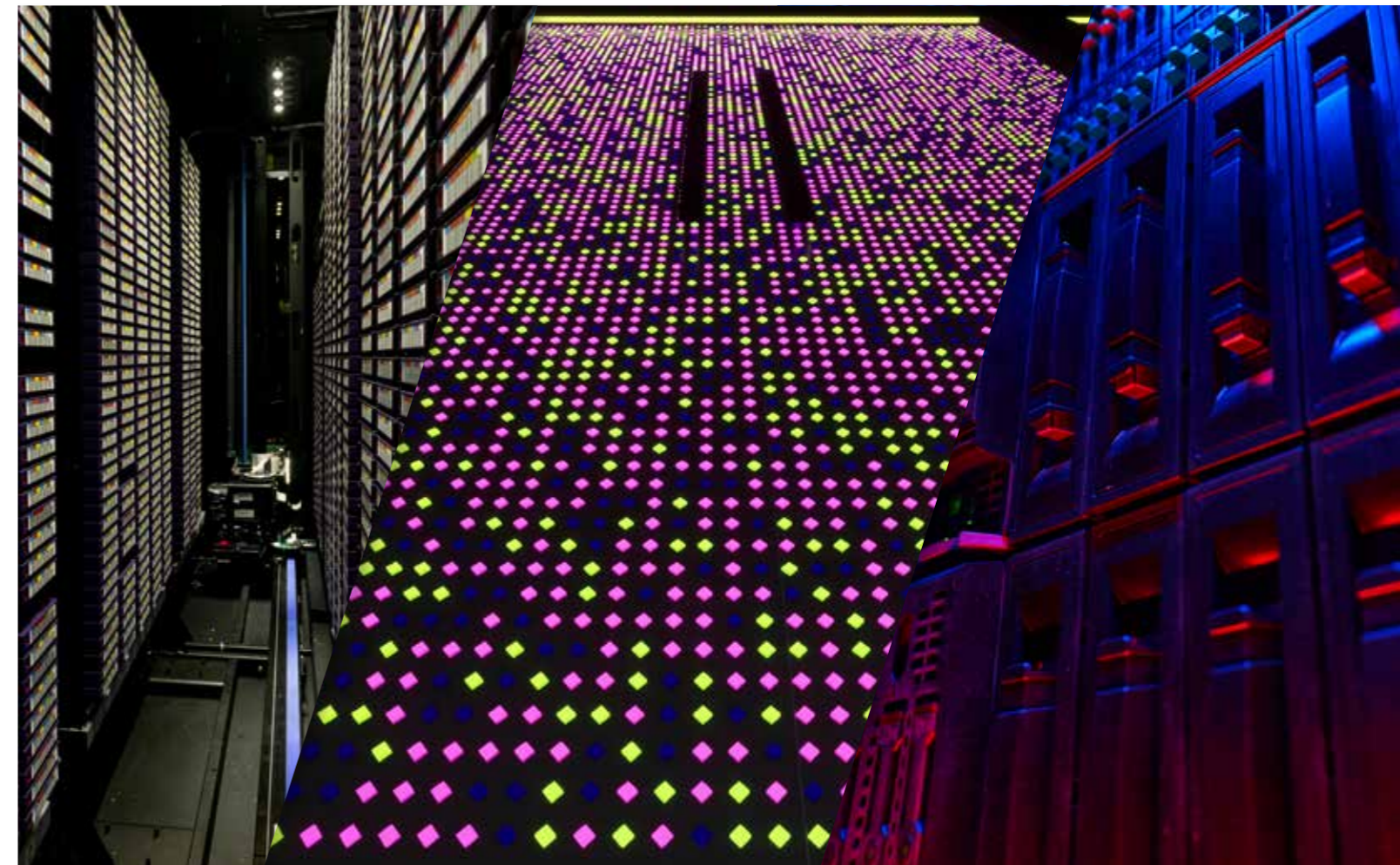
The Importance of AI Tools to Metaverse Content Creation

The Metaverse is a rapidly evolving technology that promises to create immersive and engaging experiences for users. With the rise of NFTs and blockchain technology, the Metaverse is becoming a new platform for content creation and distribution. As the demand for immersive content grows, content creators need the assistance of various AI tools to efficiently create high-quality Metaverse experiences.

Learning Outcomes

1. Understand the fundamental concepts and applications of Metaverse technologies and AI tools
2. Be able to apply various AI tools to create interactive and immersive experiences in the Metaverse
3. Understand the importance of user experience and usability in designing virtual environments
4. Understand how to leverage blockchain technology and NFTs for Metaverse content creation
5. Explore decentralized governance models using DAOs for Metaverse projects
6. Develop skills in creating 3D models and animations using open source design tools





Vector Database and Data Management for AI and ML

Vector databases are specialized databases designed to efficiently store, search, and retrieve high-dimensional vectors. They are particularly useful in applications where data points need to be compared based on similarity or proximity, such as machine learning (ML) and artificial intelligence (AI).

This course aims to help students learn to design, implement, and manage vector databases for AI and ML applications, as well as perform efficient similarity search and high-dimensional data processing. The course uses Python, and will include training in Python programming as part of the syllabus for students who have less experience with the language.

Chinese & English 200 Hours Face to Face



Course Structure

Learning Python (40 hours):		
Week 1	Introduction to Python Programming (10 hours)	<ul style="list-style-type: none"> Python data types, variables, and operators (3 hours) Control structures: conditionals, loops, and exception handling (4 hours) Functions, modules, and libraries (3 hours)
Week 2	Object-Oriented Programming in Python (10 hours)	<ul style="list-style-type: none"> Classes, objects, and inheritance (4 hours) Encapsulation, polymorphism, and abstraction (4 hours) Design patterns and best practices (2 hours)
Week 3	Python Libraries for Data Manipulation and Visualization (10 hours)	<ul style="list-style-type: none"> NumPy for numerical computing (3 hours) Pandas for data manipulation (4 hours) Matplotlib for data visualization (3 hours)
Week 4	Linear Algebra Concepts and Implementation in Python (10 hours)	<ul style="list-style-type: none"> Vectors, matrices, and operations (4 hours) Linear transformations and eigenvalues/eigenvectors (3 hours) Introduction to optimization (3 hours)
Vector Database and Data Management (160 hours):		
Week 1	Introduction to Vector Databases and High-Dimensional Data (10 hours)	<ul style="list-style-type: none"> Understanding vector databases and their role in AI and ML (3 hours) High-dimensional data representation and challenges (4 hours) Introduction to distance metrics and similarity search (3 hours)
Week 2	Indexing Techniques and Distance Metrics (10 hours)	<ul style="list-style-type: none"> Overview of indexing techniques for vector databases (4 hours) k-d trees, ball trees, HNSW graphs, and LSH (4 hours) Distance metrics: Euclidean distance, cosine similarity, and Manhattan distance (2 hours)
Week 3-4	Hands-on Exercises with Indexing Techniques and Distance Metrics (20 hours)	
Week 5	Vector Database Tools and ML Framework Integration (10 hours)	<ul style="list-style-type: none"> Introduction to Pinecone, Faiss, Annoy, and Elasticsearch with vector extensions (4 hours) Hands-on exercises with each tool (4 hours) Integration with TensorFlow and PyTorch for ML applications (2 hours)
Week 6-7	Case Studies and Practical Exercises with Vector Database Tools (20 hours)	
Week 8	Scalability and Advanced Topics (10 hours)	<ul style="list-style-type: none"> Data partitioning, load balancing, and distributed indexing (3 hours) Query processing and optimization techniques (4 hours) Data storage and management strategies (2 hours) Security, privacy, and monitoring in vector databases (1 hour)
Week 9-10	Real-World Use Cases and Applications (20 hours)	<ul style="list-style-type: none"> Image search and computer vision (5 hours) Natural language processing and text similarity (5 hours) Recommendation systems (5 hours) Anomaly detection and clustering (5 hours)
Week 11-14	Final Project - Proposal, Design, and Implementation (40 hours)	
Week 15	Presentation and Evaluation of Final Projects (10 hours)	
Week 16	Course Review and Additional Resources for Continued Learning (10 hours)	
Week 17	Advanced Distance Metrics and Evaluation Techniques (10 hours)	<ul style="list-style-type: none"> Minkowski distance, Jaccard similarity, and other distance metrics (4 hours) Techniques for evaluating similarity search quality (3 hours) Benchmarking and performance analysis (3 hours)

Week 18	Advanced Integration with AI and ML Frameworks (10 hours)	<ul style="list-style-type: none"> Using vector databases with reinforcement learning frameworks (4 hours) Integration with other AI frameworks and libraries (3 hours) Cross-framework compatibility and best practices (3 hours)
Week 19	Emerging Trends and Cutting-Edge Research (10 hours)	<ul style="list-style-type: none"> Survey of recent advances in vector database research (4 hours) Analysis of emerging trends in AI and ML that impact vector databases (3 hours) Discussion of open research problems and potential future developments (3 hours)
Week 20	Optimization and Performance Tuning (10 hours)	<ul style="list-style-type: none"> Techniques for optimizing vector database performance (4 hours) Load testing and stress testing (3 hours) Identifying and addressing performance bottlenecks (3 hours)
Week 21	Data Privacy and Security in Vector Databases (10 hours)	<ul style="list-style-type: none"> Privacy-preserving similarity search techniques (4 hours) Secure data storage and access control in vector databases (3 hours) Regulations and compliance considerations (3 hours)
Week 22	Building Custom Vector Database Solutions (10 hours)	<ul style="list-style-type: none"> Overview of open-source vector database projects (3 hours) Designing and implementing a custom vector database solution (4 hours) Contributing to open-source vector database projects (3 hours)
Week 23	Industry Guest Lectures and Case Studies (10 hours)	<ul style="list-style-type: none"> Guest lectures from industry professionals on vector database applications (5 hours) Analysis of real-world case studies in various industries (5 hours)
Week 24	Course Reflection and Career Opportunities (10 hours)	<ul style="list-style-type: none"> Discussion of career paths and opportunities in the field of vector databases and high-dimensional data management (4 hours) Review of course concepts and how they apply to real-world problems (3 hours) Preparation for job interviews and portfolio development (3 hours)

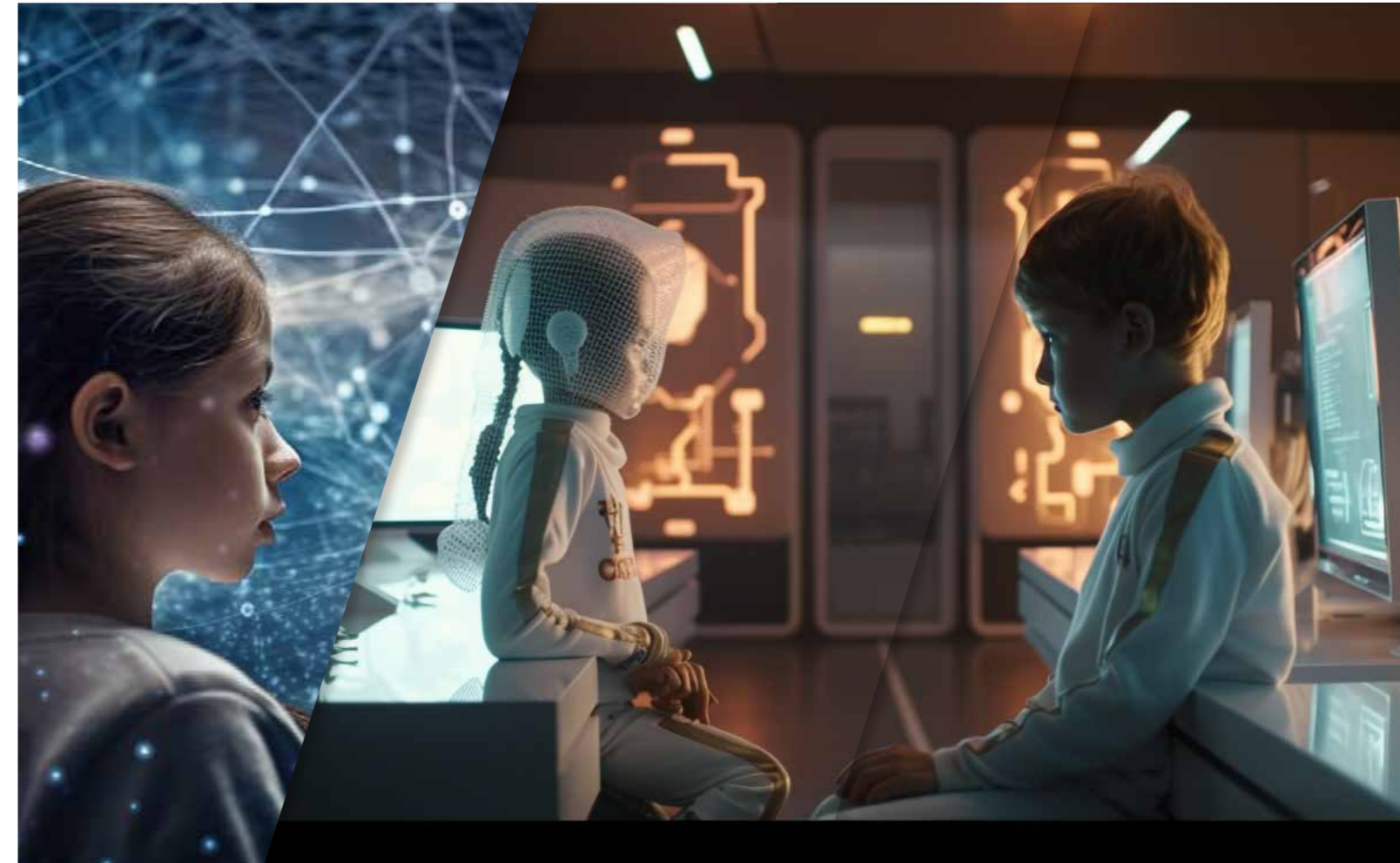
Common uses of vector databases:

1. Recommendation systems: Vector databases can be used to find similar items or users based on their feature vectors, enabling personalized recommendations.
2. Image search and computer vision: High-dimensional feature vectors can represent images, allowing vector databases to perform similarity search for image retrieval or object recognition tasks.
3. Natural language processing (NLP): Word embeddings and document vectors can be stored in a vector database for tasks like text similarity search, semantic analysis, and machine translation.
4. Anomaly detection: Vector databases can identify unusual data points or outliers by comparing their feature vectors to the rest of the data.
5. Clustering and classification: Vector databases can be used to perform clustering and classification tasks in unsupervised and supervised ML scenarios.

Learning Outcomes

1. Develop a deep understanding of vector databases and their role in AI and ML applications
2. Learn about high-dimensional data representation, storage, and processing
3. Master indexing techniques and distance metrics for efficient similarity search
4. Gain hands-on experience with popular vector database tools and ML frameworks
5. Explore real-world cases and applications of vector databases in AI and ML
6. Demonstrate proficiency in vector database management and high-dimensional data processing





Junior Adventures in AI: Exploring Artificial Intelligence

This course aims to introduce 3rd-grade students to the fascinating world of artificial intelligence in an age-appropriate, engaging, and enjoyable manner. By familiarizing students with AI tools and concepts, they can better understand the increasingly digital world around them and develop essential skills for the future. Through hands-on activities, games, creative exercises, and a fun final project, students will be encouraged to think critically and creatively about AI and its potential while fostering collaboration and cultivating problem-solving skills.

Chinese · English 24 Hours Face to Face



Course Outline:

Session 1	Introduction to Artificial Intelligence	<ul style="list-style-type: none"> • What is Artificial Intelligence? • Examples of AI in everyday life • Simple explanation of how AI works
Session 2	ChatGPT - A Friendly AI Helper	<ul style="list-style-type: none"> • Introduction to ChatGPT • A simple demonstration of ChatGPT • Hands-on activity: Asking ChatGPT questions
Session 3	Midjourney - Plan Your AI Journey	<ul style="list-style-type: none"> • Introduction to Midjourney • A simple demonstration of Midjourney's graphic generating prompt • Hands-on activity: Planning a dream vacation using Midjourney
Session 4	AI music	<ul style="list-style-type: none"> • Introduction to AI Music tools • A simple demonstration of AI music tools • Hands-on activity: Make your own music
Session 5	AI in Our Lives	<ul style="list-style-type: none"> • AI voice assistants: Siri and Alexa - What they do and how they work - Hands-on activity: Asking Siri or Alexa questions • AI in games and toys • AI in movies and cartoons • AI helpers around us
Session 6	Jobs and AI	<ul style="list-style-type: none"> • Simple explanation of how AI can change jobs in the future • Exploring future jobs involving AI • Group discussion: How can AI help us in our future jobs?
Session 7	Being Responsible with AI	<ul style="list-style-type: none"> • Understanding the importance of using AI responsibly • The importance of fairness and kindness in AI • Group discussion: How can we make sure AI is used for good?
Session 8	AI Games and Activities	<ul style="list-style-type: none"> • Quick, Draw! • AI Dungeon (guided and moderated) • Rock, Paper, Scissors with AI • Teachable Machine
Session 9	AI-Powered Art with NVIDIA Canvas	<ul style="list-style-type: none"> • Introduction to NVIDIA Canvas • Demonstration of how NVIDIA Canvas works • Hands-on activity: Creating simple scenes and landscapes with NVIDIA Canvas • Sharing and discussing students' creations
Session 10	Introduction to the Final Project - "AI Superheroes"	<ul style="list-style-type: none"> • Explaining the final project concept and guidelines • Forming teams and brainstorming ideas • Introduction to AI tools for the project, such as ChatGPT and NVIDIA Canvas
Session 11	Working on the Final Project	<ul style="list-style-type: none"> • Teams work on their AI superhero comic strips using AI tools • Teacher supervision and guidance as needed • Finalizing comic strips and preparing for presentations
Session 12	Final Project Presentations and Reflection	<ul style="list-style-type: none"> • Students present their AI superhero comic strips to the class • Group discussion on the projects and the overall learning experience • Reflecting on the fun and exciting things AI can do • Course summary and closing thoughts



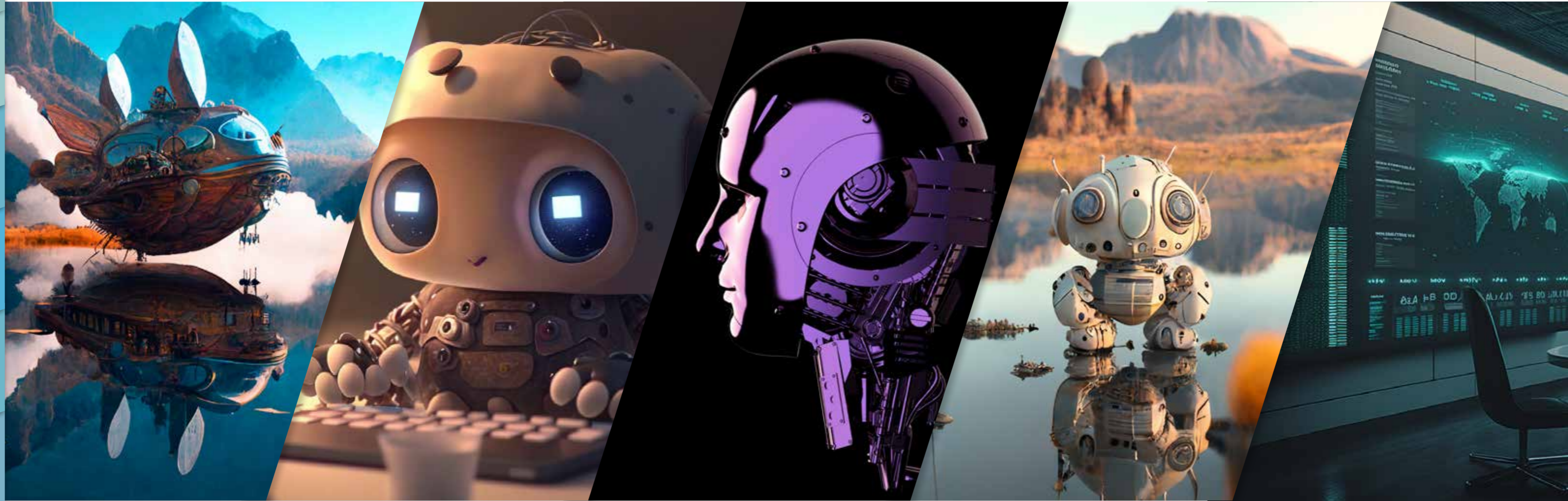
Fun and Simple Final Project: "AI Superheroes"

For the final project, students will work in teams to create a short comic strip featuring AI-powered superheroes. They will use ChatGPT to help generate ideas, storylines, and character backgrounds, incorporating their own creativity and imagination. They will use Midjourney to generate graphics to enrich their final projects. Students can draw their own illustrations or use AI-powered tools like NVIDIA Canvas for creating scenes. The comic strip should have 3-5 panels and include a beginning, middle, and end. Students will present their comic strips to the class and explain how they incorporated AI tools in their project.

Learning Outcomes

1. Learn the concept of artificial intelligence and its applications in daily life
2. Familiarize students with popular AI tools, such as ChatGPT, Midjourney, Siri, Alexa, AI music making tools
3. Encourage critical thinking about the uses, potential, and ethical considerations of AI
4. Explore how AI will impact future careers and society as a whole
5. Inspire creativity, student collaboration, and problem-solving skills through an AI-driven final project





AI For Professionals: CG, Animation & Graphic Design

This course will introduce students to the use of AI-assisted tools in CG animation and graphic design. Students will learn how to integrate AI tools into their creative workflows, and explore how AI can be used to enhance various aspects of production, such as character design, 3D modeling, animation, and special effects. By the end of the course, students will have developed a solid understanding of how AI can be leveraged in CG animation and graphic design, and will have created a final project that showcases their skills and knowledge.

English 440 Hours Face to Face

Learning Outcomes

1. Learn the principles and techniques of AI in CG animation and graphic design
2. Master AI-assisted character design and modeling
3. Master AI-assisted animation techniques and tools
4. Master AI-assisted graphic design techniques and tools
5. Learn how to integrate AI into the design process to produce high-quality graphics and animations

Career Preparation

The course is designed to prepare students for careers in the CG, animation and graphic design industries. The skills and knowledge gained from the course will provide students with a competitive advantage when seeking employment in these fields. The ability to use AI-assisted techniques in CG, animation and graphic design is in high demand, and this course will enable students to meet this demand and excel in their careers.



Intelligent Instructional Design: The Application of AIGC Technology in the Classroom

This course is designed to provide educators with practical knowledge and skills to effectively utilize Artificial Intelligence and AI-Generated Content (AIGC) in their teaching practices. By gaining a deep understanding of the fundamental principles of artificial intelligence and how AIGC technology enhances instructional effectiveness, educators will be able to incorporate AIGC tools in their classrooms, improving teaching quality and student engagement.

Through this course, educators will confidently introduce artificial intelligence and AIGC technology to create more engaging, interactive, and effective learning environments. This not only elevates the quality of teaching but also nurtures students' creativity and problem-solving abilities, preparing them for future learning and careers.

 Chinese  24 Hours  Face to Face



Course Structure

1. Fundamentals of Artificial Intelligence and AIGC: Learn the basic concepts, principles, and applications of artificial intelligence, and understand its potential in the field of education
2. Enhancing Instructional Effectiveness with AIGC Technology: Explore how AIGC technology transforms teaching, providing a more personalized learning experience
3. Selection and Utilization of AIGC Tools in Teaching: Familiarize yourself with text generation AIGC tools and image generation AIGC tools. Learn how to choose, apply, and integrate AIGC tools into teaching content and student interactions
4. Application Cases of AIGC in Different Subject Areas: Understand the applications of AIGC in art and design, science and mathematics, and language and literature. Explore how AIGC can be used to address real-world problems
5. Assessing the Practical Impact of AIGC in Education: Learn how to evaluate the real-world effects of AIGC technology in education and engage in reflection to further improve teaching strategies
6. Ethical Considerations and Privacy Protection: Help educators gain a comprehensive understanding of the use and impact of AIGC technology, fostering a sense of responsibility when applying AIGC technology

Learning Outcomes

1. Gain an understanding of the principles and applications of Artificial Intelligence and AIGC in education
2. Demonstrate the ability to use AIGC tools in teaching
3. Apply AIGC tools to enhance teaching effectiveness and student learning
4. Evaluate the impact of Artificial Intelligence and AIGC on education
5. Discuss the ethical implications of Artificial Intelligence and AIGC in education





AI Image Creation Summer Camp: Crafting a Unique Animated World

Students will delve into the application of artificial intelligence tools in computer graphics and animation production. Student will utilize top-tier AI tools such as Leonardo AI, FlexClip Voice Tools, Audio Library, and Aigei, to create their own animated works.

After understanding of the concepts and principles behind various tools and techniques, students will put into practice the knowledge related to tools and technology acquired during the theoretical coursework. They will also showcase their work in class, exchange feedback, and reflect on their learning experiences.

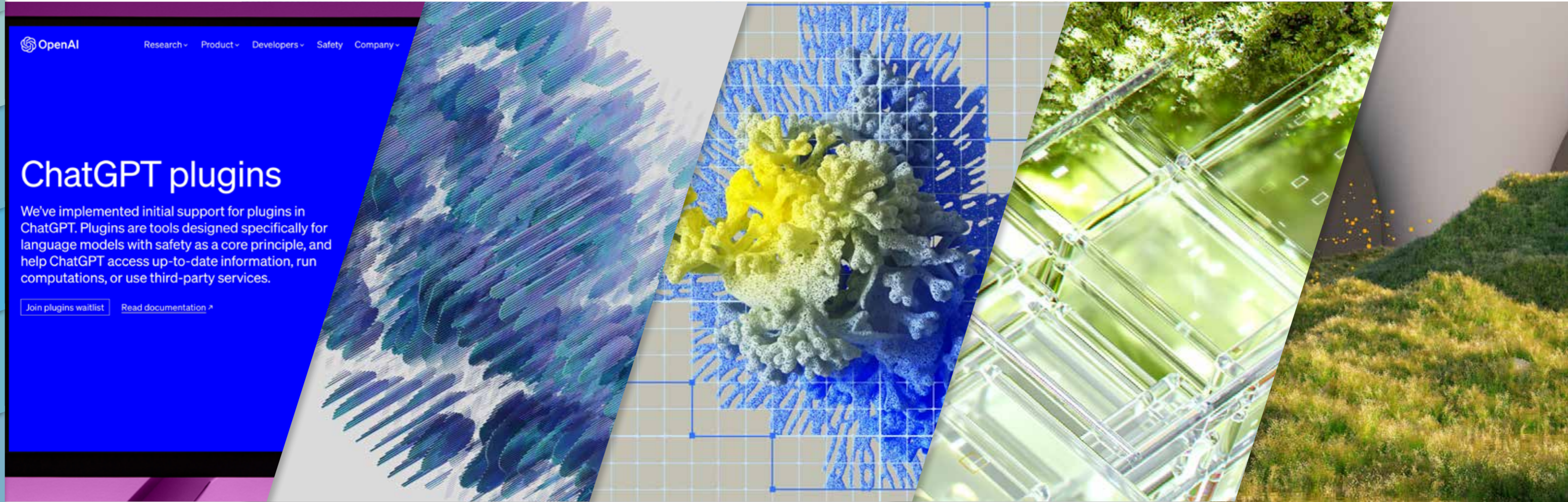
Chinese 20 Hours Face to Face

Course Structure

1. Introduction to AI Tools and CG Animation: Explore relevant knowledge about AI and animation, understanding the AI tools used in CG animation production
2. Storytelling and Scriptwriting with ChatGPT: Learn how to use ChatGPT for storytelling and scriptwriting, harnessing AI assistance in the creative process
3. Creating Animation Assets with Leonardo AI: Master the operation of Leonardo AI to generate visual materials for storytelling
4. Generating Voice with FlexClip: Discover the methods of using FlexClip to add voice to your story
5. Sound Design with Audio Library and Aigei for Animation: Introduce Audio Library and select video and sound effects for your animation project
6. Video and sound editing or animation short film poster art creation with online software or open-source tools
7. Final Project and Presentation: Complete your personal creative project, showcasing the results and receiving feedback during the final class presentation

Learning Outcomes

1. Understand the role of AI in the CG animation industry
2. Utilize various AI tools to create and edit 3D models, animations, and video projects
3. Produce their own animated projects using AI-assisted techniques
4. Work collaboratively in teams and apply problem-solving skills
5. Develop students' creativity, collaboration and problem-solving skills



AIGC and Multimedia Applications Course

This course aims to provide participants with practical knowledge and skills to leverage AIGC technology and related tools for rapid content generation in the multimedia field. By combining theory, hands-on practice, and real case studies, they will gain a deep understanding of the potential applications of AIGC technology and multimedia work.

Upon completing the course, participants will understand the fundamental concepts of AIGC and its applications in multimedia. They will also grasp the development and trends of AI tools in the media industry, enabling them to choose the appropriate AIGC tool types for multimedia creation. Furthermore, participants will gain practical experience in AI-authored articles, video editing, and AI voice accompaniment.

Chinese 15 Hours Face to Face



Course Structure

1. Introduction to AIGC Applications in Multimedia: Learn about popular AIGC tools and how they enhance efficiency and innovation for professionals in the multimedia industry
2. AI Voice Recognition and Music Generation: Explore popular AI voice processing tools, understand the basic techniques of AI voice processing, and use Voice AI tools to train AI voices
3. AI Image Generation and Processing: Introduce popular AI image generation tools and understand their basic and advanced techniques
4. Advanced Usage of ChatGPT/Bing: Learn advanced methods of using ChatGPT and Bing to generate titles, keywords, and general content in media work to optimize SEO
5. Integrated Application of AI Avatars and Multimedia Tools: Learn various AI video generation tools to create diverse styles of videos

Learning Outcomes

1. Participants can utilize various AIGC tools to create content tailored to the requirements of their work
2. Participants can employ AIGC tools to assist with everyday tasks such as writing articles, editing content, generating images, and more
3. Participants will gain an understanding of the basic principles of AIGC and its various advanced applications in multimedia work





AIGC and Marketing Course

From a marketing perspective, this course aims to teach participants how to utilize AI and AIGC tools related to marketing. The course covers planning, developing, and overseeing comprehensive marketing strategies, as well as rapidly generating content to promote products and services. Through a blend of theory, practical exercises, and real-world case studies, participants will gain a profound understanding of AIGC technology and its potential applications in marketing, acquiring practical knowledge and skills.

Upon completing the course, participants will understand the fundamental concepts of AI and AIGC and their applications in marketing, and be able to choose the appropriate type of AI tool to enhance their copywriting skills for the rapid generation of promotional content, thereby improving productivity.

Chinese 15 Hours Face to Face



Course Structure

1. Introduction to AIGC Concepts and AI Tools: Explore the applications of AIGC technology, its role in digital marketing, market potential, and future trends
2. Productivity-Boosting AI and AIGC Tools: Introduce popular AI presentation and analytics software for automating slide generation, product imagery, and large-scale document processing
3. AIGC Applications in Strategic Marketing Management: Understand strategic marketing management (5Ps strategy) and learn techniques for writing clear prompts for AIGC tools
4. AIGC Applications in Personalized Marketing Campaigns: Explore personalized marketing campaigns and use AIGC tools (e.g., Jasper, ChatGPT) to generate diverse sales and marketing content for specific contexts
5. Other Applications of AIGC in Digital Marketing: Learn about AIGC applications within the digital marketing industry, using AIGC image and video tools for rapid content generation

Learning Outcomes

1. Use AI and AIGC tools to devise and improve marketing plans for various products and services
2. Utilize AI and AIGC tools to enhance personal productivity and work skills
3. Apply AIGC tools in strategic marketing management and personalized marketing campaigns
4. Understand the fundamental principles of AIGC and its potential applications in marketing, including benefits and risks





Using AI for Graphic Creation

This course aims to provide students with an in-depth understanding of artificial intelligence (AI) image generation techniques and their application in creative projects to create visually appealing images. The course will provide students with a detailed overview of the AI image generation process, including how to select and construct key terms to control character feature generation for commercially-applicable concept artworks. The instructor will also show students how to use AI tools to translate their creative ideas and emotions into visuals that can be used in concept design, split-screening, comic drawing, game and animation creation to achieve ideal, cost-effective, and smooth graphics.

Chinese 12 Hours Face to Face



Course Structure

1. Introduction to basic AI techniques: introduction to the basic background, historical process and principles of AI image generation techniques; explain how to use AI systems and how to make judgments about different application contexts
2. Image representation: learn about graphic and data representation, and how aspects of color, light, contrast and color differences relate to other color channels in images
3. AI image generation: learn how to use popular AI image generation tools to generate high quality images; make good use of official websites for filtering searches and use shared open databases; connect with developers of movies and games for fast, low-cost and diverse character settings
4. AI creation: Use AI to generate various music styles, and use what you have learned to start producing AI-generated comics and games

Learning Outcomes

1. Use AI to automatically generate content and learn time-saving techniques for businesses and professionals who create content on a regular basis
2. Improve the quality of AI-generated content to produce more accurate and informative content
3. Increase content diversity to help businesses and professionals create more diverse and interesting content
4. Generate personalized content based on individual user preferences to make content more likely to be read or shared





Understanding AI for Kids: Ethics, Impacts, and the Future

AI is increasingly becoming a part of everyday life, influencing everything from the way we communicate to how we work, learn, and make decisions. It's important for students to understand not just how this technology works, but the ethical considerations that come with its use and how it will shape their future. This course aims to provide that understanding in an engaging and accessible manner.

English 4 Hours Face to Face

Course Outcomes

1. Students will understand the basics of AI, its applications, and its potential future developments.
2. Students will be able to discuss and critically analyze the ethical implications of AI.
3. Students will recognize how AI can impact their lives and society at large.
4. Students will be able to apply their knowledge in real-life scenarios through interactive games.



Course Structure

Hour	Topic	Activities
Hour 1	Introduction to AI	<ul style="list-style-type: none"> • What is AI? (15 mins) • Real-life examples of AI (15 mins) • Storytelling: History and evolution of AI (15 mins) • Discussion: How we interact with AI daily (15 mins)
Hour 2	Ethical Considerations in AI	<ul style="list-style-type: none"> • Introduction to ethics in AI (15 mins) • Case studies: ethical dilemmas in AI (15 mins) • Storytelling: AI ethical dilemma (15 mins) • Group discussion: Ethical issues in AI (15 mins)
Hour 3	The Future of AI	<ul style="list-style-type: none"> • AI trends: How AI will affect future jobs and daily life (15 mins) • Storytelling: A day in the life with advanced AI (15 mins) • Game: AI in the Future (30 mins)
Hour 4	Interactive Review and Wrap Up	<ul style="list-style-type: none"> • Interactive game: AI Quiz (30 mins) • Group presentations: How we see AI in the future (20 mins) • Review and Q&A (10 mins)

Course Objectives

1. Introduce the concept of artificial intelligence (AI) and its various applications.
2. Discuss the ethical considerations related to the use of AI.
3. Explore the potential impact of AI on future lives.
4. Engage students with storytelling and games to help them understand the concepts in a fun and interactive manner.





AI for Music Generation

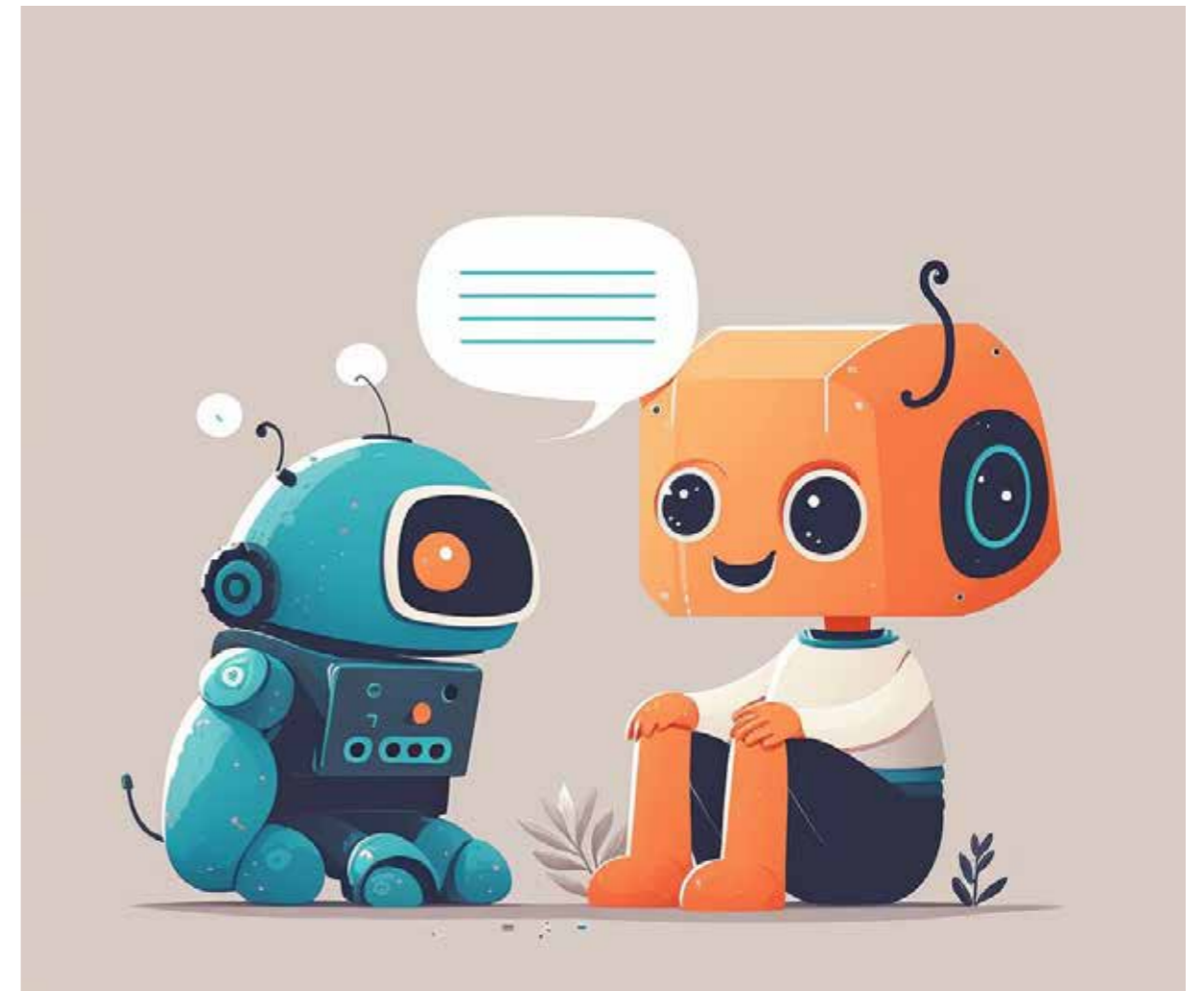
AI music generation is the process of generating music using artificial intelligence. By analyzing music data and patterns and using machine learning algorithms, different types of music can be generated, including pop, jazz, classical, and more. This course starts with an overview of music generation techniques and is centered around mastering different kinds of music generation techniques. Students will also be able to learn basic music theory such as music structure, genre, chords, melody, rhythm, and music format.

The course is suitable for beginners. By completing practical projects, students can better understand the principles and practical applications of AI music generation, and use AI to create different music compositions to improve the efficiency and creativity of music creation.

Chinese 12 Hours Face to Face

Learning Outcomes

1. Understand what AI automatic music generation is, and its principles and practical applications
2. Learn to use different software to achieve AI music generation through practical exercises
3. Learn how to evaluate the generated music to ensure that it meets the basic requirements of music creation



AI for Content Creation

In this course, students will learn about Natural Language Processing (NLP) techniques and common language models such as RNN, LSTM, and Transformer. They will learn content generation skills including how to generate text for Q&A and how to improve the accuracy of Q&A using the ChatGPT tool as a learning model. The course will also delve into the future of chat AI and Q&A systems, and their possible applications in different fields.

Chinese 12 Hours Face to Face

Learning Outcomes

1. Master AI content generation: learn to use AI tools to generate various types of content, such as text, programs, etc.
2. Understand the principles of AI, including the construction, training and evaluation of models
3. Understand the practical applications of content generation AI technology in different fields, such as marketing, education, entertainment, etc.
4. Learn to use AI technology to enhance the creativity of the AI, so that the AI can think independently and create new content



Metaverse



Stepping into the Metaverse

The rise of the metaverse represents a change in the way humans communicate and interact with each other. The metaverse is becoming increasingly popular and its technology stack is beginning to mature; while the gaming and entertainment industries are seen as major beneficiaries of the metaverse's development, for businesses the metaverse offers additional benefits beyond the communication technology that is so important in the new epidemic era. The Hong Kong Trade Development Council points out that participants in the traditional economy can enhance security through blockchain technology; conduct corporate marketing through virtual space; trade assets through the metaverse platform; and use the metaverse as an extension of social media to give users an "immersive" virtual social experience.

Why should I learn metaverse technology ?

Our courses provide students with the practical knowledge, latest technologies and open source tools needed to pursue a career in network engineering and to stay competitive in the digital economy and IT industry.

1. Learn programming from scratch: Programming languages related to web development - Python, JavaScript, etc. - are easier to get started with compared to other languages, and they have a massive user base worldwide, making it easy for students to find additional resources to aid their learning
2. Job prospects are promising: as a newly developed field, there are many jobs related to the metaverse and there is a shortage of talents. The number of jobs such as metaverse research scientists, metaverse ecosystem developers, and metaverse cybersecurity experts is constantly on the rise.
3. Versatile applications: Whether in advertising, culture, product design, architecture or other scenarios, metaverse technology can be applied
4. Adding an additional source of income: Digital creativity talents continue to be in demand on local and overseas outsourcing platforms, which offer project-based contracts that are suitable for flexible deployment, making them the first choice for "slashers"



The Metaverse and Digital Creativity

The metaverse is another new frontier for the creative industry. Practitioners will be challenged to adapt and create as they build virtual worlds, design digital avatars, create and deploy NFTs, and develop blockchains and smart contracts.

The metaverse is a cross-disciplinary technological field, and its development involves the synthesis of many existing creative technologies, including computer graphics, 3D modeling, video editing and compositing, special effects and pre-visualization of films, 2D animation, professional 3D animation, etc.

Latest Developments

- The metaverse market contains significant untapped revenue potential for businesses, with a potential impact on Asia's GDP estimated at US\$0.8T - 1.4T per year by 2035, representing approximately 1.3 - 2.4% of overall GDP¹
- In 2022, more than 30 provincial and municipal authorities in China have set out their policy agendas related to the development of the metaverse, or have sought advice on the development of the metaverse
- In the Guangdong-Hong Kong-Macao Greater Bay Area, the Guangzhou Economic and Technological Development Zone provides up to RMB 5 million to companies investing in metaverse technologies in the region to fund the development of digital twins, human-machine interaction and AR/VR/MR technologies

1. Deloitte (2022): The Metaverse in Asia: Strategies for Accelerating Economic Impact.

Curriculum Highlights

Educational Program	<ul style="list-style-type: none"> • VR and AR • 3D Modeling and Animation • Technology and Society • Global Citizenship and Responsibilities
Career Program	<ul style="list-style-type: none"> • Certificate in Metaverse Development Assistant • Spark AR Interactive Experience • Micromaster in Game and Interactive Experience Design Certificate Course • Using AI for Graphic Creation
Professional Program	<ul style="list-style-type: none"> • Metaverse 3D UX/UI Design • Metaverse Finance and Business Opportunities • NFT and Smart Contract Programming • Blockchain Business and Metaverse Applications
Academic Program	<ul style="list-style-type: none"> • Diploma in Creative Design and Digital Applications (1 year) • Higher Diploma in Creative Design and Digital Applications (2 years) • Degree in Creative Design and Digital Applications (3 years)



Metaverse Development

Through the use of network, blockchain and multimedia technology, students will understand the process of metaverse technology development and master the related tools, and eventually join in metaverse development or related work.

The course uses cutting-edge technologies and open-source tools to teach practical knowledge, allowing students to acquire fundamental, cross-disciplinary knowledge of metaverse technology and the skills required for metaverse development in the shortest possible time.

These skills will prepare students for a successful career in the IT industry after the course, in areas such as blockchain development, immersive experience design, Web 3.0 development, game design, and metaverse development.

Chinese 439 Hours Face to Face



Learning Outcomes

1. Be familiar with the latest metaverse technology and market trends
2. Be familiar with the definition of blockchain and application scenarios
3. Be familiar with the security issues revolving around applying and developing blockchain, cryptocurrency and other related technologies
4. Learn to design and build basic Smart Contracts and Non-fungible Tokens (NFT) using Solidity as an example development language
5. Be familiar with Web 3.0 definition and application scenarios
6. Learn to design and create images and videos that can interact with the metaverse using open source tools

What is the metaverse?

The metaverse is an advanced Internet technology framework that seeks to replace the current virtual-real secondary separation of the Internet through a fusion of the virtual and the material, in order to connect users more closely and provide them with an immersive interactive experience in a 3D environment. As a reflection and extension of the real world in virtual space, the metaverse can provide users with a smoother and more amazing experience than the physical world, allowing them to be more engaged and efficient in their work and life. At present, the metaverse is still in its infancy and many technical problems are yet to be solved. If you join related industries now, you will not only have a great time but also be able to find a foothold in the digital economy faster than others.





Mastering Smart Contracts: Creation, Deployment, and Management of Blockchains

Smart contracts have become a crucial component in the world of blockchain technology, enabling secure and automated transactions on decentralized networks. This course will empower participants with the skills and knowledge to create, deploy, and manage smart contracts on various blockchain platforms, facilitating the development of innovative decentralized applications.

Learning Outcomes

1. Understand the fundamentals of blockchain technology and smart contracts
2. Learn to create, deploy, and manage smart contracts on popular blockchain platforms
3. Apply best practices for secure and efficient smart contract development
4. Gain hands-on experience in developing, testing, and deploying smart contracts

Tools & Technologies

1. Solidity: The primary programming language for writing smart contracts on the Ethereum platform.
2. Truffle: A popular development framework for building, testing, and deploying smart contracts.
3. Ganache: A personal blockchain for Ethereum development, enabling the deployment and testing of smart contracts.
4. MetaMask: A browser extension that allows users to interact with the Ethereum network and manage accounts.
5. Web3.js: A JavaScript library for interacting with smart contracts and the Ethereum blockchain.

Chinese, English 40 Hours Face to Face





Quantum Quest: An Adventure into Quantum Computing!

Quantum computing is rapidly emerging as one of the most important technological frontiers of the 21st century. It promises to revolutionize a wide variety of fields, from cryptography and optimization to drug discovery and climate modeling. It represents a completely new way of thinking about computing that goes beyond what's possible with classical computers.

Given the potentially transformative impact of quantum computing, there's a growing need for education in this field. Currently, most education in quantum computing is at the college level or above. However, by introducing quantum computing concepts earlier, we can better prepare students for future study and careers in this field.

 Chinese · English  12 Hours  Face to Face

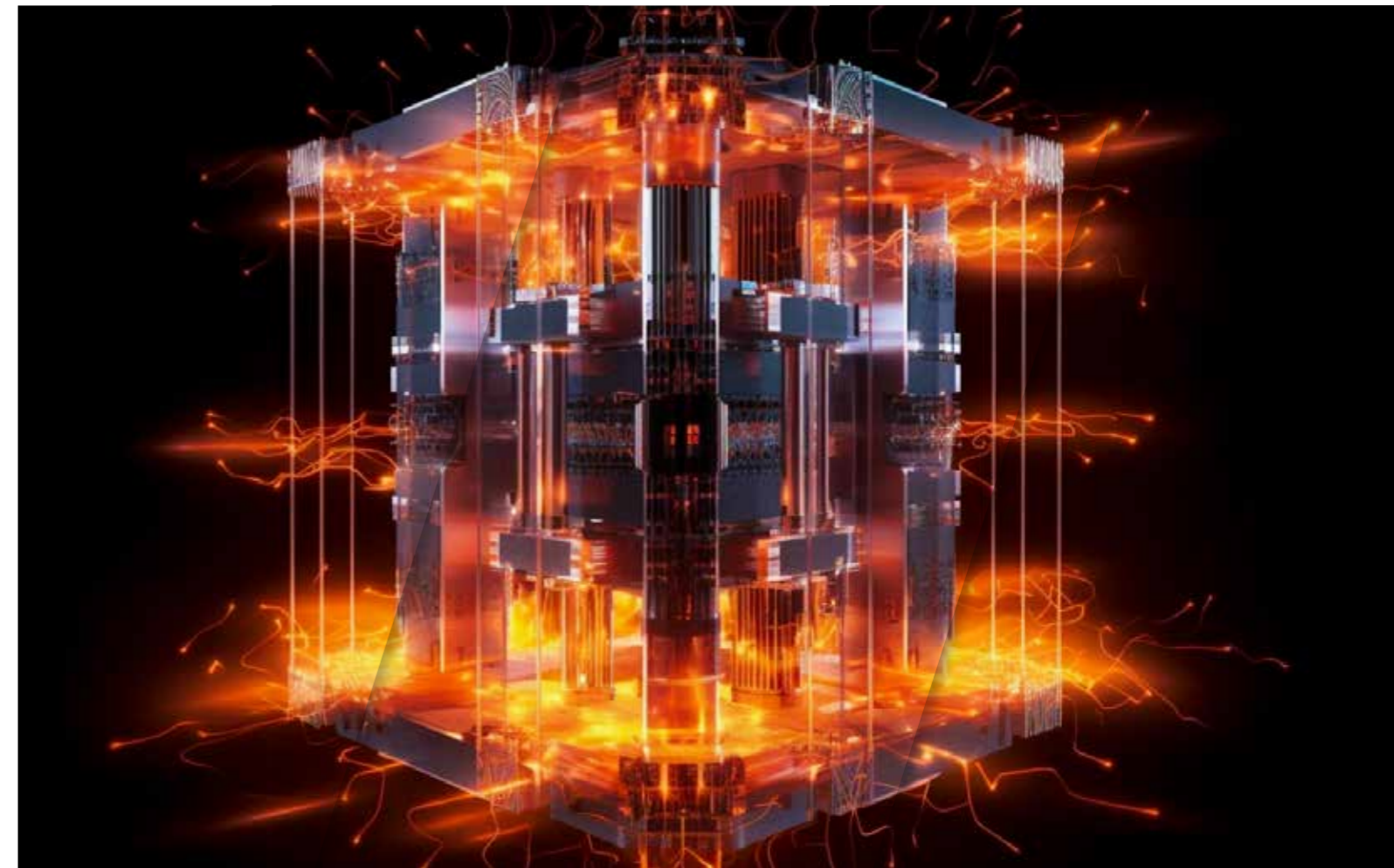


The rationale for offering this course to 8th graders is three-fold:

1. Ignite Early Interest: Offering a quantum computing course to 8th graders is a great way to spark interest in this fascinating field early on. It provides students with exposure to concepts and ideas that are not usually part of the standard curriculum at this stage. This can inspire them to pursue further studies and perhaps careers in quantum computing or related fields.
2. Develop Future-Ready Skills: Quantum computing involves a unique combination of physics, mathematics, and computer science. Learning about quantum computing can help students develop problem-solving skills, logical thinking, and a strong mathematical foundation. These skills will be beneficial irrespective of the specific career path they choose in the future.
3. Democratize Access to Cutting-Edge Technology: Quantum computing is currently a field dominated by researchers in universities and major tech companies. By introducing quantum computing to a younger audience, we can start to democratize access to this cutting-edge technology, encouraging a more diverse range of people to contribute to its development in the future.

Course Timetable

Session 1	Course Introduction	<ul style="list-style-type: none"> • Welcome and Course Overview • Introduction to Computing: A Brief Recap • Why Quantum Computing? • Fun Facts about Quantum Computing
Session 2	Understanding the Basics	<ul style="list-style-type: none"> • Understanding Atoms and Subatomic Particles • Quantum Physics Principles: Superposition and Entanglement • Introduction to Qubits
Session 3	Deep Dive into Quantum Computing	<ul style="list-style-type: none"> • Quantum Gates and Circuits • Quantum Algorithms (Overview) • Quantum Computing vs Classical Computing: A Comparison
Session 4	Hands-on Session: Quantum Playground	<ul style="list-style-type: none"> • Exploring IBM's Quantum Experience-run your project on a real Quantum Computer • Creating and running simple quantum circuits
Session 5	The Future of Quantum Computing	<ul style="list-style-type: none"> • Potential Applications of Quantum Computing • Quantum Computing and Its Impact on Society • Careers in Quantum Computing
Session 6	Wrap-up and Final Project	<ul style="list-style-type: none"> • Course Review • Final Project: "My Quantum Journey" – A creative project where students design a comic strip or storyboard of their own quantum adventure, illustrating the concepts they've learned.
Session 7	Final Project	<ul style="list-style-type: none"> • The final project aims to assess students' understanding of the course material in a creative way. They are asked to create a comic strip or storyboard that tells the story of their own quantum adventure, incorporating the concepts learned throughout the course. This could include characters based on qubits, scenes featuring quantum gates and circuits, and conflicts/resolutions based on quantum algorithms. The goal is not only to test understanding but also to encourage creativity and make learning quantum computing a fun and memorable experience.



Learning Outcomes

By the end of the "Quantum Quest: An Adventure into Quantum Computing!" course, the students should have achieved the following:

1. Understanding of Quantum Principles: Students will understand key principles that distinguish quantum mechanics from classical physics, including superposition and entanglement. These are fundamental concepts not just for quantum computing but also for a wide range of quantum technologies.
2. Knowledge of Quantum Computing Components: Students will be able to explain what qubits are, how they are different from classical bits, and how they form the building blocks of quantum computers. They'll understand the role of quantum gates and how they're used to manipulate qubits in quantum circuits.
3. Basic Quantum Algorithm Understanding: Students will have a basic understanding of how quantum algorithms (like Shor's and Grover's) work and why they are faster than classical algorithms for certain problems.
4. Comparison of Quantum and Classical Computing: Students will be able to explain the fundamental differences between quantum computers and classical computers, the advantages and challenges of quantum computing, and the potential impact of quantum computing on society and various industries.
5. Practical Experience with Quantum Computing Tools: By exploring IBM's Quantum Experience, students will gain hands-on experience with a real quantum computer and running simple quantum circuits.
6. Creative Expression of Learning: The final project will demonstrate the students' ability to creatively express the quantum computing concepts they've learned. They should be able to create a narrative that accurately and clearly depicts these concepts in a fun and engaging way.
7. Future Learning Path: The course will stimulate students' interest in quantum computing and provide them with a foundation for further study in this field. They should feel confident to explore more advanced topics, undertake more complex projects, and consider potential careers in this cutting-edge field.



Creating Interactive Metaverse Experiences

This module aims to introduce students to the concepts and techniques of creating interactive experiences in the Metaverse. Going beyond the existing activities/games found in Metaverse environments (e.g. VRChat/Minecraft/The Sandbox), students will be taught to structure, create, and manage ideas for practical deployment in the Metaverse.

Chinese 30 Hours Face to Face

Learning Outcomes

1. Be able to explain the drivers of emerging trends in business applications of Metaverse experiences
2. Be able to explain the design principles for creating interactive and profitable Metaverse experiences
3. Be able to apply insights in interactive and profitable design in prototyping interactive Metaverse experiences
4. Be able to apply Metaverse tools to create experiences in immersive environments
5. Be able to evaluate the importance of regulations and rules in the creation of Metaverse activities



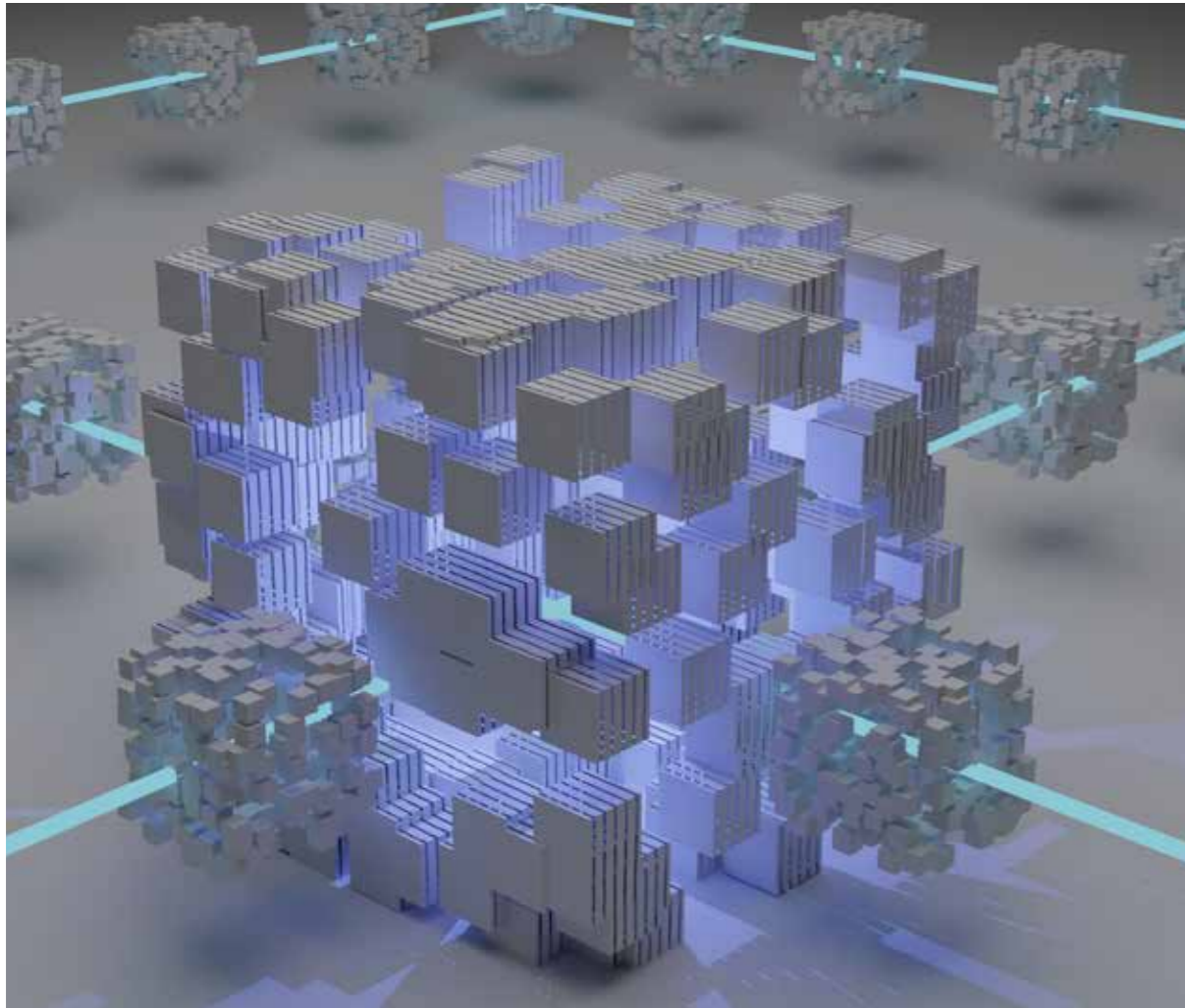
Metaverse 3D UX/UI Design

This module aims to introduce students to the basic concepts and latest applications of 3D UI/UX design for the Metaverse environments. Students will apply Augmented Reality (AR)/Virtual Reality (VR) design concepts and principles of psychology to construct Metaverse marketplace and shop prototypes using Blender.

Chinese 30 Hours Face to Face

Learning Outcomes

1. Be able to explain the trend drivers in the technologies underlying Metaverse immersive experiences
2. Be able to explain techniques in designing user interfaces (UI) and user experiences (UX)
3. Be able to apply UI concepts in designing immersive experiences in the Metaverse
4. Be able to apply UX frameworks in designing user-friendly Metaverse solutions
5. Be able to utilize UI/UX tools and techniques to prototype Metaverse-compatible shops and marketplaces



Blockchain Business and Metaverse Applications

This module aims to introduce students to the basic concepts and latest applications of digital currencies in the Metaverse. Students will be taught how digital currencies are created, blockchain's applications in digital currency, and how digital currencies impact the existing business environment via Metaverse applications.

Chinese 30 Hours Face to Face

Learning Outcomes

1. Be able to explain core concepts in the operation and design of blockchain technologies
2. Be able to explain the drivers of emerging trends in business applications of blockchain technologies
3. Be able to apply understanding of blockchain design principles in analyzing existing blockchain projects
4. Be able to evaluate the success of existing blockchain projects along economic and social dimensions
5. Be able to evaluate the impacts of blockchain technologies on the global businesses environment



Building 3D Worlds in the Metaverse

This module aims to introduce students to the techniques and skills for creating Metaverse assets and properties, including 3D modeling, character rigging and animation. Students will be taught the basics of sculpting Metaverse avatars, and optimization methods for better rendering performance.

Chinese 30 Hours Face to Face

Learning Outcomes

1. Be able to explain the roles of digital assets and avatar design and production in the Metaverse ecosystem
2. Be able to explain the respective roles of software tools required for Metaverse asset and avatar creation
3. Be able to apply modeling and sculpting techniques to create Metaverse assets and avatars
4. Be able to apply texturing and rigging techniques to create Metaverse assets and avatars
5. Be able to integrate practical experience with production methodologies in creating original Metaverse assets and avatars

NFT and Smart Contract Programming

This module aims to introduce students to the practical tools and concepts required to create and program Non-Fungible Tokens (NFTs) and Smart Contracts. Students learn the revolutionary impact that NFTs and Smart Contracts have had on businesses, and will dive deep into the technical and operational considerations when building customized blockchain solutions for enterprises.



Chinese 30 Hours Face to Face

Learning Outcomes

1. Explain the functions of and differences between decentralized digital assets
2. Explain the drivers of emerging trends in business applications of Smart Contracts and NFTs
3. Apply concepts in digital asset design in programming Smart Contracts
4. Integrate creative and technical understanding into the design and production of NFTs
5. Evaluate the commercial impacts of deploying blockchain technologies in the Metaverse



Metaverse Finance and Business Opportunities

This module aims to introduce students to the basic concepts and latest business opportunities for Metaverse-related investments, including the flagship Metaverse projects, virtual land/ estates, and other investment tools for Metaverse-related fields. Students will be taught how to create, hold, and trade virtual assets in Metaverse, and recognize the risks and opportunities around the Metaverse.



Chinese 30 Hours Face to Face

Learning Outcomes

1. Explain the strengths and weaknesses of decentralized digital assets in comparison with traditional assets
2. Explain the characteristics of well designed Decentralized Finance (DeFi) solutions
3. Apply financial models in appraising decentralized digital assets
4. Apply financial models in designing Metaverse investment portfolios
5. Evaluate the risks and opportunities for the Metaverse and related industries



Introduction to AI-Generated Animation Production

This course will teach you how to use Artificial Intelligence (AI) to generate videos. The instructor will introduce the basic concepts of animation: frame rate, storyboard, special effects, etc. The instructor will also introduce the current application of AI in the animation industry, such as how the industry uses the latest AI technology to assist in storyboarding, motion capture, special effects, adding subtitles and background music. By the end of the course, students will use their knowledge of AI animation production processes and techniques to generate their own short animation.

Chinese 3 Hours Face to Face

Learning Outcomes

1. Understand the basic concepts of animation
2. Learn the current situation of the animation industry and the technology used in productions
3. Master basic video editing techniques
4. Understand the benefits of using AI for video editing





Inspiring Digital Creativity



Inspiring Digital
Creativity





Inspiring Digital Creativity

As mankind enters the fourth industrial revolution, many repetitive processes are being replaced by technologies such as engineering mechanization or software automation. Innovation and creativity are indispensable skills for people who want to remain competitive in the future. Even though AI creative tools are becoming more common, the industry still needs skilled artists to participate in creative and cultural projects to spread inspiring and unique stories.

Why should I cultivate digital creativity ?

Our courses provide students with the practical knowledge, latest technologies and open source tools needed to pursue a career in the digital creative industries, so that they can participate in the digital economy and IT industry and remain competitive in the workforce.

1. Learn free creative tools: Compared with many paid and closed-source tools, Krystal Institute promotes the use of free alternatives that are comparable to common tools, lowering the threshold for entry into the industry
2. Diverse applications: Digital creative talents are needed in advertising, culture, product design, architecture and other industries; students have abundant opportunities to work in these positions
3. Adding an additional source of income: Digital creativity talents continue to be in demand on local and overseas outsourcing platforms, which offer project-based contracts that are suitable for flexible deployment, making them the first choice for "slashers"
4. Become a digital nomad: digital design can be done with simple computer equipment and a stable internet connection, allowing you to work remotely without being tied to a specific workplace



Core Technologies for Creative Industries

The founders of Krystal Institute have over 20 years of experience in providing digital creative skills and production courses, and have worked with academic institutions such as Nanyang Polytechnic University, Shenzhen University, and the City University of Hong Kong to offer bachelor and master level programs. We are a leader in providing innovative and creative programs to help our users and students succeed in the creative industry. Whether it is graphic design, game design and deployment, UI/UX design, or modeling, video editing and compositing, special effects and video previsualization, 2D animation, professional 3D animation, etc., beginners and professionals alike can benefit from our courses.

Latest Developments

- As a sub-sector of the creative industry, for example, the value of the global gaming industry will rise to US\$321 billion by 2026, with promising prospects for development
- According to a study by the Hong Kong Digital Entertainment Association, more than 50% of creative studios surveyed believe that the industry should strengthen talent training, proving that existing talents need to upgrade their creative technology skills
- The "slashers" economy is booming; for example, more than 6 million projects are completed on the Fiverr platform each year, highlighting the prospects and opportunities for creative and service industries

Curriculum Highlights

Educational Program	<ul style="list-style-type: none"> • 2D Animation • CG Long Format Production Pipeline • Vector Graphic Tools • Raster Graphic Tools 	<ul style="list-style-type: none"> • Video Editing • Image Editing • Graphic Design • Photography
Career Program	<ul style="list-style-type: none"> • Certificate in Creative Digital Media Design and Production Assistant Training • MicroMaster in GIMP/ Inkscape Graphic Editing & Graphic Design Certificate Course • MicroMaster in Krita Digital Illustration Certificate Course • MicroMaster In UX/UI Designer (Penpot) Certificate Course 	
Professional Program	<ul style="list-style-type: none"> • CG Animation Production and Pipeline Management • Video Post-production Bootcamp • Certificate in CG Professional 	
Academic Program	<ul style="list-style-type: none"> • Diploma in Creative Design and Digital Applications (1 year) • Higher Diploma in Creative Design and Digital Applications (2 years) • Degree in Creative Design and Digital Applications (3 years) 	



Creating CG Feature Animations with Open Source AI and Design Tools

The objective of this 800-hour curriculum is to equip students with the necessary knowledge and skills to create CG feature animations using open source AI and design tools. The curriculum will cover all the aspects of CG animation, from script writing to final rendering, and students will be expected to develop a strong foundation in all the relevant technical areas.

Through this course, students will learn to use AI tools to speed up the animation production process and create realistic and stunning animations.

Chinese · English 800 Hours Face to Face



Course curriculum:

The 800-hour CG feature animation course will be delivered over a period of 20 weeks, with classes held for 40 hours each week. The following is a breakdown of the time table for the course:

Weeks 1-2	Introduction to CG Feature Animation	During the first two weeks of the course, students will be introduced to the basic concepts and principles of CG feature animation. This will include an overview of the course, an introduction to the software and tools that will be used throughout the program, and an overview of the CG feature animation production pipeline. Students will also begin working on their first project, which will involve creating a simple 3D model using Blender AI.
Weeks 3-4	Character Design and Modeling	In weeks 3 and 4, students will be introduced to the principles of character design and modeling. This will include an overview of the design process, character anatomy, and the basics of 3D modeling. Students will also be introduced to the Midjourney software tool, which will be used for character design. During this section, students will work on designing and modeling their own original characters.
Weeks 5-6	Environment Design and World Building	During weeks 5 and 6, students will learn about environment design and world building. This will include an introduction to mood board creation, environmental storytelling, and the creation of assets for use in environments. Students will also begin to work on designing and building their own environments using Blender AI.
Weeks 7-8	Special Effects and Simulation	In weeks 7 and 8, students will learn about special effects and simulation. This will include an introduction to Stable Diffusion software tool, which will be used for creating special effects. Students will work on adding special effects to their characters and environments.
Weeks 9-10	Crowd Scene and Motion Capture	In weeks 9 and 10, students will learn about crowd scenes and motion capture. This will include an introduction to the Point-E and PifuHD software tools, which will be used for motion capture and facial expression transfer. Students will work on adding motion capture to their characters and creating a crowd scene.
Weeks 11-12	Sound Design and Video Compositing	In weeks 11 and 12, students will learn about sound design and video compositing. This will include an introduction to sound design principles and the use of sound in animation, as well as an introduction to the Kdenlive software tool, which will be used for video compositing and editing. Students will work on creating their own sound design and integrating it into their final project.
Weeks 13-14	Texture, Lighting, and Rendering	In weeks 13 and 14, students will learn about texture, lighting, and rendering. This will include an introduction to texture creation and editing using Krystal Office+(GIMP, Krita, and Inkscape,), as well as an introduction to lighting and rendering in Blender AI. Students will work on adding textures, lighting, and rendering to their final project.
Weeks 15-16	Final Graduation Project	During the final two weeks of the course, students will work on their final graduation project. This will involve using all the skills and tools they have learned throughout the program to create a high-quality CG feature animation. Students will be required to submit a completed project that meets certain quality standards, which will be outlined in the project guidelines.



Introducing AI to traditional workflows

With the increasing demand for high-quality CG feature animations, there is a need for artists and animators who are skilled in the use of open source AI and design tools. This course aims to provide students with the knowledge and skills necessary to create CG feature animations using these tools, and to explore the potential of AI and other emerging technologies in the field. By working collaboratively in a team, students will also develop important interpersonal skills that are essential for success in the creative industries.

Learning Outcomes

1. Develop skills in character design, world building, and environment design for CG feature animations
2. Gain expertise in special effects, simulation, and crowd scenes for CG feature animations
3. Develop skills in 3D modelling, including texture, lighting, rigging, motion capture, facial capture, lip-syn, and sound design for CG feature animations
4. Gain the ability to create high-quality animations with greater efficiency and ease
5. Gain knowledge of how to leverage AI tools to automate repetitive tasks and speed up the animation production process
6. Gain proficiency in using Blender AI, Midjourney, Chat-GPT, Stable Diffusion, GIMP, Krystal Office+, Black Magic DaVinci, Natron, Luma AI, Point-E, PifuHD, Get3D, Dream Fusion, and other AI-based software





Certificate in CG Professional

This course is designed to develop professional CG artists. The course will provide in-depth instruction in the application of tools to create games and animations, and guide students through multiple projects that will make them the backbone of the CG industry.

This program provides students with the opportunity to build a career path and graduate with the knowledge, skills and tools to meet the challenges of digital content production and creation.

Students will be eligible for admission to the program after taking the CG Artist Program or taking an entrance exam.

English 480 Hours Face to Face



Course Outline

1. Advanced modifier modelling: Use advanced techniques to create complex models
2. Character and environmental modelling: Create a character by designing and completing the body, clothes, and shoes
3. Advanced texturing and mapping: Create different textures and materials in Blender
4. Advanced animation and character animation: Learn about the advanced 3D Animation techniques for the animation
5. Adding VFX into the scenes to make realistic effects: Know what VFX is and learn how to add special effects to your scenes
6. Creating realistic scenes and final project: Render a realistic environment and character for your final project

Learning Outcomes

1. Master CG animation production related skills, including storyboard drawing, character modeling, animation settings, model rendering, post-production synthesis, etc.
2. Master the process and standard procedures of CG animation productions
3. Master project management methods
4. Understand industry trends and standards





Certificate in CG Artist

3D art is everywhere today, and for those who are fascinated by exciting visual effects, becoming a CG artist specializing in 3D animation is a great choice.

This course will provide students with an opportunity to learn the fundamentals of CG animation, understand the workflow of the CG industry, and lay the foundation for their future as CG artists.

CG artists are people who use computer software to develop artistic 3D images. The CG images produced by CG artists can be used in video games, movies, animation, advertising campaigns, web interfaces, and more.

English 400 Hours Face to Face



Course Outline

1. Mesh Modelling: Create simple models such as chairs, tables, TVs, and fighter jets
2. Mesh Editing Operation and Basic Sculpting: Design your dream house assets like couches, cabinets, and lamps
3. Introduction to Materials and UV Mapping: Learn how to apply colors, materials, UV mapping, and glass shaders to your models
4. Animation and the Graph Editor: Create animations for your flying saucer jets, bouncing balls, and Newton balls
5. Lighting and Rendering: Understand the lighting and render settings to complete the final project

Learning Outcomes

1. Master the basic knowledge and theory of 3D animation
2. Be familiar with the process of CG animation production
3. Master the techniques involved in CG animation production, including modeling, rendering, and post-production sound
4. Master the method of developing a complete CG animation





Creative Digital Media Design and Production

This program meets the demands and the developmental pace of the Digital Economy, facilitates the expansion of HR resources in related industries, enhances the competitiveness of Hong Kong's digital media in creative areas, and provides job opportunities and techniques for students.

Through this program, students will be exposed to the knowledge, workflow, and tools of several creative industries, encouraging them to explore the creative industries they are interested in and readying them for their future careers. In addition to the popular industries of graphic design, animation production, game production, and application design, students will also explore new and emerging industries such as metaverse art.

Chinese 220 Hours Face to Face



Learning Outcomes

1. Be familiar with the various submodules in digital media, including framework, engine, and platform
2. Understand the production process, game team and personnel structure of various digital media (including computer games and computer animation)
3. Master the techniques, usage processes, methods, and planning of tools commonly used in the development of digital media (including computer games and computer animation) and apply them to web pages, videos, games, animation design, 2D animation, 2D modeling, and 3D animation
4. Understand digital media theory (including computer games and computer animation), including sketching, coloring, computer graphics, animation principles, user interface and user experience
5. Be able to produce digital media products according to client needs under guidance
6. Gain knowledge of on-the-job skills and processes required for the production of digital media, including computer games and computer animation, storyboarding, project management, script design, production environment networking and safety, and digital media asset management
7. Gain understanding of industry production requirements and management standards

Free Creative Digital Media Tools

Tools students will come across in this course, such as Krita, GIMP and Inkscape are free-to-use and of high quality. As open source software, they each have a team of community developers that provide constant improvements and new features, so that students can freely create without worry.





Certificate in CG Producer

To become a CG Producer, you need to have extensive experience working in CG (computer graphics) or VFX, which will be an important consideration for employers when hiring.

Producers are responsible for all aspects of animation production. They manage the director and all other departments to ensure that the project is delivered on time, within budget, and to the best creative requirements.

In this course, students will learn the complete production process of animation and the tools used in CG production, as well as production methods and management techniques.

English 210 Hours Face to Face



Course Outline

1. The roles involved in a CG project: Understand the responsibilities of the animation producer and key staff in the production of a CG project
2. CG project production process: Understand the responsibilities of producers in the development, production and post-production processes, and learn how to ensure the smooth development of the project
3. CG project management methods: Learn how to plan budgets, organize schedules and track the progress of the project
4. Other tasks involved in a CG project: Learn about talent recruitment, intellectual property and copyright protection, key contract drafting, and master the methods of product release and marketing

Learning Outcomes

1. Master the mainstream trend of the global animation industry
2. Master the process of animation development
3. Master the document production methods for planning and managing animation productions
4. Master the method of planning and evaluating the whole animation project





Certificate in CG Technical Artist

Technical artists are a mix of creative and technical operators who act as a liaison between the team of artists and programmers. They need visual skills and programming knowledge to understand and solve problems between the two departments.

In CG production, a good technical artist maintains the integrity of the artistic vision within the constraints of the software used. They work closely with game designers, lead artists, and lead programmers to advise technical resources, research new techniques, maintain tools and production pipelines, and prepare digital files of the finished artwork so that the team can run efficiently without compromising the visuals.

English 170 Hours Face to Face



Course Outline

1. CG industry overview and industry norms: Briefly introduce the development history of the CG industry and the latest trends
2. Basic CG skills: Master the basic skills of CG production, including modeling, UV mapping, the use of game engines to create CG graphics, etc.
3. Programming fundamentals: Understand various scripting languages, such as Python, C++, Direct X, etc.
4. CG production process basics: Understand and be familiar with the CG project production process
5. CG project management methods: Learn how to contact game developers and programmers and manage CG projects

Learning Outcomes

1. Understand the importance of technical artwork
2. Understand the role and job responsibilities of a technical artist
3. Possess the skills to become a professional technical artist





Certificate in CG Instructor

This course is suitable for educational institutions or studios that need to train students or staff.

The training of CG instructors focuses on enhancing their existing knowledge and further honing their personal skills. Participants are able to learn about changes or the latest developments in their field through hands-on training under the guidance of experts. In addition, they are able to experiment with various educational methods with others and explore their own educational style.

Training for instructors is important because they are an important force in the development of the profession. Only when there are good teachers can there be good students and the industry can grow further.

English 170 Hours Face to Face



Course Outline

1. Pedagogy fundamentals: Understand educational theories and modern advanced educational techniques
2. CG industry overview and norms: Understand the history of the CG industry and current trends
3. CG production: Understand the production process of CG projects, the standard procedures of each step, and the responsibilities of each involved role
4. CG production techniques: Refine CG-related techniques, including modeling, sculpting, mapping, etc.
5. Organization and project management: Understand the key factors and know-how in organization and management

Learning Outcomes

1. Further improve the mastery of professional knowledge
2. Gain further understanding of industry ecology
3. Be able to build a personalized teaching method
4. Acquire tools for lifelong benefit





Chinese Culture 3D Animation Adventure Camp

In this course, students will learn to use a 3D animation production software, Blender, for basic modeling and animation production. During the course, students will be given the opportunity to showcase their learned techniques by making a simple animation. After studying this course, students will be able to understand the basic concepts and production process of 3D animation technology, thus improving their interest in and understanding of 3D animation technology.

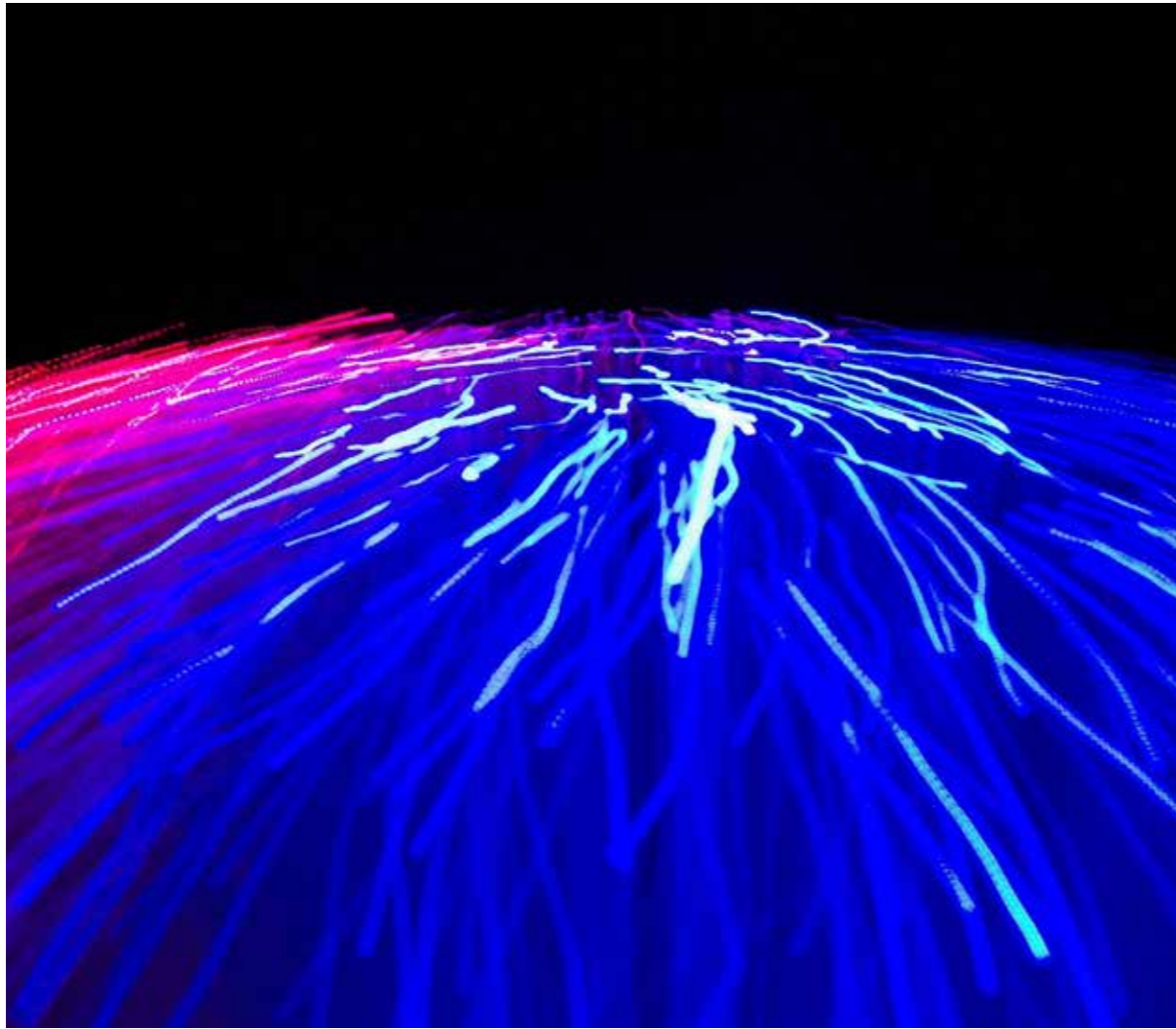
 English  12 Hours  Face to Face

Course Outline

1. Getting to Know Blender: Learn the concept of 3D space and the Blender interface, familiarize yourself with navigation methods
2. Fundamentals of Blender: Explore different tools in "Object Mode" and "Edit Mode" to create simple models
3. Blender's Camera, Lighting, and Rendering Setup: Learn how to choose appropriate lighting, add a camera, set the correct rendering mode, and export images and videos
4. Animation Principles and Creation: Acquire basic animation knowledge, add keyframes to objects, and create simple animations
5. Coloring the Panda: Master texture painting to unleash creativity in crafting a unique panda model
6. Blender Graduation Project - Animation Short Film Production: Students will work in teams, conceptualize and script a story, collaborate amicably (including character design, scene design, and animation design), and showcase their work in the final class

Learning Outcomes

1. Learn fascinating aspects of traditional Chinese culture
2. Learn to create some Chinese-styled 3D models and animation
3. Foster students' creativity and spatial thinking abilities
4. Cultivate students' technological literacy and innovation mindset
5. Promote teamwork and enhance students' communication skills



Blender Visual Effect Beginner Course

Students will use the open source software Blender to learn computer graphics production, and understand the method of visual communication of information through 3D special effects. Starting from the simplest of basics, the course will teach the relevant knowledge of visual effects production with increasing complexity. In the early stage, the course will focus on the theoretical knowledge of conceiving stories and drawing storyboards. In the later stage, it will focus on practice, guiding students to create 3D media objects, and use character dynamic capture and motion tracking. Technology to create 3D movies. Instructors will demonstrate a number of visual effects production cases in the classroom, and answer students' questions on the spot, creating a harmonious classroom atmosphere with close teacher-student interaction. Each production case involved in the course is equipped with exercises that students need to complete independently, so that the instructor can evaluate students' mastery of knowledge after class. At the end of the entire course, each student/group should be able to independently complete the production of a complete set of 3D visual effects.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Learn the basics of creating 3D visual effects using Blender's tools
2. Learn to make storyboards
3. Learn to make 3D character models and objects
4. Learn to create a short animation using Blender
5. Create a portfolio of 3D visual effects works



MicroMaster in Blender 3D Modeling and Animation Certificate Course

Students will use Blender, a powerful open source software, to learn about 3D creative media production including 3D modeling, texturing, UV editing, rigging, lighting simulation, and animation key frame settings. The course will teach the theory of 3D media production and the operation of Blender in complete detail. From the interface and common functions of Blender to model topology and character creation, students will learn the complete 3D animation production process and get started quickly through this course. The instructor will demonstrate a number of 3D media production cases and answer students' questions on the spot, creating a harmonious classroom atmosphere with close teacher-student interaction.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Learn to use Blender and understand its interface
2. Understand the principles of modelling
3. Create 3D models with simple colors
4. Learn the basics of animation
5. Create your own materials
6. Learn to UV map and unwrap your models
7. Create animations for your objects & characters



Introduction to Blender's Basic Structure and Operations

Students will learn about Blender from scratch and eventually master the 3D modeling workflow and the skills required. The course teaches theoretical knowledge and is supplemented by classroom exercises to enable students to consolidate acquired the knowledge.



Chinese 9 Hours Face to Face

Learning Outcomes

1. Learn the development history of Blender and its basic operation
2. Learn how to create simple models using basic material settings and rendering techniques
3. Learn how to use different tools and techniques from the previous unit to create models
4. Master advanced texturing and rendering techniques
5. Learn other important functions in Blender
6. Learn simple animation creation methods



Low-Poly Game Characters and Modeling Production

Students will use simple geometric shapes to form different characters and eventually build a game world. In addition to basic characters, game-related models, such as objects, buildings, and terrain backgrounds, are all constructed from simple models during this course. Students will quickly and easily master the 3D modeling workflow, from modeling, coloring, motion processing to rendering, and related skills, and apply them to the game production and generation in the second half of the course.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Be introduced to the related software (mainly Blender) and their basic operations
2. Learn to make simple models of people or creatures
3. Create other simple low-poly models
4. Be introduced to Blender's material settings and rendering techniques
5. Complete the basic character design, and convert it into a three-dimensional model, and guide them to try it out and practice
6. Create simple game scenes
7. Create a simple animation using the scenes and characters created



Realistic Models Sculpting

After completing this module, students will have mastered the use of sculpting tools to work with models that have a large number of surfaces and complex textures.

Students will have the opportunity to gain a deeper understanding of the different textures available in Blender and their unique features, and learn to select the most suitable texture for their projects. In addition, the instructor will explain in detail the characteristics and effects of each sculpting tool, and then demonstrate step-by-step the process of surface sculpting and texturing, so that students can gradually master the skills.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Be introduced to basic operations of the sculpt tools related to the course in Blender
2. Create an advanced model
3. Receive a further introduction to material settings and rendering techniques
4. Learn basic character design and modeling, and related exercises
5. Be introduced to high-poly and low-poly modeling and topology



Modelling through rendering static illustrations

Upon completion of this module, students will have mastered the edit tools to create and manipulate detailed models and scenes (for use as illustrations) in Blender, with a focus on mechanical and architectural models.

Aside from learning the various tools, techniques and Blender features involved in creating the models and objects, students will also learn how to compose scenes aesthetically. In addition, other concepts such as the positioning of lighting will also be touched upon in order to produce professional illustrations.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Be introduced to the basic operations of the edit tool related to the course in Blender
2. Create a robot model and a building model
3. Receive a further introduction to material settings and rendering techniques
4. Design and complete a machine model and a basic scene, and do the related exercises
5. Create machine models and scenes you designed
6. Be introduced to the material production and rendering process

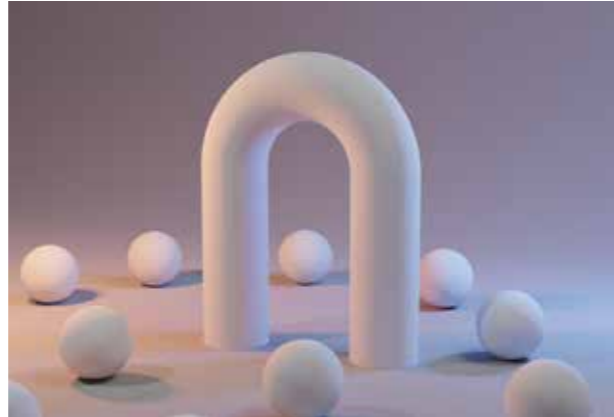


Using Maya for modeling, materials editing, and lighting (Part 1)

This course will teach students the methods and techniques of 3D modeling using Maya.

The instructor will first introduce students to the interface and basic functions of Maya, and then guide them step-by-step through the 3D modeling process. Then, students will learn how to further polish their models in Maya, including adding materials and setting up lighting.

In addition to modeling, this course will also cover basic 3D animation knowledge, where students will try to create 3D animations using the created models.



Chinese 8 Hours Face to Face

Learning Outcomes

1. Learn the principles and basic operations of Autodesk Maya for modeling, materials editing, and lighting
2. Learn to model and rig a 3D object
3. Learn principles in animation, including keyframes
4. Create an animated video

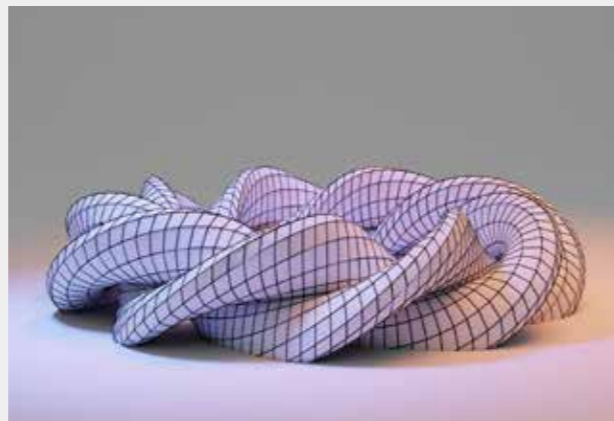


Using Maya for modeling, materials editing, and lighting (Part 2)

This course will teach students the methods and techniques of 3D modeling using Maya.

The instructor will first introduce students to the interface and basic functions of Maya, and then guide them step-by-step through the 3D modeling process. Then, students will learn how to further polish their models in Maya, including adding materials and setting up lighting.

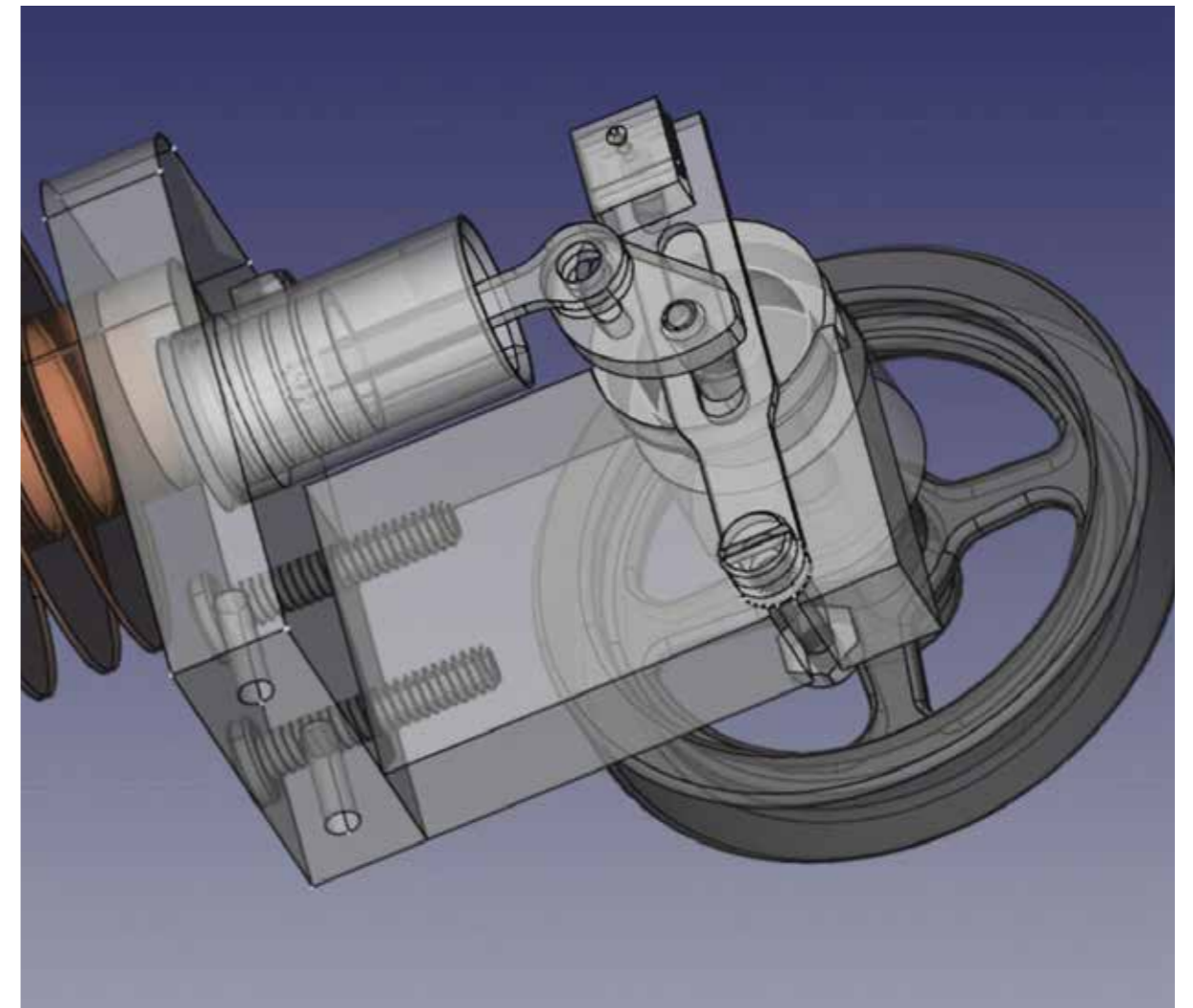
Compared to the first part, this part will focus more on strengthening students' modeling knowledge and guiding them to complete 3D animation independently.



Chinese 8 Hours Face to Face

Learning Outcomes

1. Basic concepts of animation and basic 3D animation techniques
2. Design basic 3D characters and build simple 3D animation sequences
3. Create simple personal animations



FreeCAD 3D Printing Beginner Course

Students will learn 3D printing using FreeCAD, an open source 3D CAD modeling program. Students will operate the software and use grating stereo and laser holography technology to complete the production of 3D printing products. FreeCAD has a set of tools suitable for any 3D model development environment. It is powerful and easy to use. It is the best choice for getting started with 3D modeling. This course will take this powerful software as the main teaching tool, and lead students to learn the basic concepts of 3D space and gradually gain an in-depth understanding of the relevant knowledge and technology of 3D printing. Instructors will demonstrate the production process of objects such as mobile phone holders, keychains, cartoon characters, etc. in class, and answer students' questions on the spot, imparting knowledge to students in a fun and harmonious teaching atmosphere. Each production case involved in the course is equipped with exercises that students need to complete independently, so that the instructor can evaluate the students' knowledge mastery level after class. At the end of the entire course, each/each group of students should be able to independently print their 3D works.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Learn basic concepts of 3D printing
2. Learn how to use a 3D printer and its components
3. Learn FreeCAD functions like modifying lines, surfaces, volumes; modelling and related tools
4. Learn about organic solid modelling



Basics of 3D Printing and Related Software

This module will introduce the basics of 3D printing and related software. Students will learn about different types of 3D printers, their working principles, and related application scenarios.

The teacher will also guide students to learn the basic operations of Tinkercad and Blender, and guide them to use their knowledge to make small objects such as cell phone holders and mask hooks.



Chinese 6 Hours Face to Face

Learning Outcomes

1. Master the principles, structure, and types of 3D printing
2. Be familiar with the characteristics of 3D printing materials and application scenarios
3. Master the functions and usage of basic 3D printing software
4. Master 3D printing model-making methods (daily necessities, personal interest-based creations, such as anime character dolls, robot models and parts, and model scenes making)



3D Printing of Anime Characters

This module will focus on the creation of anime or personalized character figures using Blender.

The instructor will guide students to combine the features of 3D printing or production requirements, focus on the key points to consider when making models, and use Blender to model their favorite anime characters or their own characters. Finally, after mastering the skills, students will be required to print out their own work.

Students will become more familiar with Blender during the modeling to the printing process, which will help them to master more advanced modeling techniques later on.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Complete the preparation of the character model
2. Master the production method of the character's head (including the five senses and hair)
3. Master the production method of the character's body and limbs
4. Master the production method of character costumes and accessories
5. Master the method of finishing the whole character and objects



3D Printing of Daily Products

In this module, the instructor will lead students in using Blender to make small tools or accessories that are commonly used in everyday life.

Students will be able to make daily items such as teacups, dishes, etc. They are simple in shape and suitable for beginners to get started. The instructor will guide the students in making models that take into account the characteristics of the 3D printer or the production requirements and eventually print excellent finished products.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Master the method of modeling, correction, and printing of common household items
2. Master the method of using Blender for basic modeling
3. Master the method of using Blender to complete product UI/UX design
4. Be familiar with the conversion workflow from 3D model to 3D printed products



3D Printing of Movie Characters

In this module, the instructor will lead students to use Blender to create characters and objects that appear in animated movies, as well as other commercially available models and related accessories and environments.

Students will have the freedom to create their own characters in class, or to be creative in creating their own characters, such as adding sci-fi elements to them or adapting them in an anime style.

The instructor will provide students with ample guidance during the class so that they can have a solid grasp of modeling and printing skills.

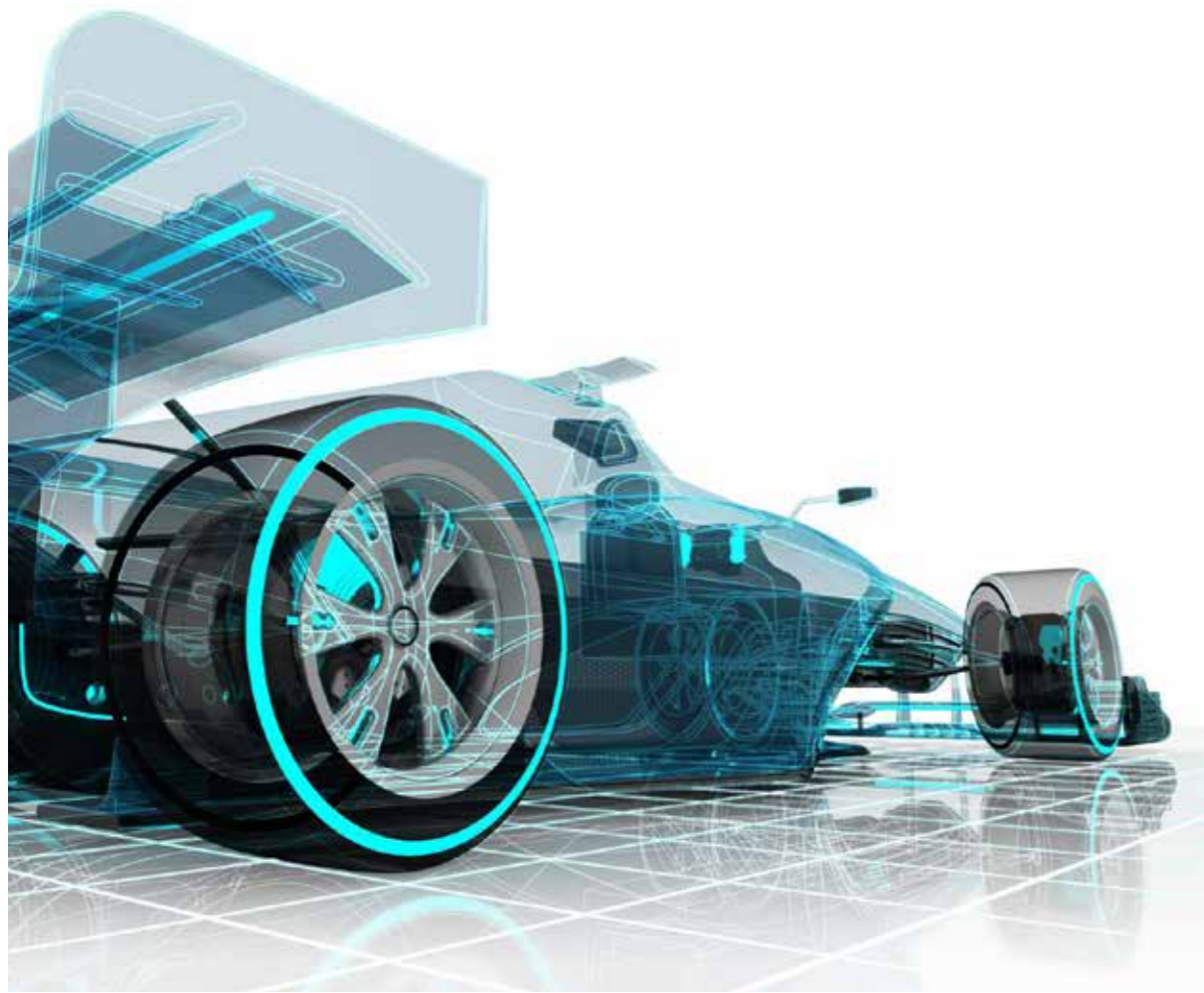


Chinese 12 Hours Face to Face

Learning Outcomes

1. Learn to perform animated model analysis for movie characters
2. Learn modeling preparation for animation movie characters
3. Learn model modeling, correction, and printing for animated movie characters
4. Master modeling animated movie scenes





Blender 3D Modelling: Introducing the Open-Source Professional 3D Production

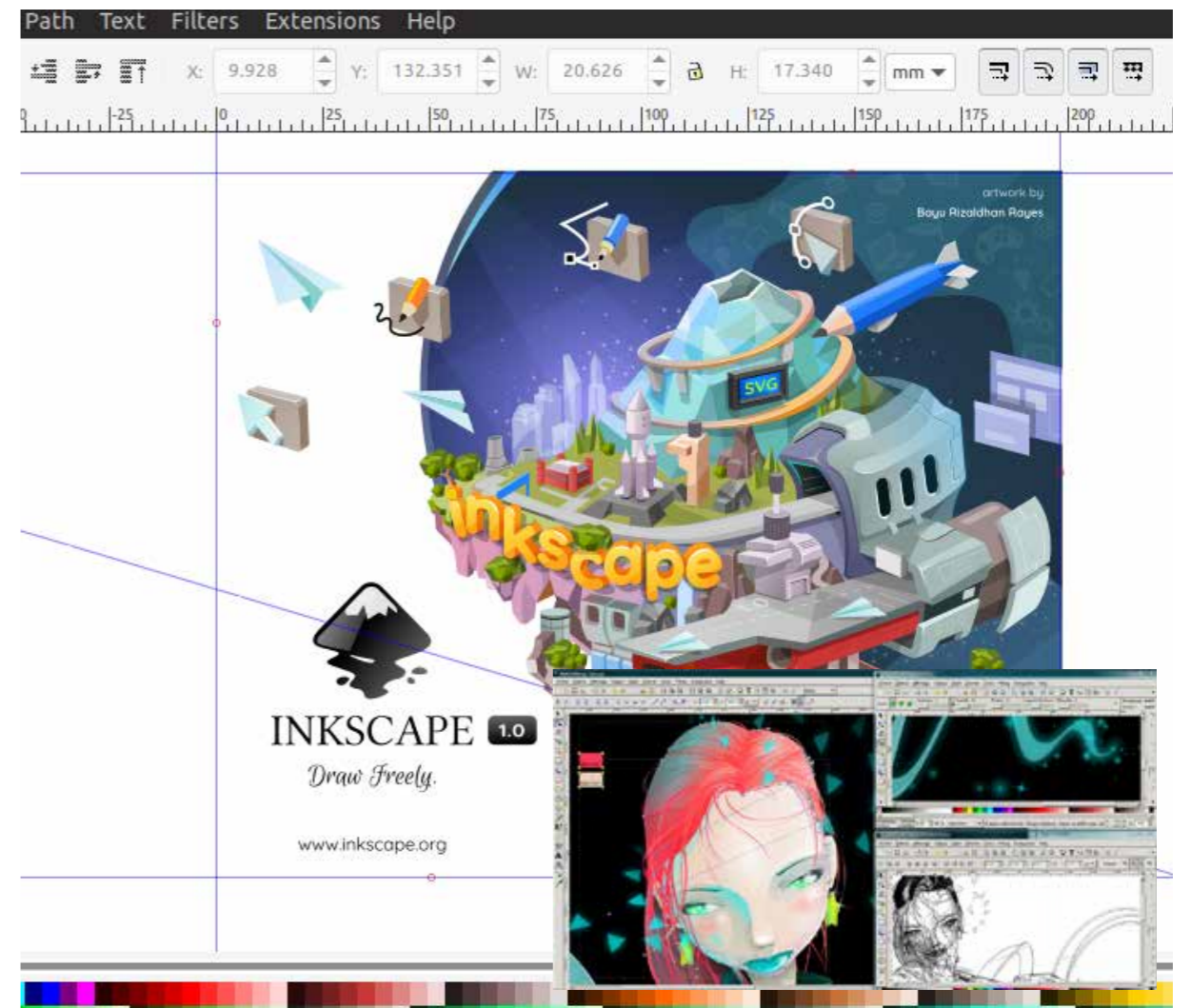
This course will start from the basics and teach students to understand and use Blender to model, set up mapping, lighting, rendering, and produce basic animations. In addition, the instructor will cover the advanced features of Blender, such as sculpting, image compositing, geometric nodes, and physics simulation, aiming to provide students with a deeper understanding of Blender.

Blender is an open-source, powerful 3D software that users can use at no cost, and its functions include modeling, rendering, animation production, sculpting, geometric nodes, Python programming, physics simulation, 2D animation production, etc. Blender is comparable to common 3D software in the industry in terms of functionality and recognition. And more importantly, Blender's interface is easy to understand and its modeling process is not complicated, so it is very suitable for beginners who are new to 3D modeling.

Chinese 15 Hours Face to Face

Learning Outcomes

1. Learn the basics of Blender, including its system interface, hotkeys, file conversion functions
2. Learn professional modelling techniques in Blender
3. Learn materials and shaders design workflows
4. Learn about lighting basics and effects
5. Learn how to produce simple animations in Blender



MicroMaster in GIMP/ Inkscape Graphic Editing & Graphic Design Certificate Course

Students will not only learn how to create raster and vector graphics using the open source applications GIMP and Inkscape, but also comprehend how to use images to communicate information.

Starting from the basics of vector and raster graphics, the course will gradually deliver related graphic design knowledge in greater depth. Initially, students will learn the introductory concepts of graphic design and the basic techniques of using GIMP and Inkscape. Afterwards, the course will move on to advanced image editing techniques such as color science, text and typography, graphic composition and logo design, as well as methods of converting images to NFT.

Chinese 45 Hours Face to Face

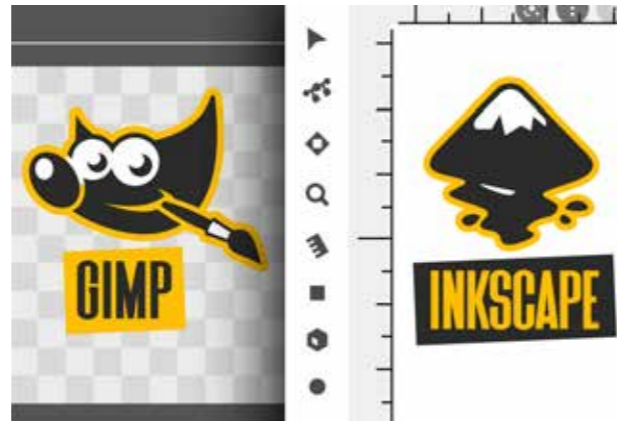
Learning Outcomes

1. Learn the basic functions and effects of Inkscape and GIMP
2. Learn about vector graphics processing and the application of digital images, and post-processing related knowledge
3. Students will be able to develop their own design style and create a personalized and outstanding layout portfolio through the course
4. Learn the latest market dynamics of Metaverse and NFT, and learn NFT production methods



Get Started with Digital Image Processing and Related Software

In this module, the instructor will introduce students to the basic concepts of digital images (raster and vector graphics) and the basic operation of two image processing software, GIMP and Inkscape. Students will learn how to do image matting and color modulation through in-class exercises. The knowledge acquired in this module will provide students with a foundation in image processing and will help them to study related advanced knowledge in the future.



Chinese 9 Hours Face to Face

Learning Outcomes

1. Learn basic knowledge of digital images (Raster & vector graphics)
2. Learn basic operations of the raster graphics software, GIMP
3. Understand basic image processing methods (Image degradation, color grading)
4. Learn basic operations of the vector graphics software, Inkscape
5. Understand basic methods of processing, editing and composing vector graphics



Graphic Design and Printing Basics

This module is designed for students who are interested in learning about print production. The instructor will introduce students to the printing process through in-class exercises (making envelopes, letterheads, cards, and promotional materials) to help students master the production methods and techniques. Students will be taught different types of design methods and will experience the results of printing on different types of paper during the printing stage, which will be a very interesting process.



Chinese 12 Hours Face to Face

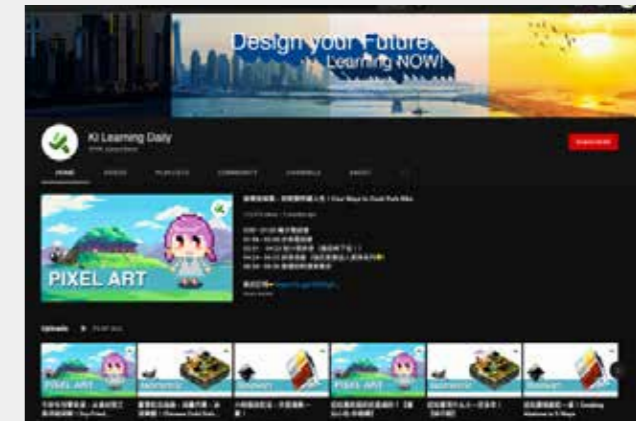
Learning Outcomes

1. Grasp fundamental knowledge about printing production
2. Comprehend the design and printing process and techniques of logos, envelopes, letterheads, cards
3. Understand the technology behind leaflet and product catalog layouts



Social Media UI Designs

This module is designed for creators interested in running social media platforms. The instructor will introduce them to the operating theory of several types of social media and teach them how to create their own personalized work. This module will also introduce how to create multimedia UI so students can create the appropriate UI for different media.



Chinese 9 Hours Face to Face

Learning Outcomes

1. Learn methods for creating special effects fonts (fonts of popular TV shows)
2. Learn how to create a Facebook fan page
3. Learn how to design and create Instagram posts
4. Learn how to design and create a YouTube channel
5. Learn what to look out for regarding media production on social media platforms
6. Learn tips for multimedia UI production



Multiple Styles of Illustration Design

This module will introduce students to different styles of character design and collage creation techniques using several materials. Students will be able to create their own characters and artworks using techniques taught. In addition, our instructors will also demonstrate how to generate art pieces quickly and efficiently, so that students interested in making art NFTs may be enlightened on the NFT production pipeline.

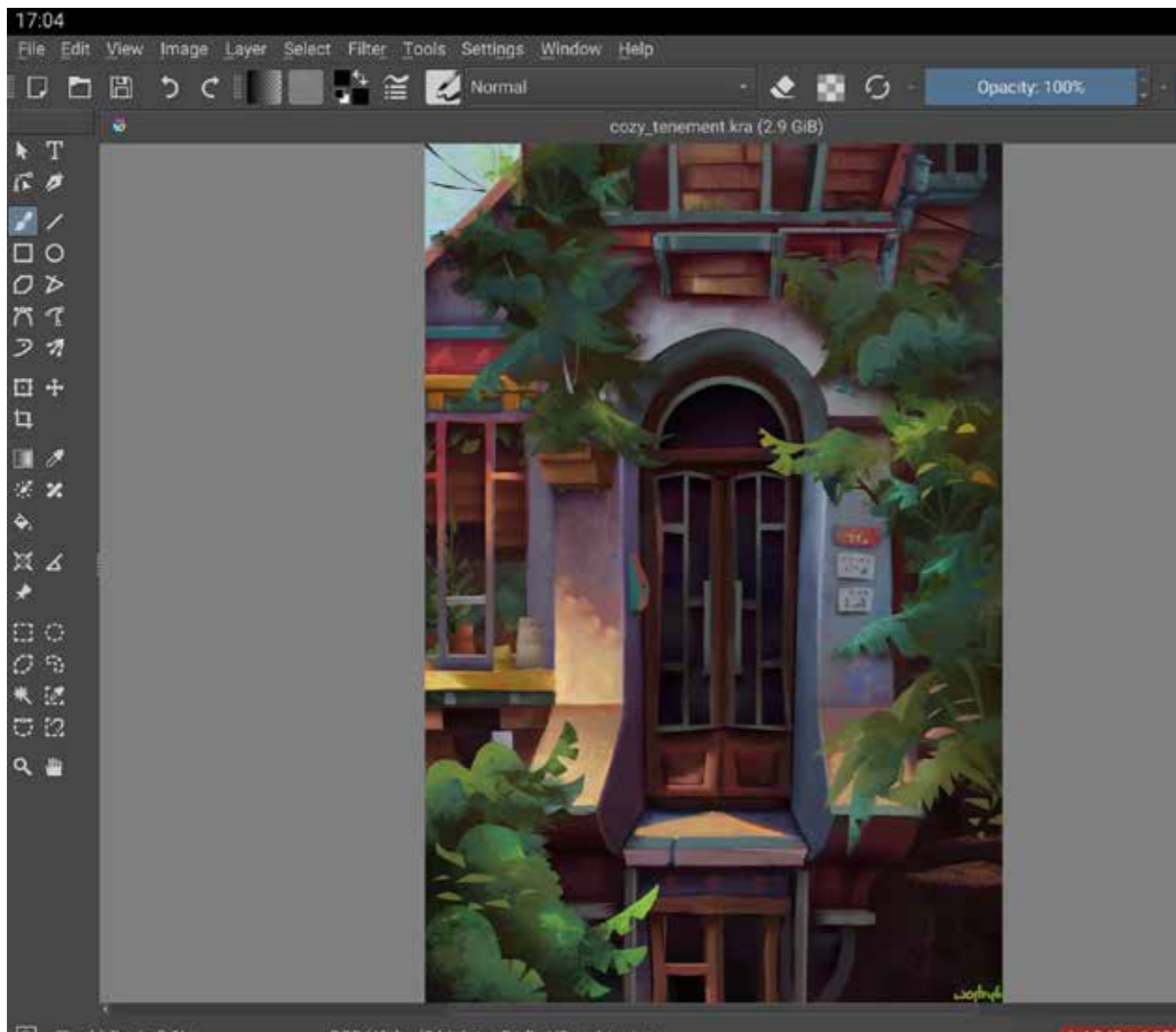


Chinese 9 Hours Face to Face

Learning Outcomes

1. Learn the design and production methods of vector graphics illustrations (GIMP)
2. Learn how to create cartoon characters (Inkscape)
3. Learn how to create collages (GIMP)
4. Learn how to create anime illustrations (Inkscape)





MicroMaster in Krita Digital Illustration Certificate Course

This course provides an educational experience for beginners who are interested in computer graphics from elementary to profound. Teachers will introduce the beginner's concepts of drawing. Through classroom exercises, students will be able to improve their drawing thinking skills. They will be inspired to explore freely and their drawing style will be developed gradually.

The course will first introduce the concept of computer graphics so that students can learn the similarities and differences between digital painting and traditional painting. Afterwards, students will get to know how to use the basic tools of computer graphics. After students are familiar with the use of tools, they will learn basic figure drawing techniques. During the exercises, they will learn the complete drawing process and become familiar with the ideas and the main points of drawing from the draft to the first coloring and then to the final drawing.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Grasp computer graphics basics
2. Learn aesthetics skills
3. Learn styling skills
4. Grasp drawing thinking and shaping skills
5. Learn character/object structure observation skills
6. Learn how to present the atmosphere of a scene
7. Learn how to express the texture of objects



Digital Drawing Basics

This module will begin with a brief introduction to computer graphics concepts, followed by a brief case study on digital graphics trends and applications. This will be followed by an introduction to the Krita interface and basic operations. Afterwards, the instructor will lead students in a simple draft exercise to familiarize them with the use of the tablet. Students will start with simple line drawings of objects, and then gradually try advanced skills such as shading and coloring. The instructor will also arrange draft exercises of varying levels of difficulty according to different students' abilities, so that students of different artistic caliber can benefit from the class.



Chinese 5 Hours Face to Face

Learning Outcomes

1. Learn computer graphics basics
2. Gain aesthetics skills
3. Grasp character/object structure observation skills
4. Learn how to present the atmosphere of a scene
5. Learn how to express the texture of objects
6. Learn how to create your original character
7. Learn how to make your personal portfolio



Chibi Character Illustration

This module will first introduce the concept of drawing chibi character illustrations, including how to observe a character, how to grasp the drawing focus and draw sketches quickly, how to portray various expressions, and drawing characters of different age groups. Students will learn about the body structure of chibi characters and try to draw different parts of the characters with variations in the exercises.

Once students are familiar with the basic character structure and detailing, they will then advance to learn about the dynamic presentation of characters, character coloring techniques, different types of clothing presentation, and other coloring techniques. In addition, the course will also share how to collect relevant reference materials when drawing chibi characters, so that students can design and create characters independently after the class.



Chinese 16 Hours Face to Face

Learning Outcomes

1. Learn methods of basic character drawing (hair, facial features, body proportions, skeleton, whole body)
2. Learn methods of portraying various expressions and drawing characters of different age groups
3. Learn methods of presenting shape and variation of different parts of the character (chibi character body structure)
4. Learn methods of presenting different types of clothing and related coloring techniques
5. Understand the process of character design
6. Learn methods of presenting the dynamics of the character




Celluloid Character Illustration

This module will introduce the ideas of drawing Celluloid characters, including how to observe characters, how to express the main points and draw sketches quickly, how to portray various expressions and draw characters of different age groups.

At the same time, students will learn about the head-to-body proportions of different body structures in this section to draw the shapes and variations of different parts of the character. Once students are familiar with the basic figure structure and detailing, they will further learn about the dynamic presentation of the character and related coloring techniques, as well as how to express the variations of highlights and shadows and the three-dimensionality of the body. In addition, students will learn how to present different types of clothes and learn some coloring techniques. In the meantime, students will gain a solid grasp of the knowledge through various modeling and imitation exercises.

Finally, teachers will share how to collect relevant reference materials when drawing characters in celluloid style, so that students can work on character design and character drawing later.

 Chinese  24 Hours  Face to Face

Learning Outcomes

1. Learn basic character drawing methods (hair, facial features, body proportions, skeleton, whole body)
2. Learn methods of portraying various expressions and drawing characters of different age groups
3. Learn methods of presenting the shape and variation of different parts of the character (characters in different head-to-body ratios)
4. Learn methods of presenting the dynamics of the character
5. Learn methods of presenting different types of clothing and related coloring techniques
6. Grasp the process of character design (set background information, hair style, facial features, body proportions, costume)



MicroMaster In UX/UI Designer (Penpot) Certificate Course

Students will learn UI/UX design using the open source software Penpot, understand the difference between UX (User Experience) and UI (User Interface), learn their applications in mobile device, website and game design, understand how to layout the entire interface according to user habits, and at the same time enhance the overall aesthetics of the interface and maintain the aesthetic balance of each part.

The course will first guide students to familiarize themselves with common software interfaces, learn the basics of UI/UX such as typography, color, font, and font size, and then teach them to analyze and integrate relevant data through user surveys to form feasible design solutions, and ultimately plan and produce human-centered user interfaces for websites and mobile applications. As a powerful cross-domain development platform, Penpot can fully meet this series of teaching needs.

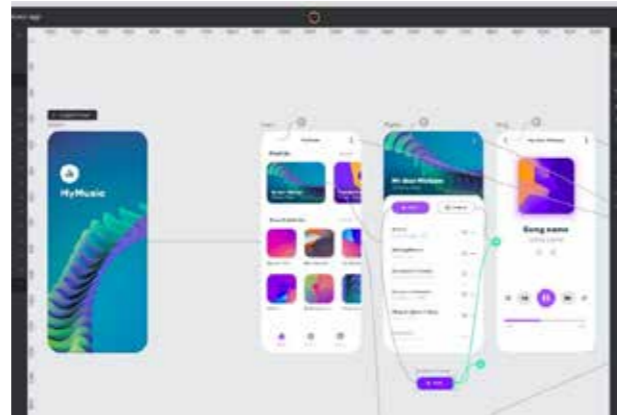
 Chinese  45 Hours  Face to Face

Learning Outcomes

1. Learn to use the software, Penpot
2. Learn the basics of UI/UX (user interface and user experience design)
3. Learn to design mobile applications, websites and game interfaces
4. Learn to use Penpot to complete UI/UX projects and create an interactive and aesthetic portfolio
5. Improve design thinking and lay the foundation for further study in related fields

Getting Started with UX/UI Design and Penpot

This module will first introduce the basic concepts of UX/UI and the necessary elements of UX/UI design in detail with case studies. After that, the teacher will introduce the basic operation of Penpot, so that students can master this free UI/UX tool in a short time. Finally, the instructor will guide students to use different tools to complete simple graphic designs to further deepen their understanding of UI/UX related knowledge.



Chinese 9 Hours Face to Face

Learning Outcomes

1. Learn the concepts and differences between UX and UI
2. Understand the mental model and cognitive model (UX)
3. Learn design elements of UX and UI
4. Understand the outlook of the UX/UI design industry
5. Know about the UX/UI design performance of common mobile applications
6. Learn Penpot basics (interface functions, tool operations, layer applications, prototype connections, etc.)
7. Master UI/UX design with Penpot



Case Study: Mobile Application Design

This module will introduce the UX and UI design-related knowledge of mobile applications in detail--from conducting user research, thinking about the starting point of the product design, to collecting product information, creating user blogs, mind maps, and the basic structure of the product, to using Draw.io to design the user flow, using Penpot to create wireframes and preliminary product prototypes, creating product-related components, and then completing pages connection and animation-adding, to finally doing prototype testing, students will experience the complete professional UX and UI design process in the class.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Analyze UI/UX features and advantages of popular takeaway platforms
2. Learn methods of collecting data, creating user blogs, mind maps, and basic product architecture
3. Learn how to conduct user flow, wireframes, and preliminary product prototypes using Draw.io
4. Learn how to search for product-related resources and design (product branding, image editing, etc.)
5. Learn how to design the interface of an advanced product prototype (color, font, picture usage)



Case Study: Websites Design

This module will introduce the UX and UI design-related knowledge of websites (online shopping platform) in detail--from conducting user research, thinking about the starting point of the product design, to collecting product information, creating user blogs, mind maps, and the basic structure of the product, to using Draw.io to design the user flow, using Penpot to create wireframes and preliminary product prototypes, creating product-related components, and then completing pages connection and animation-adding, to finally doing prototype testing, students will experience the complete professional UX and UI design process in the class.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Analyze UI/UX features and advantages of popular online shopping platforms
2. Grasp methods of collecting data, creating user blogs, mind maps, and basic product architecture
3. Learn how to conduct user flow, wireframes, and preliminary product prototypes using Draw.io
4. Learn how to search for product-related resources and design (product branding, image editing, etc.)
5. Learn how to design the interface of an advanced product prototype (color, font, picture usage)



Case Study: Mobile Game Interface Design

This module will introduce the UX and UI design-related knowledge of mobile game in detail--from conducting user research, thinking about the starting point of the product design, to collecting product information, creating user blogs, mind maps, and the basic structure of the product, to using Draw.io to design the user flow, using Penpot to create wireframes and preliminary product prototypes, creating product-related components, and then completing pages connection and animation-adding, to finally doing prototype testing, students will experience the complete professional UX and UI design process in the class.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Understand basic concepts regarding the Candy Crush game interface and other related knowledge
2. Learn methods of collecting data, creating user blogs, mind maps, and basic product architecture
3. Learn how to design user flow, wireframes, and preliminary product prototypes using Draw.io
4. Learn how to design product components (graphics in the interface of the game, buttons, illustrations)
5. Learn how to design the interface of an advanced product prototype (color, font, picture usage)





LibreCAD Graphic Design & Product Design Beginner Course

Students will use the 2D CAD drawing software LibreCAD to study graphic design and product design, and to understand the methods of visual information communication.

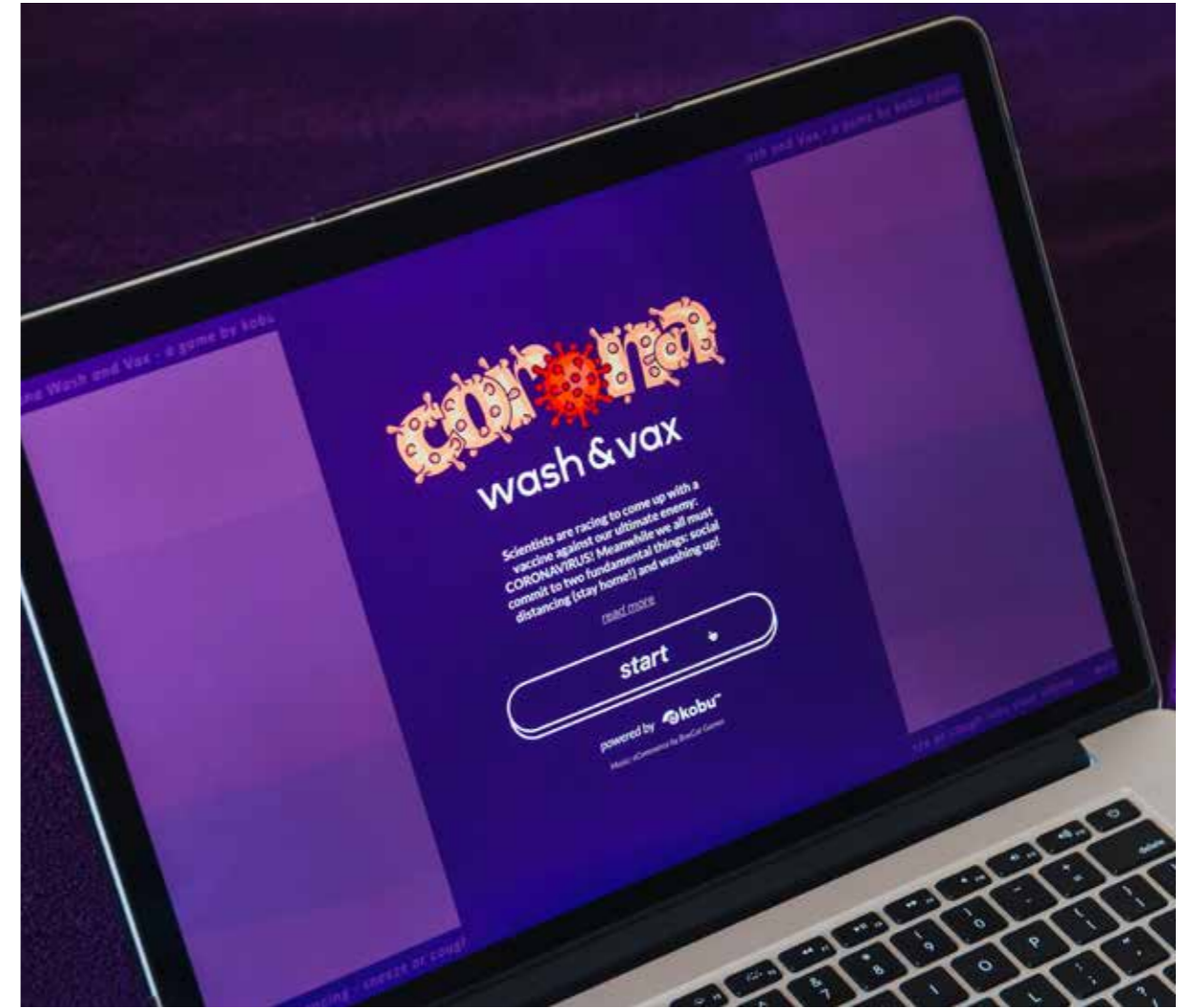
source alternative to the well-known professional 2D and 3D modeling and design software AutoCAD, which is easier to operate and has a customizable interface for beginners.

LibreCAD can complete high-quality 2D graphics drawing in DXF, JWW, DWG and other formats, and its powerful functions can better meet the complex needs of product design, interior design and other aspects. This course will start with an introduction to the interface functions of LibreCAD, gradually teach students how to use LibreCAD, and let them master relevant skills in practice. After the course, they can design logos, products, and draw interior design drawings.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Learn to use LibreCAD to create basic CAD drawings
2. Grasp how to use tools in LibreCAD
3. Learn how to use LibreCAD and its functions
4. Learn how to design logos in LibreCAD
5. Learn how to design floor plans



Micromaster in Game and Interactive Experience Design Certificate Course

This course will teach students the methodology and process of creating games and interactive experiences.

This program is designed for professional animators, industrial designers, and multimedia designers to learn new tools, affordably enhance their workflow, and effortlessly express their creativity.

Open-source software such as Blender, GIMP, Audacity, and Godot are effective alternative multimedia production tools to more well-known closed-source software. By applying them to each step in the production pipeline, students acquire the ability to bridge the assortment of software above at zero software subscription costs.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Learn the basics of developing 2D platformer games
2. Learn the basics of developing 3D top-down shooter games
3. Be able to produce a customized 3D top-down shooter game for use in web-based and mobile applications.



Introduction to the Basic Theory and Process of Game Production

The knowledge taught in this module is mainly focused on the intellectual aspect of game software production. At the same time, the teacher will introduce the interface and basic operation of Godot, an open source game production engine, to lay the foundation for students to learn more about game production in the future.



Chinese 9 Hours Face to Face

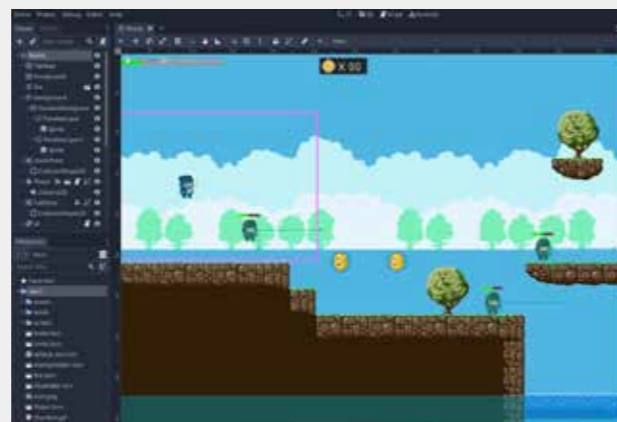
Learning Outcomes

1. Understand game types, production theory, and development process
2. Learn the Godot interface and basic operations
3. Understand scenes and nodes
4. Learn the Godot script (Native, C#, GDScript)
5. Learn Gdscript basics
6. Learn about player control
7. Understand rigid body, physics, collider basics



2D Platformer Game Design

This module will focus on the production of 2D platformers, letting students understand the process and key points of 2D platformer production. Students will experience the creation of game characters and the setting of success and failure conditions using Godot, and finally, they will try to create a game with their own personal characteristics.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Learn 2D platformer basics
2. Learn concepts of the tile map
3. Learn how to control character action
4. Learn how to create enemy characters
5. Comprehend interaction settings and UI design
6. Learn win/lose logic design



3D First-Person Shooter Prototyping

This module will focus on introducing students to the process and techniques of prototyping 3D first-person shooters. Students will continue to use Godot to complete related practices, discover the differences between the production processes of 3D FPS and 2D platformer games and try to create their own 3D FPS game at the end of the module.



Chinese 12 Hours Face to Face

Learning Outcomes

1. Understand the basics of 3D first-person shooter games (FPS, First person shooter)
2. Learn to input 3D scenes
3. Learn how to control character actions
4. Learn how to create enemy characters
5. Grasp interaction settings and UI design
6. Understand win/lose logic design



Top-down Shooters Prototyping

This module will focus on introducing students to the process and techniques of prototyping top-down shooters. Students will continue to use Godot to complete related practices and try to create their own game at the end of the module.



Chinese 9 Hours Face to Face

Learning Outcomes

1. Learn the basics of top-down shooter games
2. Learn to input 3D scenes
3. Learn how to control character actions
4. Learn to create enemy characters
5. Master interaction settings and UI design
6. Learn about win/lose logic design

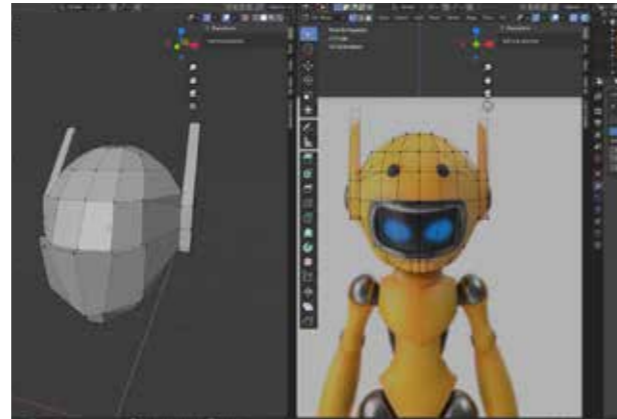


Intermediate 3D Modelling with Blender

This course assumes that students have some prior knowledge in 3D modelling.

The course will use the powerful open-source software Blender. As a fantastic platform, Blender can produce AAA-quality 3D models that can be exported to any game engine, or 3D printer.

Students will first be quickly reviewed on Blender's interface and the fundamentals of 3D modeling. After that, they will try to make 3D models in practice and perform operations such as material assigning and UV unwrapping. In addition, this course will also teach the basic principles of 3D animation based on 3D models.



Chinese 36 Hours Face to Face

Learning Outcomes

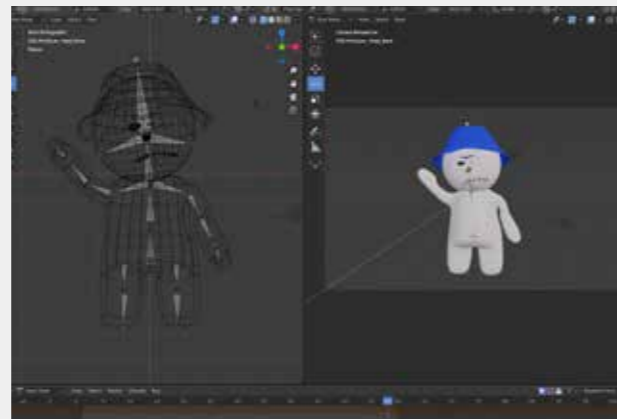
1. Clearly understand the interface of Blender
2. Clearly understand the principles of modeling
3. Be able to create 3D models with simple materials
4. Be able to unwrap the 3D model
5. Understand the basics of 3D animation production



Blender Character Rigging and Animation

This course will lead students to rig the 3D characters in Blender step-by-step.

Rigging is a key point in 3D character production, which specifically refers to setting up the skeleton system for the finished 3D model, so that it can move according to the animator's wishes, which would pave the way for designing specific character actions later on.



Chinese 30 Hours Face to Face

Learning Outcomes

1. Master the way of rigging a 3D character in Blender for animations and video games
2. Understand how to work with bones for rigging in details
3. Understand the coordinate systems and the weight tools in Blender
4. Become proficient with the rigging features of Blender



Blender Add-ons for Simulation and Visual Effects

The first is the Shot Matcher add-on, which speeds up the image merging workflow by analyzing the color ranges of an image or video. The second is Advanced Ocean Modifier, a plug-in that allows artists to create a fully animated ocean in Blender in a very short period of time. The third is the Nebula Generator, a performance-enhanced add-on that allows you to more easily adjust the appearance of nebulae by changing parameters and settings, such as the color and texture of galactic dust. Fourth is the Khaos add-on, which allows filmmakers and 3D artists to simplify their particle and explosion creation process with a few clicks.



Chinese 20 Hours Face to Face

Learning Outcomes

1. Gain a deeper understanding of Blender's capabilities
2. Understand the functions and features of Blender's simulation and visual effects add-ons
3. Be able to use these plug-ins to create visual effects independently



HDR Image-Based Lighting in Blender

This course will teach the workflow of HDR image-based lighting.

Image-based lighting (IBL) is a 3D rendering technique that involves the comprehensive display of information regarding light in the form of an image, often using a 360° camera. The technique allows you to make stunningly realistic effects in 3D scenes. Students will learn how to operate image-based lighting (IBL) and related techniques for operating a 360° camera in practice.



Chinese 6 Hours Face to Face

Learning Outcomes

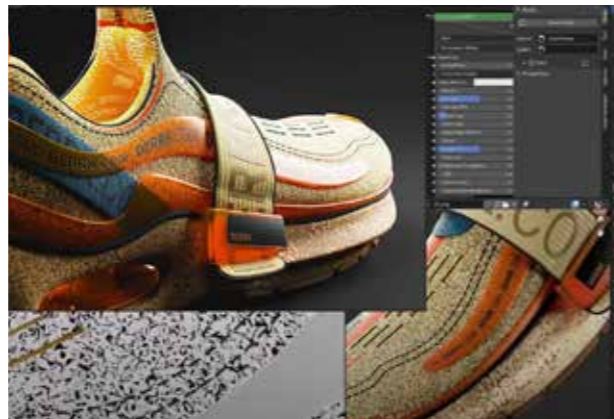
1. Get a deeper understanding of the image-based lighting workflow in Blender
2. Understand the qualities of light and the ways of analyzing them to create eye-catching 3D art
3. Be able to use High Dynamic Range images to illuminate 3D scenes



Material and Texture in Blender

This course teaches how to create, use, and manipulate all types of textures and materials in Blender.

Materials control the appearance of grids, curves, volumes, and other objects. They define the components of an object, its color, texture, and interaction with light. Textures make 3D objects look more realistic, and users can draw their own textures or use photos of actual objects as textures to get a more realistic look.



Chinese 32 Hours Face to Face

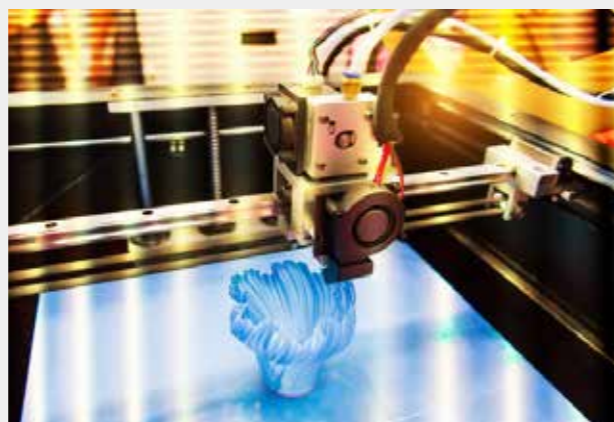
Learning Outcomes

1. Master the operation of the Shader Editor in Blender
2. Master the method of combining programmed textures with images
3. Understand the basic principles of complex materials such as glass and volume
4. Understand how to use secondary objects to control the appearance of materials



3D Modelling & Sculpting for 3D Printing Production

This course will teach students to use the sculpting tools in Blender to create models for 3D printing. Sculpting is utilizing brushes to draw directly onto a model. Instead of working on a single element (vertices, edges, and faces), sculpting directly changes an area of the model.



Chinese 35 Hours Face to Face

Learning Outcomes

1. Master the fundamentals and techniques of model sculpting
2. Be familiar with the sculpting brush in Blender
3. Be able to use the sculpting tools in Blender to complete the model production for 3D printing



Working with Blender Compositor

This course will teach students how to use the compositor in Blender.

The compositor refers to Blender's nodal compositing system. Students will learn how to use the compositor to make color adjustments and how to use layers, masks, and encrypted mattes to limit the range of adjustments and effects to make changes to specific areas of a scene.



Chinese 15 Hours Face to Face

Learning Outcomes

1. Familiarity with the interface of compositor in Blender
2. Master using the compositor to make color adjustments, create fogs and vignettes, etc.
3. Be able to adjust and render images independently using the Blender compositor



Lighting in 3D Space

In this course, students will learn about lighting in Blender and how it affects the rendering of 3D models and scenes. Instructors will go through, with practical examples, the usage of light in different render engines such as Eevee, Workbench and Cycles.

By the end of the course, students should be able to distinguish the effects of light in different render engines in Blender, and be able to utilize the most suitable engines for their projects.



Chinese 40 Hours Face to Face

Learning Outcomes

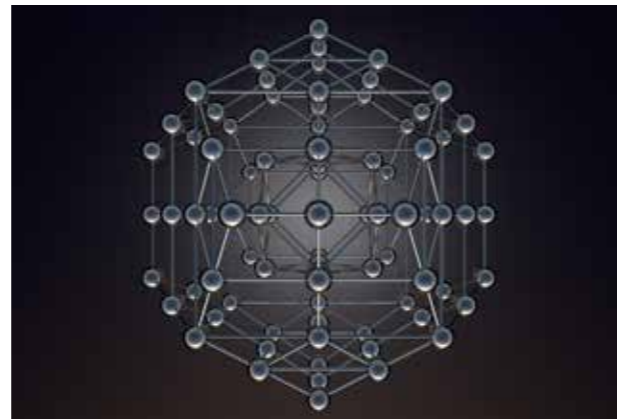
1. Understand what light in Blender is and how it works
2. Learn the use of lighting, like how light sources can be manipulated to create desired effects.
3. Gain understanding of the rendering pipeline.



Blender Geometry Nodes

This course will teach the operations of the Blender Node System.

The Geometric Node System is a tool that uses the points, lines, and surfaces of the 3D object as a basis to modify its geometry of it by changing the original object rendering shape to create visual effects. It can be accessed by adding a geometric node modifier. Students will learn about the types of geometry nodes, how they operate, and their related uses in a practice session, and finally work independently with geometry nodes to do modeling.



Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand the types and uses of geometric nodes
2. Master modifying geometric shapes using geometric nodes
3. Be able to use geometric nodes independently to complete a complex scene

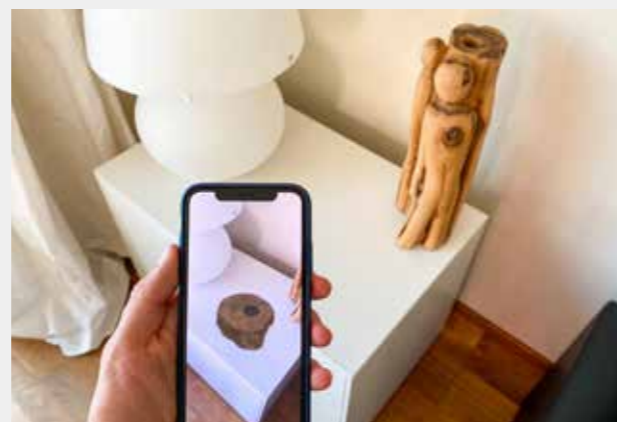


Spark AR Interactive Experience

Spark AR Studio is an augmented reality platform for Mac and Windows that allows users to easily create AR effects for mobile cameras. It is like Photoshop or Sketch for AR.

In this course, students will learn the basic operations of Spark AR and how to create simple AR filters for publishing.

Students will also be taught how to create usable 3D assets in the open-source software Blender, after which the instructor will guide students in using these assets to practice the various interactive features of Spark AR.



Chinese 35 Hours Face to Face

Learning Outcomes

1. Understand what Spark AR is
2. Understand the basic and advanced operations in Spark AR
3. Be able to utilize Spark AR to create 3D assets



Intermediate Digital Drawing with Krita

This course will teach how to draw non-destructive illustrations using Krita.

Krita is an open-source graphic editing software comparable to Photoshop. Krita focuses more on digital drawing than Photoshop, and its many built-in features and tools related to digital drawing make Krita the choice of most graphic artists.



Chinese 20 Hours Face to Face

Learning Outcomes

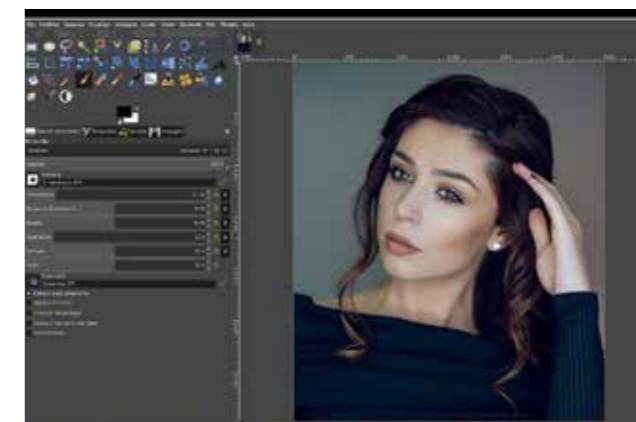
1. Grasp important computer graphics concepts related to the process of creating digital artwork
2. Be familiar with the basic functions of Krita, such as the user interface and canvas navigation
3. Master the drawing, inking, and coloring techniques of common styles in superhero comics
4. Master more advanced techniques such as shading and layer combination in digital drawing
5. Be able to use Krita independently to create professional illustrations



Professional Photo Editing with GIMP

This course will teach students how to use GIMP for advanced photo editing.

GIMP is an open-source bitmap editing software that is comparable to Photoshop. GIMP is powerful in photo retouching and editing, and can take on operations such as freehand drawing, photo montage, and image format conversion.



Chinese 20 Hours Face to Face

Learning Outcomes

1. Understand GIMP's important functions
2. Master the use of GIMP to professionally edit photos, create special effects
3. Be able to masterfully use the built-in tools of GIMP to complete high-quality photo-retouching, removing defects, fading, and other operations





Video Post-production Bootcamp

This course will teach the video post-production workflow and related techniques. After the video is shot, post-production is needed to add or achieve effects that cannot be accomplished in the shot. For example, sound effects, special effects, editing, etc. are all common steps in post-production. Doubtlessly, post-production is an essential part of the video production process. In this course, students will learn to use Blender, Ardour and other software for video editing, and to create special effects, loops and other common post-production objects. By the end of the course, they will be able to complete video post-production independently and produce qualified video works.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Be familiar with the process of video post-production
2. Master post-production techniques including adding sound effects, adding special effects and video editing
3. Be able to complete video post-production independently



Blender 3D Animation

This course will teach 3D character creation and animation using Blender. Students will start with the basics of Blender and learn hands-on animation techniques such as modeling, shape key addition, and keyframe setting. Then, students will be guided to use the particle system, mapping, and other advanced features, and learn techniques such as rigging and sound addition, before finally rendering out the finished 3D animation.



Chinese 32 Hours Face to Face

Learning Outcomes

1. Be familiar with Blender's interface and main animation tools
2. Master the method of building scenes and completing the necessary settings for animation production in Blender
3. Master the methods of camera animation production and rendering



Blender Pre-Visualization Workshop

This course will teach students how to create pre-visualized animations in Blender. Pre-visualization is the process of imagining and planning the final product. The pre-visualization team works with the director to build the scene according to their wishes, including proper camera placement, acting style, special effects, and other elements.



Chinese 16 Hours Face to Face

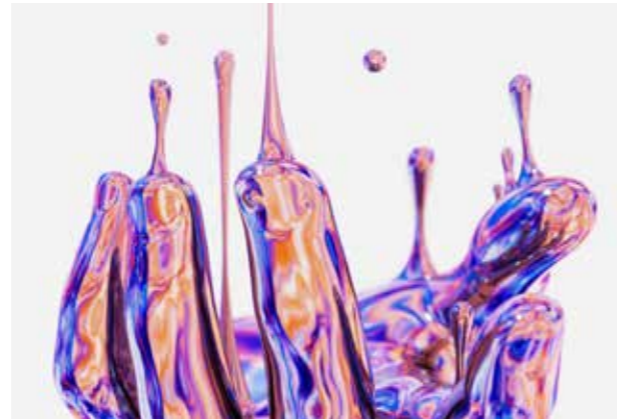
Learning Outcomes

1. Master the method of doing previsualization
2. Master basic knowledge of animated film production, including how to read scripts and create coherent animation sequences
3. Master the method of efficient animation production



Physical Effects and Simulation in Blender

This course will teach you how to create physical effects using Blender's simulation technology. Simulation is a technique for adding physics to 3D objects. This course will explain in detail the working principles and production methods of various simulations, and lead students to use Blender to create fluids, smoke, flames, and fabrics in practice.



Chinese 45 Hours Face to Face

Learning Outcomes

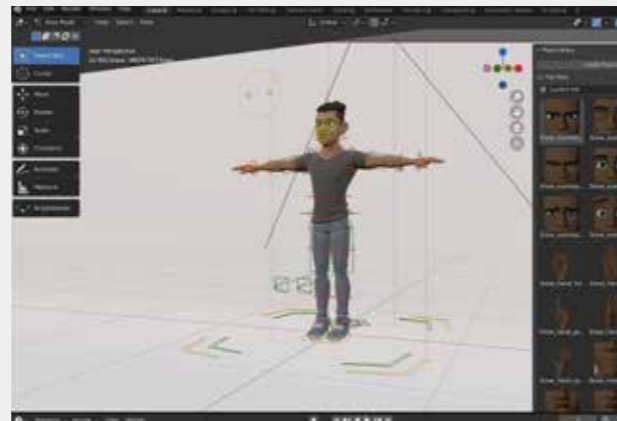
1. Be familiar with the methods of creating physical effects in Blender
2. Master how to use simulation to create fluid, smoke, fire, and cloth in Blender
3. Master the method of using Eevee and Cycles to render simulations in Blender



3D Layout and Blocking (3D Animatic) Using Blender

This course will teach you how to use Blender to complete the Layout and Blocking parts of 3D animation production.

3D Layout and Blocking are the blueprints for your project. They are used to test the timing and animation flow to check if the animation sequence conveys the intended meaning of the animator at the correct speed. They tell you where objects should start and end their movements. They are the prototype of the finished product, and they are the first step towards successful animation.



Chinese 20 Hours Face to Face

Learning Outcomes

1. Gain a comprehensive understanding of the 3D animation production process and related settings
2. Master the 3D layout and blocking methods in 3D animation production
3. Be able to convert 2D storyboards into 3D layouts independently



Storyboarding for Animation

This course will teach the method of storyboarding in animation production.

The storyboard illustrates the composition of an animation by breaking down a continuous scene and illustrating it graphically by taking the critical frame of each segment of the sequence.

Students will understand the functions, principles, and drawing techniques of the storyboard, and by the end of the course, they will be able to independently deploy the cameras, set up character layouts, and draw out a complete storyboard.



Chinese 30 Hours Face to Face

Learning Outcomes

1. Be familiar with the functions and principles of storyboarding
2. Master the methods used in drawing a storyboard, including the use of camera, frame number selection and character layout
3. Be able to complete a storyboard independently



Blender Grease Pencil and 2D Animation Basics

This course is teaches you how to use the Grease Pencil tool in Blender, a free and powerful software.

The grease pencil is a tool for drawing in Blender's 3D viewport. With it, drawings in Blender become vectorial stroke objects, making them easier to animate. The grease pencil is powerful in 2D animation production and animation storyboarding.

Students will get to know the basic functions of the grease pencil in this course and try to draw 2D animation objects with the grease pencil by themselves, and then finish the rigging and animation of 2D animation objects.



Chinese 20 Hours Face to Face

Learning Outcomes

1. Master the basic operations of the Grease Pencil
2. Know how to apply materials, vertex colors, and textures
3. Be able to draw 2D animation objects by hand and illustrate on 3D objects
4. Be able to complete the rigging and animation of 2D characters





Professional Video Editing

This course will teach how to edit video using DaVinci Resolve, Blender and Openshot software. Professional video editing is a multiple-step endeavor. From shooting videos, organizing filmed material to video editing, every part of the process counts towards the value of the final product. The instructor will first introduce students to basic video editing knowledge and workflow, followed by key editing techniques and operational elements. Then, students will learn and master more advanced video editing techniques such as creating multi-camera sequences and adding motion, as well as video export methods in practice. By the end of the course, students will be able to complete video editing and create their own portfolios independently.

Chinese 30 Hours Face to Face

Learning Outcomes

1. Be familiar with the workflow of shooting, organizing and editing videos
2. Master video editing techniques, including creating motion, customizing transitions and creating mini montages, etc.
3. Be able to edit video independently using techniques such as multi-camera, color correction, LUTs, and sound design
4. Be able to use DaVinci Resolve, Blender and Openshot to independently complete video creation and editing



CG Animation Production and Pipeline Management

This course will introduce the CG animation production process and production line management methods for 2D and 3D animation shorts.

CG animation production is divided into three parts: pre-production, production, and post-production. CG animation production adopts a pipeline model, which is a system consisting of people, hardware, and software, in which each department works in a specific sequence to complete a predetermined task within a predetermined time frame and ultimately produce a 3D animation product or asset.

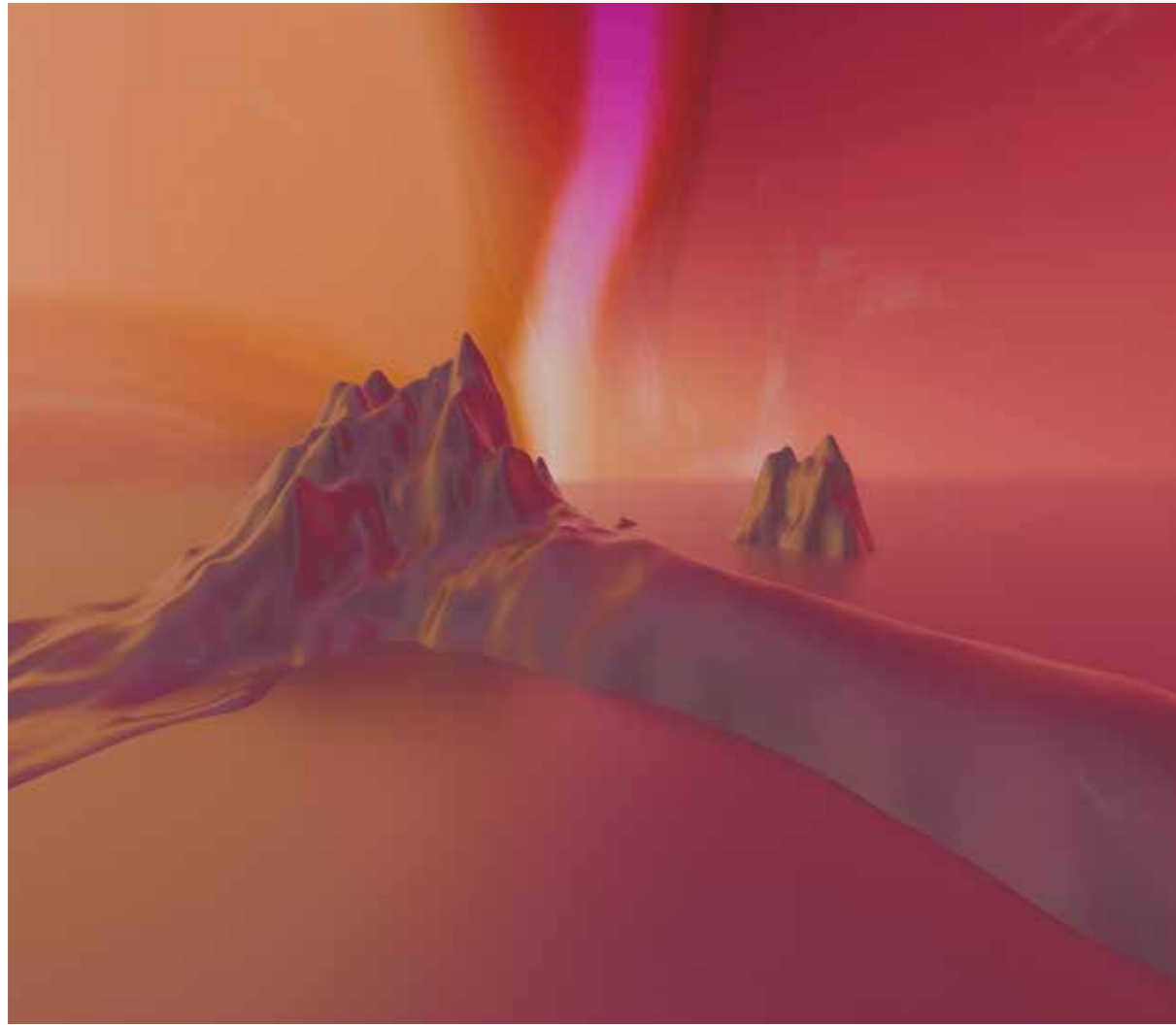
In this course, students will learn how each stage of CG animation production works and gain knowledge of project management, which will lay the foundation for their future involvement in or management of animation projects.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Be familiar with the CG animation production process and the operation rules of the pipeline
2. Master the methods of planning CG animation projects
3. Master the methods of CG animation project management





Create 3D Video Games with Godot and Blender

This course will teach you how to make 3D games using Blender and Godot. Godot is an open-source, free software that can be used to create games for Windows, Mac, Linux, Android, IOS, HTML5, etc. Godot's programming language is GDScript, which has a similar structure to Python and is also compatible with C#, allowing programmers of all backgrounds to pick it up quickly and incorporate it into their work easily. Students will first learn to use Blender to create the characters, scenes, and animations needed for the game, and then learn to use Godot to set up the game and eventually generate a simple video game.

Chinese 30 Hours Face to Face

Learning Outcomes

1. Master the method of creating 3D game elements in Blender
2. Master the method of using Blender's action editor and keyframe editor to create actions and animations
3. Master the method of using Godot to construct the game



2D Game Development with Krita, Godot, and Blender

This course will teach the creation of 2D games using Blender, Krita, and Godot. Students will first learn to use Blender and Krita to create the elements, scenes, and animation needed for the game. Afterward, students will learn to use Godot, a powerful open-source game engine, to assemble the previously created pieces into a game. The course will be practice-based and students will be able to create simple 2D games independently by the end of the course.

Chinese 50 Hours Face to Face

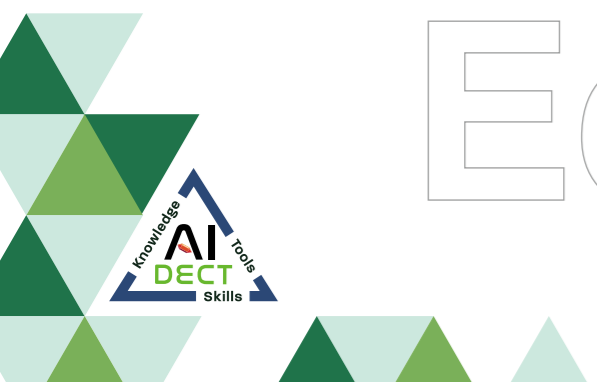
Learning Outcomes

1. Understand and be familiar with the basic process of 2D game development
2. Master the method of using Krita and Blender to create the basic elements and objects of 2D games
3. Master the use of Godot to construct game scenes and determine gameplay settings





Education Partner of Blender Institute



Education Partner
of Blender Institute



Education Partner of Blender Institute

As early as 2019, the founders of Krystal Institute finalized a partnership agreement with the Blender Institute to become an officially licensed educational and development organization for Blender. In 2023, the founder of Krystal Institute visited the Blender Institute once again to share the achievements of Blender Studio and discuss updates to their collaboration agreement. This visit further solidified the exchange and collaboration between the two organizations. Our partnership with the Blender Institute spans three key areas:

Implementation of Blender's educational headquarters in Asia

Krystal Institute will collaborate with Shenzhen University's research unit to establish a Digital Media Production Technology Research Institute to advance digital media technology research and education. We have reached an agreement with Shenzhen University to design a series of training programs to nurture future leaders of the digital economy. The courses will cover such forward-looking topics as computer graphics theory, 3D modeling and animation, long-form video production, metaverse development, digital asset management, and teacher training. The education headquarters will serve as a model unit, setting an example for digital media development in Greater China and Asia, and becoming a pioneer in the industry's research.

Promote open source software to China and Asia

To make Blender more accessible, Krystal Institute will localize the Blender software and Blender Studio teaching resources, including translating and editing over 20,000 hours of video tutorials. In addition, we plan to organize an annual global exchange to quickly form an Asian community for Blender and increase the acceptance and popularity of open source software. Krystal Institute will also encourage more participation in Blender through a pilot film project to prove that professionals can use Blender and other open source tools to create long-form films successfully.

Further Blender development

As market demands change, production tools must evolve with the times. Krystal Institute will work closely with the industry to identify pain points in the creative media production process, and then integrate the resources of academia and the industry to further develop Blender based on research results. Krystal Institute will also incorporate Blender into digital transformation programs such as the Office Transformation Program (OTP) to promote the use of Blender software while conducting additional research and development on its functionality.

Introducing Blender Studio Asia

Blender Studio is the creative part of the Blender HQ, a dedicated team of artists and developers who challenge themselves with creative-technical targets to help Blender users and to drive Blender development forward. This happens in an open source production environment and by sharing everything they make in an open and free license. Through the platform, creators from Blender share their unique perspective on how to build amazing projects with the open-source 3D software. Krystal Institute is launching a multi-language edition of the platform for Asian markets, with the aim of further promoting Blender to international audiences.



Blender Open Movies



WING IT! (2023)

Charge (2022)

Sprite Fright (2021)

Big Buck Bunny (2008)

About Blender

Blender is a free and open source 3D creation suite. Users may use the software to manage all parts of the 3D pipeline, including modeling, rigging, animation, simulation, rendering, compositing and motion tracking, even video editing and game creation. Blender is published under the GNU General Public License (GPL), meaning it is developed by and for the community and is completely free to use. Since its inception in 1995, the software has since been used in countless award winning productions such as Netflix's NextGen, Blender's Spring (2019) and Charge (2022).





Introduction to Python in Blender: From Basics to 3D Scripting Mastery

Embark on a transformative journey from Python novice to 3D scripting virtuoso with our course. Whether you're a burgeoning artist, a tech enthusiast, or a programmer aiming to venture into the captivating world of 3D graphics, this course is your gateway to mastering the art of Python scripting in Blender.

 **Chinese or English**  **320 Hours**  **Face to Face**

Course Structure

1. Python Basics (60 hours): Learn the fundamentals of Python, including variables, data types, flow control, functions, modules, and object-oriented programming.
2. Python Intermediate (40 hours): Dive deeper into Python with lessons on advanced data structures, file handling, error handling, and advanced object-oriented programming concepts.
3. Introduction to Blender and Its Interface (20 hours): Get introduced to Blender's interface, navigate the 3D graphics world, and learn to create and modify objects in Blender.
4. Python in Blender Basics (80 hours): Discover how to use Python in Blender, from accessing the Python Console to manipulating Blender data, scripting user interactions, and automating tasks.
5. Advanced Python in Blender (80 hours): Take a deep dive into Blender's Python API, explore procedural content creation, define custom Blender operators, and learn to develop Blender add-ons.
6. Projects and Real-world Applications (40 hours): Apply your Python skills in Blender through mini projects and a capstone project, where you'll tackle real-world challenges using Python scripting in Blender.

Learning Outcomes

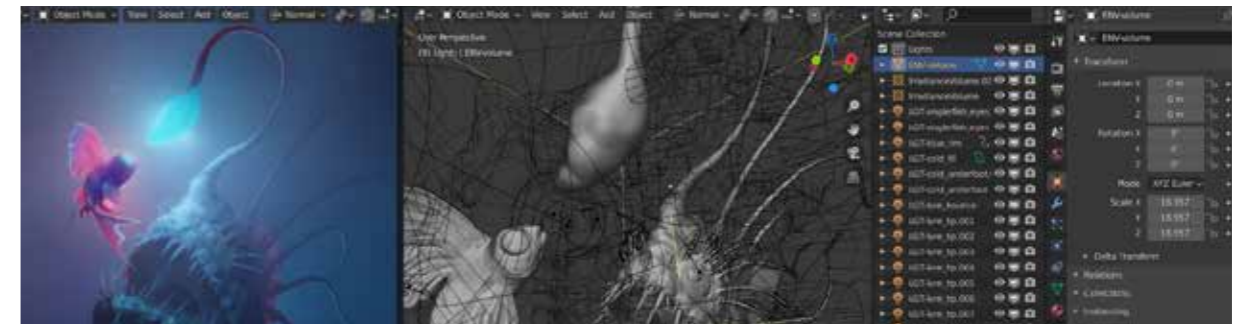
1. Understand Python programming basics
2. Be proficient in Blender's Python API
3. Create and manipulate Blender objects with Python scripts
4. Automate repetitive tasks in Blender
5. Develop complex Python plugins for Blender



Anglerfish Workshop: From Modelling to Rendering

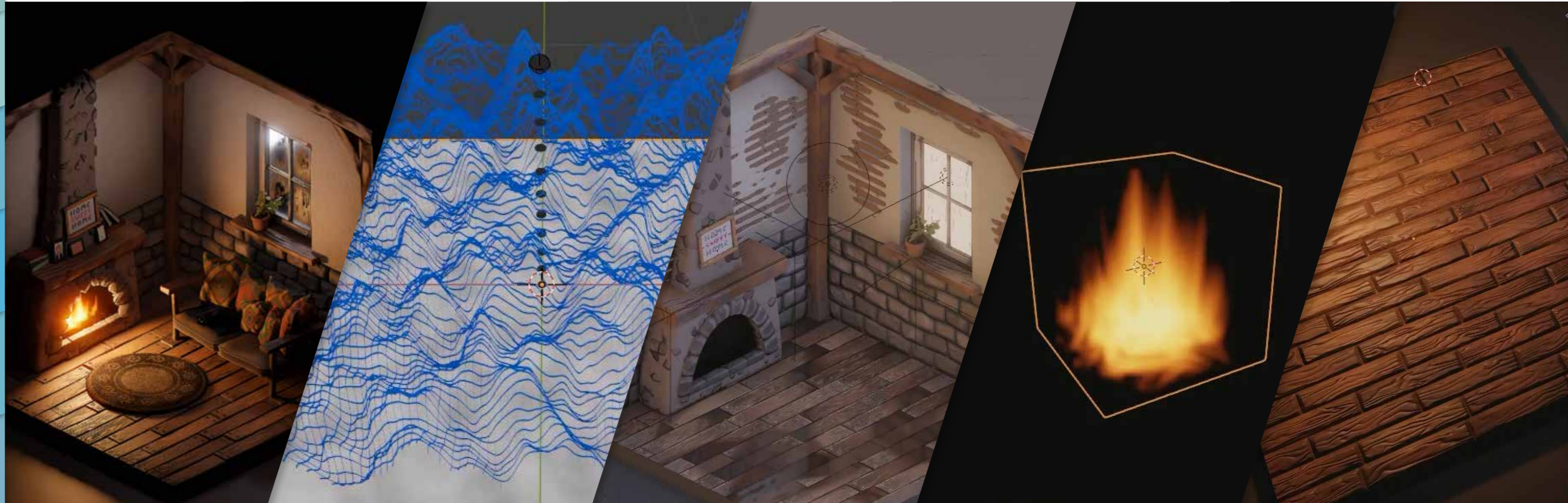
Learn the full Blender process from modelling to rendering using the deep sea anglerfish as an example. In this course, students will be guided step-by-step on every detail, including texturing, rigging, lighting, UV compositing and more. By the end of the course, students will not only be able to create their own magnificent anglerfish render, but also apply learnt skills on future projects.

Chinese 18 Hours Face to Face





Learning Outcomes

1. Learn to model and sculpt details and textures on the anglerfish
2. Learn to create scales and other objects
3. Learn rigging
4. Learn how to compose images professionally



Everything About Procedural Shading

Utilizing Blender's node-based shader editor, students will learn to perform procedural shading in this course. Not only will students be taught the essential concepts and techniques to best achieve the potential of procedural shading in Blender, but these will also be accompanied by showcase examples to further consolidate their learnings.

 Chinese  15 Hours  Face to Face



Learning Outcomes

1. Learn the fundamentals of procedural shading
2. Learn the procedural shading workflow
3. Learn about tools like shaders and textures
4. Learn how to create procedural shaders for unique, individual objects



Games Asset Creation Basics

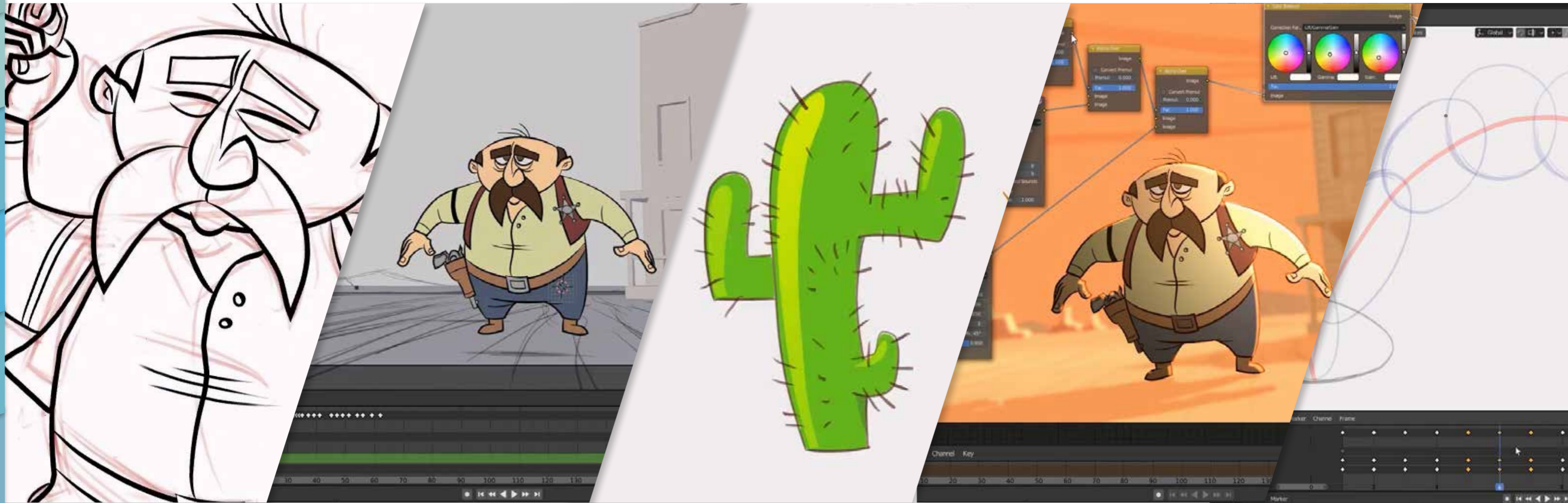
This course is aimed at beginners in Blender who wish to build simple assets for their games. From learning the ropes in Blender to importing your very own game assets into a game engine of your choice, this course shall serve as your complete guide to making game assets in Blender.

Chinese 15 Hours Face to Face



Learning Outcomes

1. Understand how to navigate the Blender interface
2. Learn to model in Blender
3. Master UVs
4. Master Baking
5. Master 3D Painting
6. Learn how to export and import your assets



Grease Pencil For Beginners

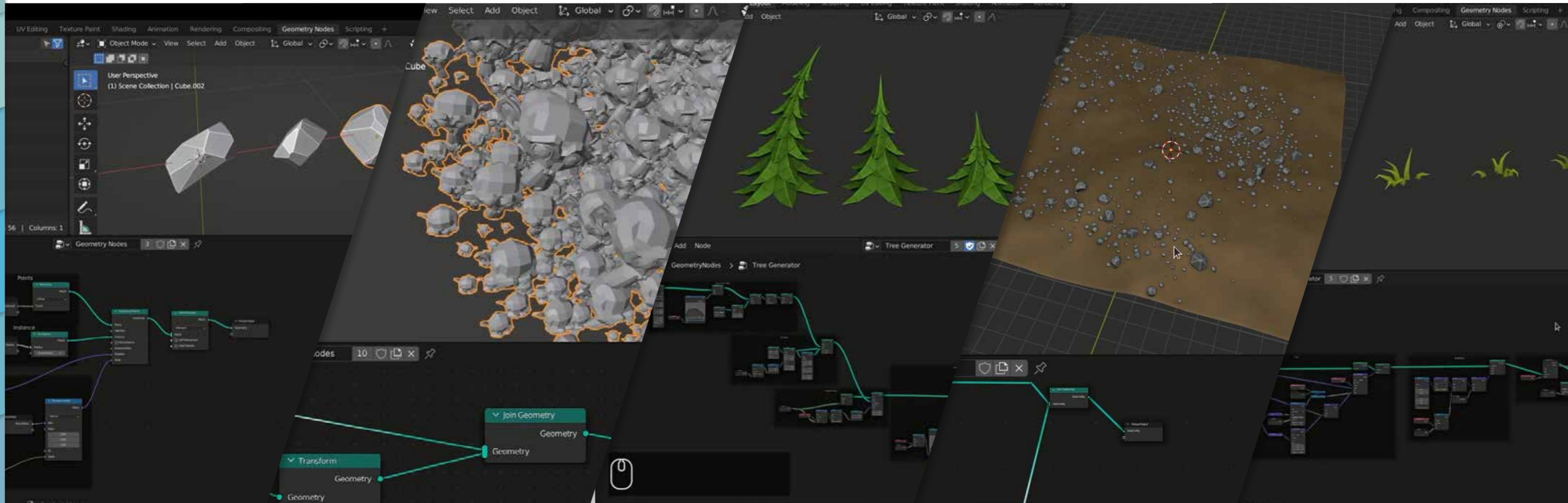
This course shall help beginners new to Blender's Grease Pencil tool quickly grasp its basic functions and applications. Students will learn how to use Drawing Mode, edit drawings, choose the right brushes and materials, add modifiers and shaders, make 2D animations and more.

Chinese 12 Hours Face to Face



Learning Outcomes

1. Learn about different brushes and materials and their uses
2. Learn how to create your own 2D animations
3. Master Rendering and Compositing



Geometry Nodes Fundamentals

Geometry nodes are an important tool on Blender. This course shall walk you through the basics of geometry nodes, from fundamental concepts to professional workflows. With the support of hands-on examples and task practices, you will be able to quickly grasp how to use geometry nodes and customize parameters to generate assets to your liking.

This course is designed for intermediate Blender users with some prior knowledge of using Blender.

Chinese 12 Hours Face to Face



Learning Outcomes

1. Learn the basic concepts of geometry nodes
2. Grasp widely-used workflows with regards to geometry nodes
3. Learn to customize parameters for generating assets
4. Create your own low-poly asset library



Blender Weight Painting

This course teaches advanced techniques in weight painting using Blender. Students will not only learn about tools and functions necessary in weight painting, but also be given advice on their effective applications so as to avoid common pitfalls and misconceptions surrounding weight painting.

Chinese 12 Hours Face to Face



Learning Outcomes

1. Learn about vertex groups
2. Learn about different tools used in weight painting, such as brushes, operators, weight paint, etc.
3. Learn about functions surrounding weight painting like Paint Mode and Vertex Group Operators



Creating Realistic Characters

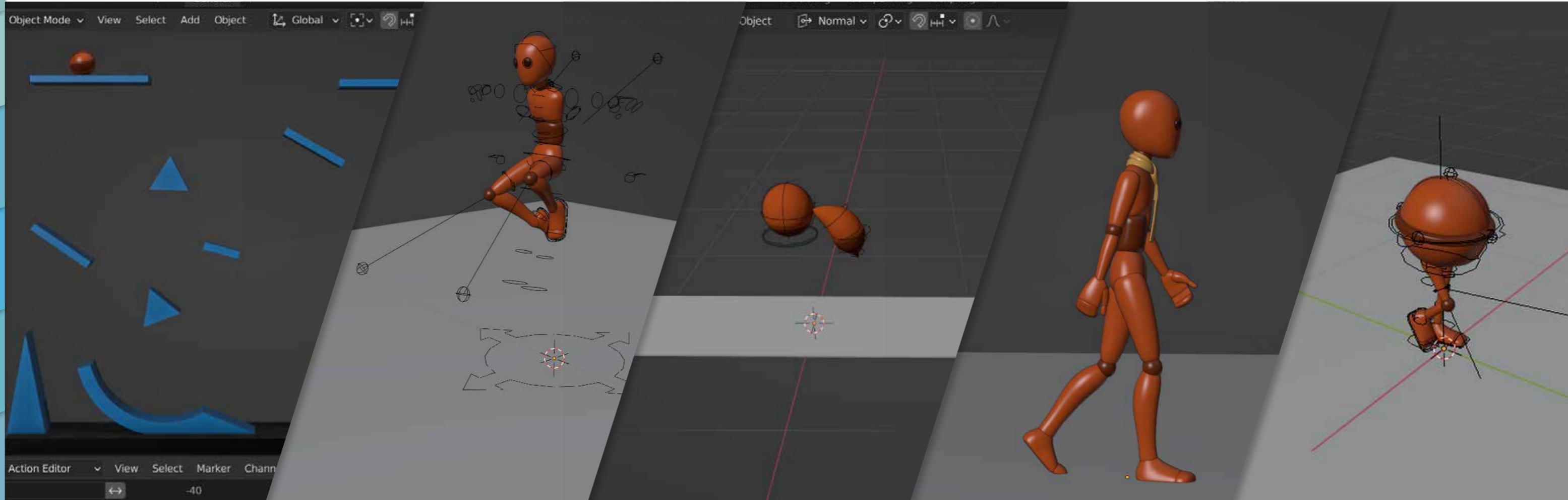
This course will cover advanced techniques in creating realistic characters. Students will learn to model realistic body models and sculpt detailed features. Other skills such as geometry nodes and rigging will also be incorporated into the course to achieve the best model results. Students will also learn some knowledge of using Krita in the process.

Chinese 12 Hours Face to Face



Learning Outcomes

1. Learn to sculpt detailed body features (wrinkles in particular), clothing shapes etc.
2. Learn to use different character model poses
3. Learn to bake and export
4. Learn to make adjustments according to different issues in the workflow



Blender Animation Fundamentals

In this course, you will learn core animation principles starting from simple bouncing ball animations to more advanced character model movements such as walking, jumping and acting. Students will also be guided through the animation workflow and technical terminology to help them adapt to the professional animation scene more quickly.

This course is designed for beginners without prior experience, and who harbor a strong interest in 3D animation.

Chinese 9 Hours Face to Face



Learning Outcomes

1. Learn Bouncing Ball basics
2. Learn how to implement the Drag and Follow through action
3. Learn how to add personality to character actions
4. Learn how to do walking animations
5. Master basic body mechanics
6. Learn to create a short animation by yourself





All About Blender Motion Graphics

This course offers a comprehensive guide to motion graphic techniques using Blender. Using Blender productions as examples, individual shots and the techniques used, the effects they create shall be carefully dissected and analysed. By the end of this course, you will be able to master these motion graphic techniques and apply them to your own productions.

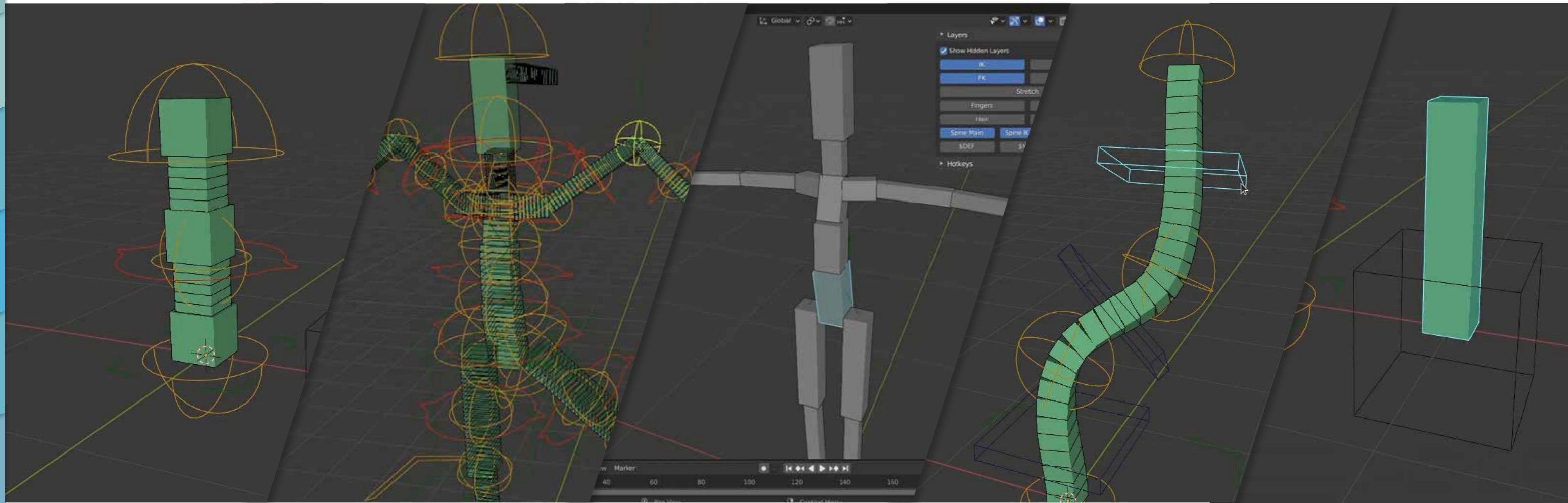
The course is designed for complete beginners in motion graphics and who are interested in creating them on Blender.

Chinese 9 Hours Face to Face



Learning Outcomes

1. Learn camera control and basic cinematography techniques
2. Grasp the use of lighting, shading etc. in shots
3. Master the process of rendering scenes
4. Learn basic compositing
5. Learn how to use particles



Rigging Tools On Blender Studio

This course assumes that you have some knowledge of using Blender. You will learn about rigging tools in Blender Studio, as well as the rig generation workflow with Rigify. What is Rigify? The add-on enables you to input parameters on a simple Metarig, which is used to generate the Control Rig that you will use to control your character. The entire process will be instructed to you in detail by our experienced instructors during the course.

Chinese 9 Hours Face to Face



Learning Outcomes

1. Learn to streamline the Rigify workflow
2. Learn to create a Metarig
3. Learn about rig types and how to customize them with parameters



Course Objectives

1. To provide a thorough understanding of Gaussian Splatting and its application in 3D graphics using Blender.
2. To develop advanced skills in creating and manipulating Gaussian Splatting effects for various visual applications.
3. To integrate Gaussian Splatting techniques with other Blender functionalities for comprehensive 3D project development.

Learning Outcomes

1. Proficiency in implementing Gaussian Splatting in Blender for creating high-quality visual effects.
2. Ability to combine Gaussian Splatting with other 3D modeling and animation techniques for enhanced project outcomes.
3. Mastery in the practical application of Gaussian Splatting across various scenarios, from basic to complex visual effects.

Rationale for the Course

This course is designed to equip students with in-depth knowledge and practical skills in 3D Gaussian Splatting, a crucial technique for advanced visual effects in 3D modeling and animation. It caters to students with basic Blender experience, aiming to elevate their skills to a professional level, enabling them to create sophisticated visual effects and animations.

3D Gaussian Splatting, a technique in computer graphics, renders point cloud or volumetric data smoothly using a Gaussian function, enhancing visual realism. Widely used in scientific visualization, medical imaging, and entertainment, it's effectively implemented in Blender through particle systems, volumetric rendering, and scripting. This method is crucial for creating realistic environmental effects and detailed visual representations in various industries. This course offers a complete and structured approach to mastering 3D Gaussian Splatting in Blender, from foundational concepts to advanced applications. It is designed to provide students with the skills and knowledge necessary to excel in the field of 3D graphics and animation, focusing on both the technical and creative aspects of Gaussian Splatting.

 Chinese  40 Hours  Face to Face



Unlocking Digital Transformation



Unlocking Digital
Transformation





Unlocking Digital Transformation

Digital transformation refers to the integration of digital technology into all areas of a business, resulting in fundamental changes to how the business operates and delivers value to customers. Demand for digital transformation is expected to grow significantly in the coming years, driven by factors such as increasing demand for better customer experiences, the need for process automation, and the growth of new technologies such as AI, IoT, and 5G.

Why should I learn digital office tools?

Our courses provide students with the practical knowledge, latest technologies and open source tools needed to pursue a career in industries powered by digital tech, and build sustainable skills to deliver high-value impact.

1. Meet Changing Skill Demands: Increased automation and digitization are changing the job market, requiring new skills and knowledge
2. Increased Job Security: Understanding digital transformation can help individuals adapt to the changing job market and remain competitive in the workforce across a wide range of industries, despite fluctuations in business cycles
3. Career Growth: Digital skills enable workers to take on more complex and higher-value tasks, and to progress into leadership and management positions



Driving Value for Offices and Enterprises

For business operations in any sector, offices and enterprises can benefit significantly from digitizing existing processes. Companies that effectively integrate digital technologies into their operations are more agile, efficient and able to meet the needs of digital customers. Digital transformation can streamline processes and lower costs by automating manual tasks, reducing errors and improving data management.

Moreover, digital technologies allow companies to create new products, services and business models that were not previously possible. Digital technologies make it possible for companies to provide personalized, real-time experiences for their customers, which can drive engagement and loyalty.

Latest Developments

- IDC's "Worldwide Digital Transformation Spending Guide" predicts digital transformation spending to reach US\$3.4bn, growing at 16.3% CAGR between 2021-2026¹
- Hong Kong announced in the 2022 Budget that the Government will set up a Digital Economy Development Committee led by the Financial Secretary to focus on coordinating the development of the digital economy and promoting the digital transformation of all sectors²

1. International Data Corporation (2022): Worldwide Digital Transformation Spending Guide
2. Government of HKSAR (2022): The 2022-23 Budget

Curriculum Highlights

Educational Program	<ul style="list-style-type: none"> • Office Tools • Real Time Project Management • Entrepreneurship in the Digital Economy • Cybersecurity and Privacy
Career Program	<ul style="list-style-type: none"> • Introduction to Business Intelligence Tools • Using ERP For Human Resource Management • Fundamental DuPont Analysis • Cultivating Business Intuition
Professional Program	<ul style="list-style-type: none"> • MicroMaster in Office Tools Certificate Course • Digitalizing Manufacturing Planning and Management • Sales Force Automation and Management
Academic Program	<ul style="list-style-type: none"> • Higher Diploma in Office Transformation • BSc in Business, Finance and Technology





Business Intelligence and Enterprise Resource Planning

Students will be introduced to Krystal's open source business management systems and learn to master these tools to perform data analysis and business administration tasks that are crucial to enterprise management. After this course, students will be prepared for Business Intelligence (BI), Enterprise Resource Planning (ERP) jobs and other vocations related to the IT industry.

The course provides students with the practical knowledge, cutting-edge techniques, and the open-source tools necessary for BI and ERP jobs, which can pave their way into the digital economy and IT industry, maintaining their employment competitiveness.

Chinese 332 Hours Face to Face



Learning Outcomes

1. Be familiar with the use of Krystal's business management systems, the related operation interface, and installation methods
2. Be familiar with the basic software development process
3. To understand the importance of ERP for business administration
4. Use the Krystal Enterprise Resource Planning Platform as the basis for developing enterprise resource planning tools for accounting, human resources, marketing and other corporate departments
5. To understand the importance of business intelligence for business operations and corporate strategies
6. Use the Krystal Business Intelligence platform as the basis for developing real-time reporting tools for enterprises
7. Design and develop business intelligence dashboards using data generated by the ERP platform

The Importance of Business Management Systems

In the post-COVID era, the importance of digital transformation has increased significantly. However, while most companies recognize digital technology as a business development trend, they are concerned that they do not have sufficient understanding of the technology they need to apply, or do not have sufficient capacity and resources to undertake digital transformation. As such, there is a great demand for business intelligence and enterprise resource planning skills to help companies better understand, plan and utilize their resources to complete their digital transformation.





Office Digital Transformation

Office Transformation is an essential part of any evolving economy. As Hong Kong's economy shifts towards digitalization, we are currently seeing a huge ongoing trend of companies seeking to digitally transform their operations. Many companies are looking for employees that can help them increase efficiency and productivity, lower operating costs and keep up with the latest technology to ensure company growth and profitability in the market.

The objective of this course is to provide students with a comprehensive understanding of digital transformation in the office setting. By the end of the course, students should be able to use a variety of open-source software tools to increase productivity and efficiency, lower operating costs, and promote collaborative efforts across teams in the workplace.

Chinese · English 320 Hours Face to Face



Learning Outcomes

1. Understand the concept of digital transformation and its impact on enterprises
2. Use open-source office productivity tools such as LibreOffice Write, Present, Calc, Database, Draw, and Math to create and manage documents, spreadsheets, presentations, and graphics
3. Master Apache Superset for Business Intelligence (BI) and data analytics
4. Master Apache Ombiz as an enterprise resource planning (ERP) program with modules for HR, Accounting, Manufacturing, Facility, SFA, Scrum, Webtools, security, CMS, Asset Management
5. Develop strategies for effective collaboration and communication in the digital workplace
6. Develop the practical skills and knowledge necessary to plan and implement a digital transformation project for companies

Tools and Practices in the Digital Workplace

In today's digital age, it is essential for businesses to transform traditional office practices into digital ones. This course aims to provide students with the skills and knowledge needed to do so effectively. The use of open-source software tools is emphasized to provide students with cost-effective solutions that are also customizable and compatible with other systems. The integration of various software tools into workflows also emphasizes the importance of team collaboration and communication in the digital workplace.





Calc For Beginners

Krystal Office+ includes all the office software needed to enhance daily productivity and reduce operational costs. Krystal Office+ provides a complete solution for today's diverse business needs. This course will focus on the basics of Krystal Calc. Students will learn the basic operations of Krystal Calc, including basic cell-related operations, functions and formulas, pivot tables, and more.

Chinese 35 Hours Face to Face

Learning Outcomes

1. Understand the basic operations of the Calc software
2. Learn how to build and edit the cell table
3. Grasp functions and formulas



Write For Beginners

Krystal Office+ includes all the office tools needed to keep daily office tasks running efficiently and economically. Modern offices require not just basic office software, but also professional design, image editing and video editing capabilities to face all challenges.

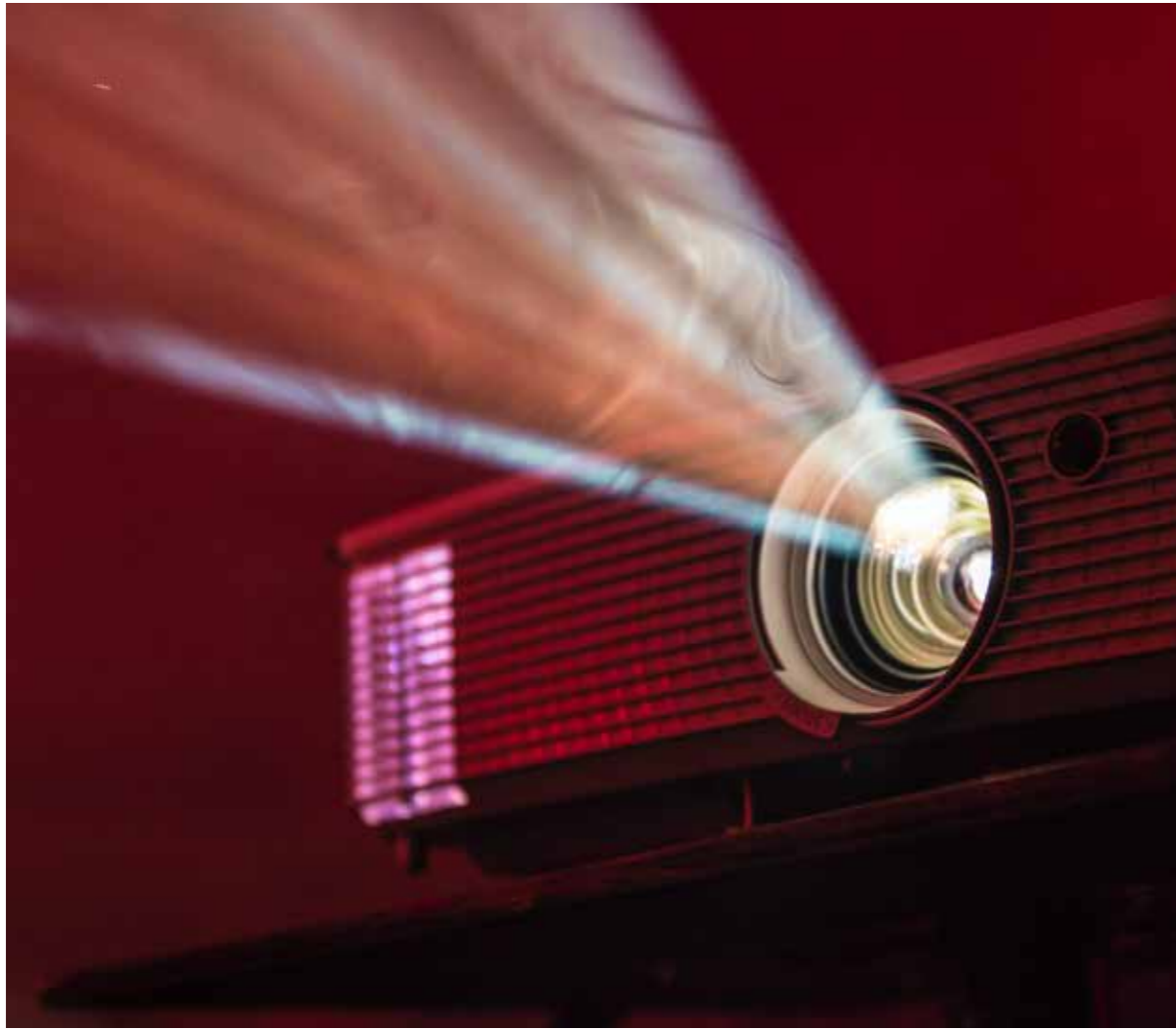
Krystal Office+ provides a total solution for today's multidimensional business operation needs. In this module, students are going to learn about the basic operations of Write, including wizards, styles and layouts, styled tools, ordered list, headers and footers, footnote, content page, printing settings, reference settings, how to insert Write into Calc spreadsheet, making PDF table and using extensions.

Chinese 6 Hours Face to Face

Learning Outcomes

1. Understand the basic operations of the Write software
2. Learn to use Write to create various types of documents
3. Learn to integrate Write into Calc spreadsheets





Present For Beginners

Krystal Office+ includes all the office tools needed to keep daily office tasks running efficiently and economically. Modern offices require not just basic office software, but also professional design, image editing and video editing capabilities to face all challenges.

Krystal Office+ provides a total solution for today's multidimensional business operation needs.

In the module, students are going to learn about the basic operations in Present, including layout and interface settings, inserting media (photos, videos, hyperlink, and audio), footers and footnote, slide master, charts and graphs, and different animation effects for texts, photos, and slides.

During the course, students can get familiar with software operations through case studies in class.

Chinese 9 Hours Face to Face

Learning Outcomes

1. Understand the basic operations of the Present software
2. Learn to insert media (photos, videos, hyperlink, and audio) into presentations
3. Learn to produce different animation effects for texts, photos, and slides



Cultivating Business Intuition

Although trading is a process between subjective humans, the market itself is objective and unbiased. One's perception of the market is completely up to oneself. If your goal in the long run is to attain and maintain the status of a trader in the market, it is crucial to develop a mindset that helps you to observe the market from an unbiased perspective. In this course, you will learn methods to remove subjective conceptions of the market and analyze objectively facts from multiple perspectives before performing trade.

Chinese 20 Hours Face to Face

Learning Outcomes

1. Learn the basic concepts of how the market works
2. Be aware of factors to be taken into account in trade
3. Learn ways to diminish the influence of emotions
4. Enhance critical thinking and decision-making skills





Dbase For Beginners

Krystal Dbase is one of the most full-featured databases on the market, designed to meet the needs of a wide range of users, and providing native driver support for the most widely-used multi-user database engines, such as MySQL/MariaDB, Adabas D, MS Access, PostgreSQL, etc. In addition, the built-in JDBC and ODBC standard drivers allow users to connect to almost any existing database engine. It also helps users build complex databases and modify tables, find data, and share data through a simple graphical interface.

This course provides an in-depth, hands-on introduction to the use of Krystal Dbase. It includes information about the database, its features and functions, and the tools necessary for working with it. Students will also learn to write SQL syntax directly, create tables and external tables from existing databases, and link to external databases.

Chinese 30 Hours Face to Face

Learning Outcomes

1. Grasp the concept of database
2. Learn to create, edit and merge databases
3. Learn to create View, Query, Union and Subquery
4. Learn to export data
5. Learn to integrate Krystal Dbase hyperlinks in Calc, Write and Present
6. Learn advanced languages such as Scripting Language, VBA and Macros



Draw For Beginners

Krystal Draw is a powerful and easy-to-use drawing software. It is suitable for different industries, and is designed for creating infographics, pictograms, and organizational charts. Even if you are not a professional designer, you can easily create technical drawings and posters of a high standard using the software.

Our Krystal Draw course covers all the core functions of the tool, taking students through the basic concepts of creating lines, etc., before moving on to more in-depth knowledge such as understanding and using infographics and complex text functions for professional purposes. The knowledge and techniques taught in class are designed to help students become proficient in using the Krystal Draw tool.

Chinese 9 Hours Face to Face

Learning Outcomes

1. Understand the purpose of and functions in Krystal Draw
2. Learn to use common form components
3. Learn to edit and combine objects
4. Learn to edit colors and textures
5. Learn to use typography tools
6. Master the use of complex text functions
7. Master the use of layers





Introduction to Business Intelligence Tools

Data analytics has become a hot topic in recent years. With data collection becoming easier than ever, many companies are turning to data collection, integration and analysis to turn it into more commercially valuable information. This not only helps companies reduce costs and risks, but also allows them to make business decisions more efficiently.

This course is designed to teach students how to use business intelligence tools to accurately analyze and integrate the huge amount of data they collect, and convert it into a visual dashboard. Students will be empowered to make more effective business decisions based on data analysis.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Master basic concepts of business data analysis
2. Learn to operate business intelligence tools and assemble dashboards
3. Master data collection, integration and management skills
4. Visualize and analyze data
5. Make data-driven business decisions based on graphical dashboards
6. Analyze data through business intelligence tools to predict future market trends



Using ERP For Human Resource Management

People make up the company, hence Human Resources is one of the most important assets of a successful business. Human resource management is the strategic approach to nurturing and supporting employees and ensuring a positive workplace environment. HR has to take care of many tasks like employee recruitment, keeping record of attendance, calculate holidays, etc. that need to be done fairly and accurately.

In order to raise the efficiency of HR and by extension company processes, Enterprise Resource Planning (ERP) is the best solution for HR to track, access, maintain and store records across departments easily. This course will introduce students to the ERP system, the Human Resource Information System (HRIS) and other HR tools, where students will learn how properly utilize their functions and apply them to everyday HR tasks.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Learn the principles and concepts of human resources management
2. Understand the concepts of ERP and HRIS
3. Learn about different HRIS systems and how to select the most suitable one for your company
4. Understand how to access information and utilize them in making important decisions
5. Learn how to use HR technology for basic HR tasks





Sales Force Automation and Management

The sales process contains all the steps to be taken before a sale is made. Steps taken differ for each industry, but generally they include: client prospecting, sales pitching and close, and client relationship management.

There are many repetitive and administrative tasks along these steps, but with the help of automation, most of these tasks can be streamlined so that sales personnel can focus on more important tasks at hand.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Learn to manage sales leads, set up quotes, create reminders and to-do-lists in the SFA program
2. Be able to create and update timeline for different projects and sales forecast
3. Learn about after-sales support and managing client relationships



IT Infrastructure Management for SMEs

IT infrastructure is made up of two core parts, hardware and software. In this course, we will focus mainly on the hardware component. Hardware components include desktops, servers, data centers, routers, etc. These are the essential devices that are used daily in the workspace to run a business although their maintenance is often overlooked.

Designed for SMEs, this course shall introduce cost-effective yet efficacious methods that can help achieve similar results as that by larger corporations. Throughout the course, students will be taught how to maintain these hardware and familiarize themselves with how to upgrade and fix these devices.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Learn about basic hardware found in the workspace
2. Learn the initial set up of all IT hardware components for a new business
3. Learn to maintain and upgrade new and old IT hardware components





Finance and Accounting Systems

The Accounting system helps a business track all incoming and outgoing financial transactions, and provides quantitative financial information that can be used for making sound business decisions. Employees in the Accounting and Finance department of a company would be tasked with creating financial reports, budget and future projections, ensure statutory compliance and implement accounting strategies.

With the help of ERP systems, the Accounting and Finance department of companies can easily manage everyday accounting and financial tasks across the company and keep track of account records. This course shall instruct students on how to effectively utilize these systems for accounting and financial purposes in their careers.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Create financial statements such as Profit and Loss Statements, Balance Sheet and Taxation documents
2. Learn to manage Billing Accounts and Payment groups
3. Create budget reports and perform future projections
4. Master the implementation of accounting strategies



Facility and Order Management

Inventory is a major component of a business, as it is what helps a business make a profit. Good inventory management leads to increased efficiency, saving much unneeded costs which in turn leads to a more profitable business. Receiving orders, managing different orders, checking available stock - while these tasks are routine for sales personnel, they are incredibly time-consuming and complex. With the help of ERP software, these processes can be greatly simplified for the benefit of businesses. Facility management on the other hand, is related to any physical infrastructure of a business, such as factories, warehouses, retail stores and office spaces. Regular maintenance of facilities and ensuring smooth operations is crucial for business productivity. Using ERP software, the condition of machinery can be conveniently monitored and productivity goals easily checked.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand concepts of inventory management
2. Understand concepts of facility management
3. Be able to accurately record the process of inventory flow in a business such as purchase orders, warehousing, logistics, sales order, stock-taking etc.
4. Learn to use ERP programs to monitor different facilities and identify their inefficiencies.





Web Tools for E-shop and Content Management

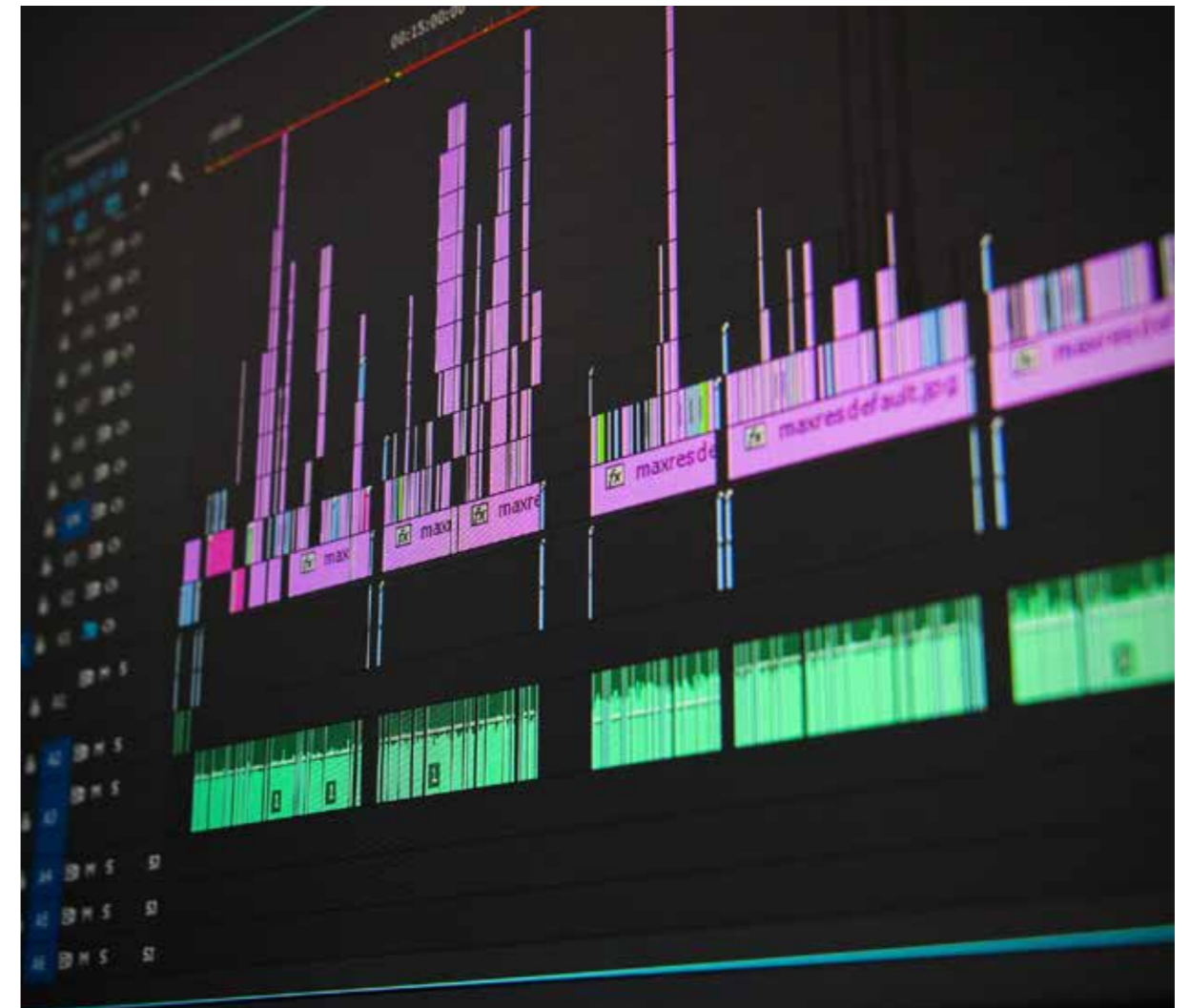
E-commerce has transformed today's retail experience; from buying daily household products to luxury items such as vehicles or even properties. For businesses that would like to build a digital presence, having an ecommerce platform or e-shop is a must nowadays. Employees with the right tools, the necessary skills and knowledge of managing content on the company website and e-shop is essential to the workforce of any company.

Having the skills and knowledge of different types of web tools that aid workers in the digital workforce is important. This ties in directly with other modules of the ERP program such as 'Finance and Accounting Systems' and 'Facility and Order Management'.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Master and apply basic web tools and learn to perform cache maintenance
2. Create and maintain a user-friendly interface for the company website/e-shop
3. Learn how to update new content on the website/e-shop



MicroMaster in Office Tools Certificate Course

Nowadays, businesses require more than just basic office tools for their daily office operations. In today's digital world, any office personnel will be expected to handle tasks digitally. Some of these include simple database design and management for customers' emails and information, creating spreadsheets for cash flow projections, designing promotional materials and video editing, and communicating with clients via online platforms.

Krystal Office Suite provides tools from essential office programs to graphic design software, mailhubs and databases. This course shall help you master the necessary office tools and systems for the completion of everyday office tasks, so that you are all set for a professional career.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Be able to handle most daily office operations like word processing
2. Create presentations and graphics using the presentation tool
3. Be able to prepare simple databases such as customer information and mailing lists
4. Gain the ability to use both vector and image editing and processing tools for content design
5. Gain the ability to edit video and audio for social media and product presentations
6. Understand the know-how to set up social media for communication and marketing





Introduction to Business Intelligence Tools

Data analytics has become a hot topic in recent years. With data collection becoming easier than ever, many companies are turning to data collection, integration and analysis to turn it into more commercially valuable information. This not only helps companies reduce costs and risks, but also allows them to make business decisions more efficiently.

This course is designed to teach students how to use business intelligence tools to accurately analyze and integrate the huge amount of data they collect, and convert it into a visual dashboard. Students will be empowered to make more effective business decisions based on data analysis.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Master basic concepts of business data analysis
2. Learn to operate business intelligence tools and assemble dashboards
3. Master data collection, integration and management skills
4. Visualize and analyze data
5. Make data-driven business decisions based on graphical dashboards
6. Analyze data through business intelligence tools to predict future market trends



Digitalizing Manufacturing Planning and Management

Manufacturing is the making of goods intended for sale to customers upon completion. Many different raw materials may be involved in a production run to produce a number of sellable items. The manufacturing team would be tasked with managing raw-material stock levels, ordering from different suppliers, and planning different production runs to meet client demands.

Digitalizing the manufacturing process is hence important for business operations. Having a smooth and efficient manufacturing plan can lead to a reduction in wastage, more accurate calculations of cost, and increase efficiency of production runs--all of which lead to cost saving that directly impacts the bottom line of a business.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Create different documents such as purchase orders and bill of materials
2. Learn to manage raw-material stock level and predict future production runs
3. Learn to plan different production runs
4. Comprehend the overview of the manufacturing process and apply cost-saving techniques
5. Create and manage shipment plans





File Mirroring Course

In this course, you'll delve deep into the world of File Mirroring, a crucial data redundancy technique. You'll explore synchronous and asynchronous mirroring, understanding the technical nuances that set them apart. We'll also cover the hardware and software solutions available for implementing file mirroring and when to use each. You'll grasp how file mirroring fits into the broader context of data redundancy strategies such as RAID and clustering.

Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Knows the concept of File Mirroring and its significance in data protection
2. Learns to distinguish between File Mirroring and other data redundancy techniques
3. Learns to execute basic operations to set up and maintain file mirrors
4. Learns to recognize potential challenges and solutions in implementing File Mirroring
5. Learns to install and configure Lsyncd
6. Learns the basic operation of Lsyncd



Knowledge Management Course

In this course, you'll delve into the fundamental elements of modern knowledge management platforms and how they enhance organizational efficiency and collaboration. Once students grasp the fundamental concepts of knowledge management, they will explore the intricacies of platform functionalities in detail. These functionalities span from task assignments to webinars and course integration, serving not only to aid individuals and teams in managing professional responsibilities but also fostering a culture of continuous learning. These platforms ensure timely communication by integrating daily news and user messages. Calendar and friend invitation features encourage the establishment of a interconnected collaborative environment.

Chinese or English 40 Hours Face to Face

Learning Outcomes

1. Grasp the fundamental principles of knowledge management and its relevance within contemporary organizational structures
2. Understand the mechanisms for individual and team task assignments, facilitating task initiation, tracking, and completion within KM platforms
3. Be proficient in using user contacts and messaging features for effective platform-based communication
4. Master the functionalities of calendars, webinars, courses, and lectures, recognizing the platform's role in continuous professional development
5. Recognize how knowledge management platforms promote community connections, information dissemination, and engagement





E-commerce Product Management Course

This course provides a comprehensive introduction to managing online product portfolios in e-commerce. Students gain insights into fundamental product management concepts and various aspects of e-commerce products, from cataloging to delivery. The course combines theoretical knowledge with practical experience.

Chinese or English 40 Hours Face to Face

Learning Outcomes

1. Understand fundamental e-commerce concepts and the significance of product management
2. Master creating, managing, and optimizing product listings for customer appeal and useful information
3. Gain proficiency in inventory management and timely product delivery
4. Familiarise yourself with efficient product categorization methods
5. Comprehend various promotional strategies and analyzes their effectiveness
6. Acquire insights into transportation logistics and handling returns
7. Familiarize yourself with leading e-commerce platforms for product management



Customer and Supplier Management in E-commerce Course

This comprehensive course explores customer and supplier management in e-commerce. It covers back-end and front-end processes to ensure seamless interactions. Emphasizing hands-on experience, the course equips students with essential skills for effective e-commerce management.

Chinese or English 40 Hours Face to Face

Learning Outcomes

1. Grasp the complexities of customer and supplier management in e-commerce
2. Handle and protects contact information and user authentication details
3. Manage payment methods and financial accounts for smooth transactions
4. Understand the dynamics of product listings, catering to customer preferences and supplier offerings
5. Efficiently manage billing processes and calculations
6. Facilitate clear, timely communication with customers and suppliers
7. Manage the lifecycle of quotes and orders to ensure satisfaction





Creating Web-based Platforms



Creating Web-based Platforms



Creating Web-based Platforms

As the global Internet industry gradually matures, web application technology stacks are beginning to include a wider range of related technologies, including Web 3.0, data analytics, and machine learning. In addition, with the digitization of traditional industries, they also tend to demand a large number of junior talents to build "digital windows" for businesses, which is the first step towards the development of the digital economy.

Why should I study web development ?

Our courses provide students with the practical knowledge, latest technologies and open source tools needed to pursue a career in network engineering and to stay competitive in the digital economy and IT industry.

1. Learn programming from scratch: Programming languages related to web development - Python, JavaScript, etc. - are easier to get started with compared to other languages, and they have a massive user base worldwide, making it easy for students to find additional resources to aid their learning
2. Job prospects are promising: According to industry statistics, the demand for IT talents in Hong Kong could reach 100,000 in the next five years
3. Become a digital nomad: web development can be done with simple computer equipment and a stable internet connection, allowing you to work remotely without being tied to a specific workplace



The Importance of the Internet to the Digital Economy

During the COVID-19 pandemic, the digital economy was led by new technologies such as artificial intelligence, big data, Internet of Things, and cloud computing to integrate enterprise and market functions. Among them, online platforms allowed information integration, data sharing, resource deployment and material flow, and played an important role in supporting the resumption of work and production, and stabilizing employment. It can be seen that the digital economy and the Internet have important and irreplaceable roles in future economic developments.

Latest Developments

- 24% of the advertisements placed in popular recruitment media in 2021 are for "programmers/analysts/software engineers", which is the advertisement category with the highest frequency of appearance¹
- According to the Office of the Government Chief Information Officer (OGCIO), the number of software publishing and IT-related services staff required in 2027 will reach 65,500, increasing by 2.5% year-on-year²
- Hong Kong's policy support for innovation and technology professionals is highlighted in the 2022 Policy Address, including the establishment of a \$5 billion Strategic Innovation Fund and the development of the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) in the Lok Ma Chau Loop³

1. Innovation and Technology Training Board: Innovation and Technology Sector - 2021 Manpower Update Report

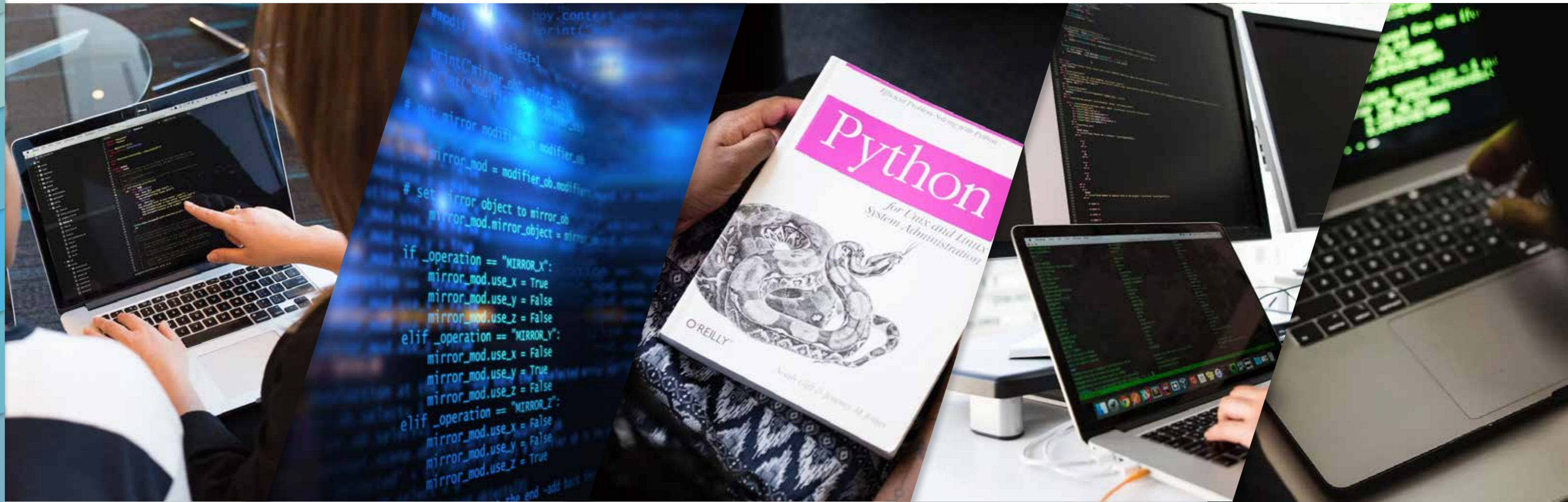
2. Office of the Government Chief Information Officer, Hong Kong (2016): Hong Kong IT Manpower

3. Hong Kong Special Administrative Region of the People's Republic of China (2022): The Chief Executive's 2022 Policy Address

Curriculum Highlights

Educational Program	<ul style="list-style-type: none"> • Programming Languages • Internet of Things • Computer Operating Systems • Data Science and Database • Numerical Computing
Career Program	<ul style="list-style-type: none"> • Certificate in Frontend Web Developer • Certificate in Backend Web Developer • Certificate in Python Web Framework Development Assistant • Certificate in Junior Python Data Analyst
Professional Program	<ul style="list-style-type: none"> • Learning JavaScript OOP • JavaScript Design Patterns • React for Single Page Applications • Web Application Deployment for Django
Academic Program	<ul style="list-style-type: none"> • Higher Diploma in Creative Design and Digital Applications (2 years) • Degree in Creative Design and Digital Applications (3 years) • BSc in Business, Finance and Technology





Python Web Framework Development

Using Python as a tool, students who take this course will get a chance to learn the development workflow of web application framework development created by Django, Flask, and so on. The course will help students join Python web development or related work by equipping them with the skills and process tools to develop back-end web applications.

The course provides students with the practical knowledge, cutting-edge techniques, and the open-source tools necessary for web applications development-related jobs, which can pave their ways to throw themselves into the digital economy and IT industry, maintaining their employment competitiveness.

Chinese 332 Hours Face to Face



Learning Outcomes

1. Master Python language fundamentals
2. Learn about popular web application servers
3. Learn about the various applications of web frameworks
4. Develop the Django web framework with Python
5. Understand the development workflow of web application framework development with Django, Flask
6. Master the tools for developing back-end web applications

Web Framework Development and Python

Python is a powerful programming language with vast capabilities. Thanks to its clear and compact code, it can create web-based information systems efficiently, making it perfect for web framework development. Moreover, there are many popular frameworks available like Django, Flask and Bottle to make web framework development work easier.





Digital Media Tools Development with Python

To let students develop digital media tools such as Blender, Inkscape, Gimp, Krita, etc. through the use of Python. The course will help students master the tools and help them enter the industry of digital media tools development or other IT related jobs.

The course provides students with the practical knowledge, cutting-edge techniques, and the open-source tools necessary for graphic tools development-related jobs, which can pave their way into the digital economy and IT industry, maintaining their employment competitiveness.

Learning Outcomes

1. Develop the Django web framework with Python
2. Gain basic knowledge of Python scripts
3. Learn about Python scripts in digital media tools such as Blender
4. Learn to edit and debug Python scripts
5. Learn about common Python libraries
6. Learn to utilize libraries in writing Python scripts

Digital Media Tools and Python

Python's greatest advantage lies in it being open source with a large, active community that keeps improving the language. Its usability and quality are guaranteed, and coupled with its wide accessibility, Python is a great choice for developing digital media tools, especially open source tools like Blender, at little to no cost.

Chinese 332 Hours Face to Face





Junior Python Data Analyst

This "Certificate in Junior Python Data Analyst" course aims to accelerate the training of local IT professionals and enhance their knowledge and skills in various industries of the digital economy.

Data is the core asset of the Fourth Industrial Revolution, and related technologies are the key drivers of social development. Data analysis is crucial to any digital industry, and the four major industries in Hong Kong - finance, tourism, trade and logistics, and professional services - are particularly in need of sophisticated and advanced data management and analysis systems to enter a new chapter of industry development.

Chinese 332 Hours Face to Face



Learning Outcomes

1. Be familiar with software development fundamentals
2. Be familiar with the tools and workflows required for Python software development
3. Be familiar with basic statistical principles as they apply to data analysis and visualization
4. Be familiar with Python data analysis techniques such as Pandas, Numpy, and other packages
5. Become familiar with advanced Python data analysis techniques such as Matplotlib, Seaborn, Plotly, and other suites
6. Design and create data analysis and visualization solutions using open source tools

The Power of Data

Big data is the core of the new digital economy trend. If companies can utilize and exploit the potential of big data, they can identify new market opportunities, better meet customer needs, and more accurately predict future trends. Industries that expect to grow in the digital economy and Internet economy need talents who can effectively collect, analyze, and understand data.





Frontend Web Development

Students who take this course will learn to use HTML5, CSS, JavaScript, and React.js to do front-end web developments and master the techniques and workflow tools for front-end web applications. After this course, students will get prepared for the front-end web development work and other vocations related to the IT industry

The course provides students with the practical knowledge, cutting-edge techniques, and the open-source tools necessary for web development-related jobs, which can pave their ways to throw themselves into the digital economy and IT industry, maintaining their employment competitiveness.

Chinese 283 Hours Face to Face



Learning Outcomes

1. Be familiar with the common tools and technologies used in web development, including HTML5, CSS3, JavaScript
2. Develop front-end web using HTML5, CSS, JavaScript, and React.js
3. Be familiar with the various submodules of web applications, including framework, software, and platforms
4. Understand how multiple cloud services in the front-end web affect the production of online media
5. Learn about user experience and create an effective web interface
6. Learn about mainstream standards through successful case studies like Netflix and Paypal

Web Application Talents In Great Demand

Hong Kong and the Mainland's labor policies are making great efforts to bring in web application development talents. The Hong Kong Government has decided to regularise the "Greater Bay Area Youth Employment Programme" in 2023, encouraging companies with operations in Hong Kong and the Greater Bay Area to hire and send local university/college graduates to work in Mainland cities in the Greater Bay Area to fill the overwhelming number of job vacancies. It is said that 16% of the computer and IT-related vacancies are web application engineering or web design positions.





Backend Web Development

Students who take this course will learn to use Node.js to do backend web developments and manage the backend database using MongoDB. In this course, students will master the techniques and workflow tools for backend web development and be prepared for the backend web development work and other vocations related to the IT industry

The course provides students with the practical knowledge, cutting-edge techniques, and the open-source tools necessary for web development-related jobs, which can pave their way into the digital economy and IT industry, maintaining their employment competitiveness.

Chinese 283 Hours Face to Face



Learning Outcomes

1. Be familiar with common tools and technologies used in back-end development, including Node.js, Middleware
2. Understand web application infrastructure through practice
3. Use MongoDB for basic CRUD operations
4. Store, manage, and extract complex web application data
5. Be familiar with the various submodules of web applications, including architecture, software, and platform
6. Understand how various cloud services affect the production of online media in the back-end website

Web Application Talents In Great Demand

During COVID, the digital economy stage was led by new technologies such as artificial intelligence, big data, Internet of Things, and cloud computing to integrate enterprise and market functions. Among them, network applications allow information integration, data sharing, resource deployment and material flow, and play an important role in supporting the resumption of work and production and stabilizing employment. It is obvious that the digital economy and information technology will play an irreplaceable role in future economic developments, so the training of related talents is a matter of great urgency.





Cyber Smart Kids

This course is designed to give kids a basic understanding of cyber security and online safety. The course will cover a variety of topics to teach kids the basics of online safety, including online safety, personal information protection and basic online safety concepts. With the assistance of interactive tools, reading materials, videos and other resources, students will learn how to stay safe online. By the end of the program, students will possess the knowledge and skills necessary to navigate the online world with confidence and safety.

Chinese 12 Hours Face to Face



Learning Outcomes

1. Understand the importance of cyber security and online security
2. Learn to identify potential online threats and how to avoid them
3. Learn to identify personal information and how to protect it
4. Understand the basics of password management
5. Understand how to stay safe online

Course Structure

Module 1 : Introduction to Cyber security
Understand cyber security and online security
Identify Potential Online Threats

Module 3: Password Management
Understand the basics of password management
Create strong passwords

Module 2 : Protection of Personal Information
Identify personal information
Understand the importance of protecting personal information

Module 4: Staying Secure Online
Best practices for staying safe online
How to report online threats





Fundamental DuPont Analysis

There are various ways to study financial markets and the DuPont Analysis can be useful for understanding the particular components which are driving company profits. The DuPont Analysis formula is a tool that can help avoid misleading conclusions regarding a company's profitability. In this course, investors will learn how to read and interpret the financial reports of public listed companies. By using the DuPont formula to build a simple table in 10 minutes, investors can also learn to seek for undervalued companies and avoid overvalued companies.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand the basic concept of DuPont Analysis
2. Learn to read and interpret financial reports
3. Know ways to use DuPont Analysis



Web Application Deployment for Django

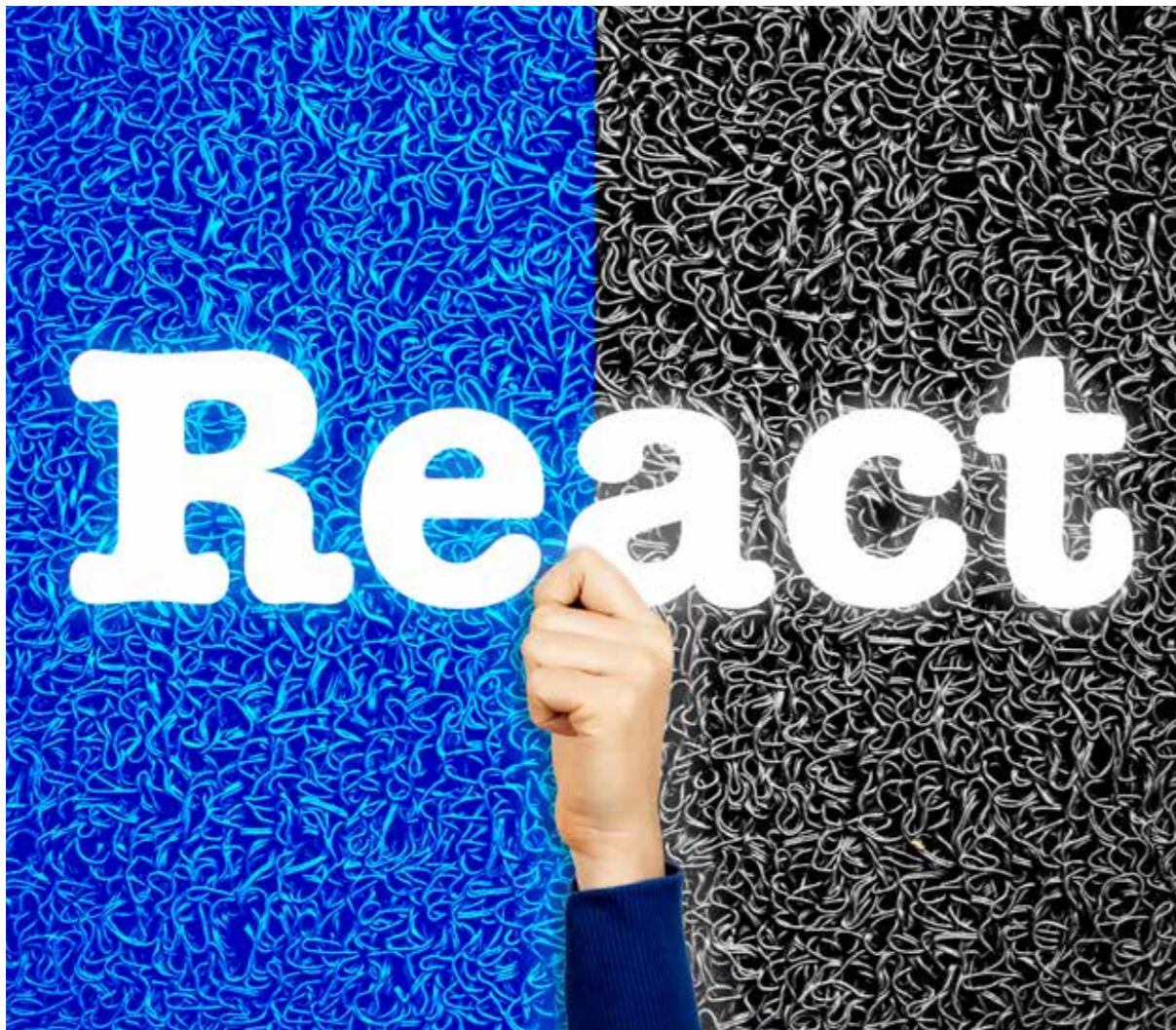
Django, being a web framework, needs a web server in order to operate. Since most web servers don't use Python by default, an interface is needed to make that communication happen. WSGI and ASGI are the two interfaces currently supported by Django. Besides interfaces, the type of hosting providers should also be considered, be it a Platform-as-a-service (PaaS) option or a virtual private server (VPS). In addition, the different levels of computing and network resources at different prices should be taken into account. By the end of this course, you should be able to consider all the above factors and successfully deploy your web applications.

Chinese 20 Hours Face to Face

Learning Outcomes

1. Learn ways to deploy with WSGI
2. Learn ways to deploy with ASGI
3. Learn the pros and cons of WSGI and ASGI
4. Recognize factors to be considered when choosing the hosting provider
5. Be able to prepare a checklist before deployment





React for Single Page Applications

To create a faster and more effective web application, the single page application would be a solution. Instead of the default method of a web browser loading entire new pages, the single page application interacts with the user by just dynamically rewriting the current web page with new data from the web server. In this course, you can learn to extend your React skills with the JavaScript library Redux, which adds state management capabilities, to create single page applications.

Chinese 60 Hours Face to Face

Learning Outcomes

1. Know the advantages of single page applications
2. Learn the usage of React Router
3. Understand the use of Redux for state management
4. Understand different React Hooks
5. Learn ways to separate code into Client side and Server side code blocks



Web Application Deployment for Node Development

In this course, you will learn how to build a website from scratch till deployment with a domain name. Both backend and frontend programming languages like HTML, CSS and JavaScript will be used while building your personal website. By the end of this course, you will acquire the skill of deploying your personal website to the Internet from scratch. With this newly acquired knowledge, you should be able to develop any website you like.

Chinese 20 Hours Face to Face

Learning Outcomes

1. Learn the basics of HTML, CSS and JavaScript
2. Build your own website
3. Learn ways to deploy your website
4. Know the factors to be considered when choosing the hosting provider





Python Django REST framework

Django is a Python Web Framework that is used for web development. The Django framework uses a set of design principles that delivers one of the most productive web development processes compared to many other web frameworks. Django is a Full-stack Web Framework which can be used to build both frontend and backend web applications, or you can just build your backend REST API using the Django REST Framework.

A RESTful API acts as a translator between two machines communicating over a web service. And the Django REST framework is a powerful and flexible toolkit for building Web APIs which support authentication policies including packages for OAuth1a and OAuth2, and serialization for both ORM (Object-relational Mappers) and non-ORM data sources.

Chinese 100 Hours Face to Face

Learning Outcomes

1. Learn the installation of Django and the configuration of the production environment
2. Understand the concept of RESTful API and how to build it
3. Understand basic Python and Django syntax and the file structure of the framework
4. Integrate the Django REST Framework with frontend frameworks
5. Build your own web application with Python Django REST framework



From PHP to Laravel Framework

Laravel is an open-source PHP framework, which is robust, expressive and fully featured. It follows a Model-View-Controller design pattern with elegant syntax that is easy to understand. As a full stack framework, Laravel allows users to build large applications which are made up of reusable, independent and decoupled components. The web applications thus designed are more structured and pragmatic. Laravel attempts to take the pain out of development by providing pre-built tools and functions that can cut down development time.

Chinese 200 Hours Face to Face

Learning Outcomes

1. Learn the installation of Laravel and the configuration of the production environment
2. Understand the logic of the Model-View-Controller design pattern
3. Understand the basic PHP and Laravel syntax and the file structure of the framework
4. Learn to use Blade Templates for frontend
5. Learn to add authentication and authorization to your web application





React for Frontend Design

React, one of the most popular JavaScript libraries, is a free and open-source library developed and maintained by Meta. It enables developers to build modern and interactive user interfaces in an easy and efficient way.

React is compatible with any Model–View–Controller and Component-based Render Architecture Framework. This unique architecture and third-party support ecosystem of React takes both web and mobile application development to the next level. For frontend design, the concept of virtual DOM (VDOM) in React can greatly enhance the performance of a UI.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand the concept of virtual DOM
2. Learn the basic concepts of React: state, props, class and component
3. Learn the setting up and configuration of a React application
4. Learn the application of the Webpack module bundler
5. Know the difference between React function components and class components



Learning JavaScript OOP

Object-oriented programming (OOP) is the most popular programming paradigm used for software development, and JavaScript is one of the more significant object-oriented languages. In order to become a senior JavaScript developer, you should upgrade your JavaScript OOP skills and get a thorough understanding of objects and classes. Once you know the internal structure of JavaScript, you will be able to write better and more efficient JavaScript code.

Chinese 12 Hours Face to Face

Learning Outcomes

1. Understand the concepts of 'Object' and 'Class'
2. Comprehend the usage of the high order function
3. Build classes and learn the concept of prototype in JavaScript
4. Learn the uses of generator, yield and declarator





Advanced Javascript using ES6 standard

Most browsers are based on the ES6 standard nowadays. So, as a web developer, you should upgrade your knowledge of the ES6 standard as well. If you know the ES6 standard well, you will be able to write more effective, efficient JavaScript code.

This course is based on the ECMA-262 standard. Since JavaScript is not an easy language to learn, you need a good structural view in order to grasp JavaScript features. Otherwise, JavaScript will be confusing if you don't follow the ES6 standard.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand how JS processes code
2. Learn the lifecycle of variables and the difference between VAR, LET and CONST
3. Understand Array Helper functions
4. Know the importance of closure and its basic concepts
5. Understand the usage of the arrow function
6. Know the core concept of the keyword "THIS"
7. Understand the Asynchronous and Await function
8. Be able to unpack values by using destructuring assignment of JavaScript



JavaScript Design Patterns

Having concrete skills in JavaScript software design patterns is one of the basic requirements of a software engineer who needs to handle enterprise projects on an extensive scale. Design patterns are known as the best, reusable practices in software design for solving common problems. Some common design patterns include Observer, Model View Controller (MVC), Factory and Singleton. Knowing design patterns enable the developer to write beautiful, structured, and maintainable JavaScript code. In this course, students will learn the steps and patterns that can be applied to avoid production problems and stay up-to-date with the latest, best practices.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand the structure of design patterns
2. Get to know JavaScript syntax and features
3. Learn the applications of different JavaScript design patterns
4. Learn tips to pass a technical interview





Build Cross Platform Application with Electron

Electron, developed by Github, is a popular open source framework that is used to build cross-platform desktop applications using JavaScript, HTML, and CSS. This allows developers to get rid of having different codebases for the same application across different platforms. Electron can also be used to create GUI for Node.js applications and build a better UX for the applications. This course is for developers who have basic knowledge of JavaScript and who want to build a modern application with Electron that can be run on many platforms.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand the concept of the Electron Process Model
2. Get to know the project structure and configuration of an Electron app
3. Be able to build a cross platform electron app



Machine Learning with R

R is a programming language for statistical computing and graphics that you can use to clean, analyse, and graph data. With its popularity as a statistical programming language rapidly increasing with each passing day, R is becoming one of the most preferred tools for data analysts and data scientists who want to make sense of large amounts of data as quickly as possible. R has a rich set of libraries that can be used for basic as well as advanced data analysis and machine learning tasks, such as CARAT, Random Forest and E1071.0

Chinese 40 Hours Face to Face

Learning Outcomes

1. Understand the concepts of machine learning and algorithms
2. Learn the difference between supervised and non-supervised machine learning models
3. Understand basic syntax and functions of R
4. Learn ways to implement machine learning algorithm with R





Full-stack Web Development

This course will focus on knowledge related to full-stack web development. Students enrolled in this course will learn the basics of HTML, the application of CSS, website creation and development, React.js, Python and Django, and other topics.

The course will introduce students to scenarios and specific uses of HTML, CSS, and other tools. In addition, while mastering the technical and workflow tools, students will also learn about the specific responsibilities of a full-stack web developer on a project during the course.

Chinese 45 Hours Face to Face

Learning Outcomes

1. Master the basics of HTML
2. Master the basics of CSS, including how to use it to complete responsive web design, how to arrange content on the site, etc.
3. Master the methods of using blenders, selectors, Sass functions, Bootstrap, and JavaScript syntax in web development
4. Master the basics of React.js
5. Master how to use Python extension libraries, such as Numpy and Pandas, for data visualization and analysis of amplification
6. Mastering how to use Django to build web applications and front-end and back-end methods



Python Data Analysis and Decision Making Bootcamp

This camp allows participants to experience data analysis and decision-making using Python. Even if you have no prior experience with Python, you can learn it comfortably in this camp.

Our instructors will guide students through the basics of Python, starting with basic syntax, and then lead them through more complex data analysis operations in a hands-on setting.

At the end of the camp, students will be required to complete a knowledge assessment to demonstrate their knowledge mastery.



English 40 Hours Face to Face

Learning Outcomes

1. Master the basic syntax and applications of Python
2. Understand how to visualize data and interpret data
3. Master the use of images to analyze data
4. Master the collection and organization of information from multiple sources, such as the extraction of data from the application interface through Python



Advanced CSS and Sass for Frontend Developers

This course is for frontend web developers who want to have a deeper understanding on how CSS works. Sass is the most mature, stable, and powerful professional grade CSS extension language in the world. The concept of Partials in Sass enables a frontend design to be separated into small and easy-to-manage parts. Using Partials, as a frontend web developer, you can write your own CSS framework with reusable components and build multiple webpage templates in a more organized and efficient way.



Chinese 40 Hours Face to Face

Learning Outcomes

1. Learn modern CSS functions like flexbox, animation, transition and filter
2. Understand the concept of preprocessor
3. Learn the installation of Sass
4. Understand Sass basics like variables, nesting, partials and modules





Web Server Course

In this course, you'll uncover the inner workings of Web Servers. We'll dive into server architecture, explaining the distinction between serving static and dynamic content. You'll discover the crucial roles of HTTP/HTTPS in content delivery and explore foundational server technologies such as Apache, NGINX, and IIS. Understanding server configurations is key, including parameters like server timeouts, MIME types, and redirections.

Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Knows the core functionalities of a web server
2. Knows the journey of a website request from a user to the web server
3. Learns to conduct basic server configurations and website hosting tasks
4. Learns to identify common security measures associated with web servers
5. Learns to install and configure NGINX
6. Learns the basic operation of NGINX



Database Server Course

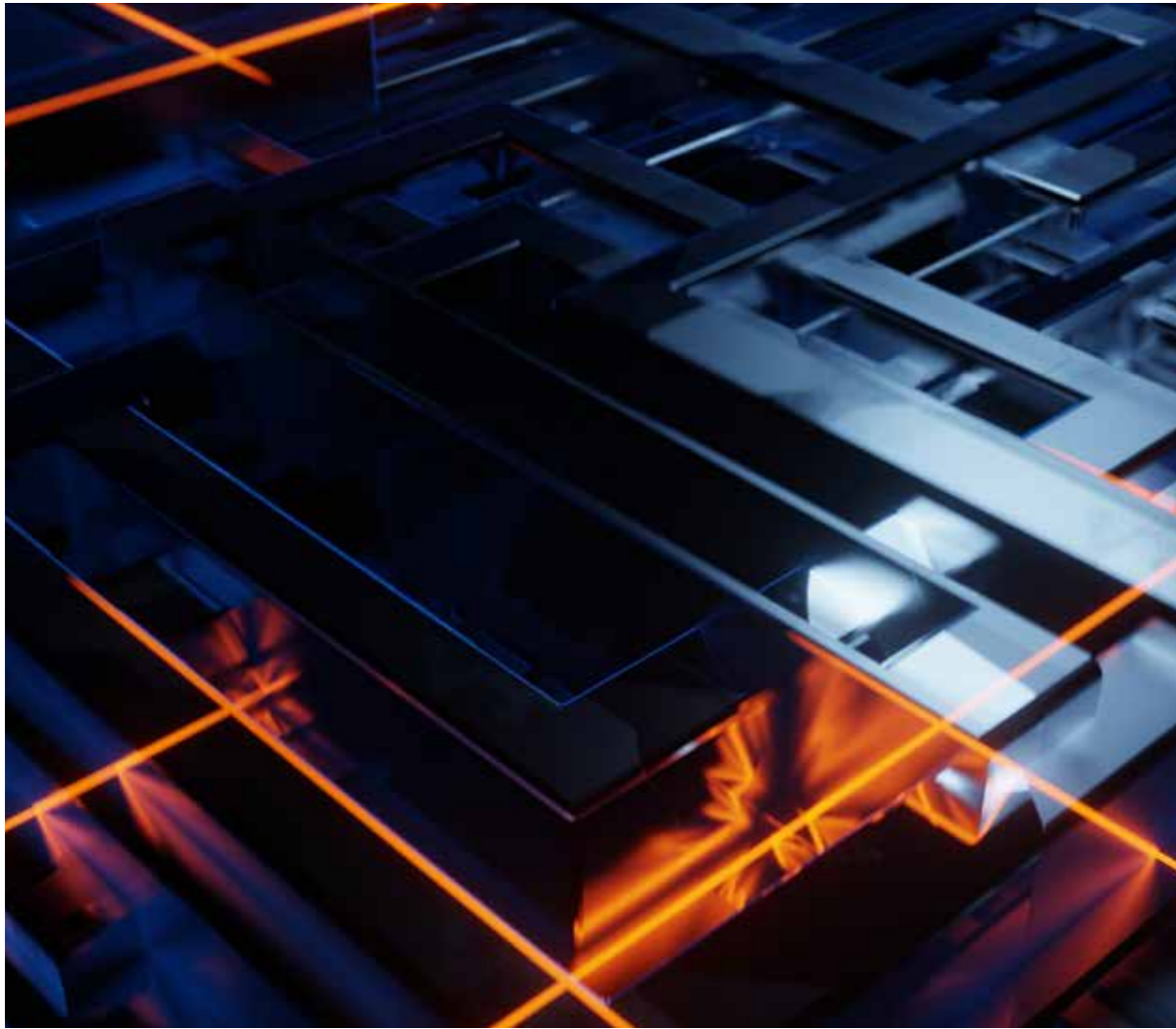
In this course, you'll uncover the inner workings of Web Servers. We'll dive into server architecture, explaining the distinction between serving static and dynamic content. You'll discover the crucial roles of HTTP/HTTPS in content delivery and explore foundational server technologies such as Apache, NGINX, and IIS. At last, we will go through the main elements of server configurations, including parameters like server timeouts, MIME types, and redirections.

Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Know the function of a database server in a digital environment
2. Learn to differentiate between various types of databases and their appropriate uses
3. Learn to perform rudimentary database queries and operations
4. Learn to evaluate essential database security and optimization practices
5. Learn to install and configure MariaDB
6. Learn the basic operation of MariaDB





FTP Server Course

In this course, we'll start by delving into the history of FTP, tracing its evolution, and uncovering its vital role in data transfer. As we progress, we'll dive deep into the technicalities of passive and active FTP modes, grasping the nuances that define their respective use cases. You'll also explore a range of popular FTP server software and become proficient in user authentication, directory listings, and file transfer protocols.

Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Know the purpose and operations of an FTP server
2. Learn to execute basic FTP commands and transfers
3. Understand the distinction between FTP, SFTP, and FTPS
4. Know to implement basic security practices for FTP servers
5. Learn to install and configure vsftpd
6. Learn the basic operation of vsftpd



VPN Server Course

In this course, we'll explore the underlying technologies that make VPNs secure and efficient, including tunneling protocols such as PPTP, L2TP, and OpenVPN. Understanding the critical role of encryption in VPNs, especially with SSL/TLS, will be a key focus. You'll also gain insights into the conceptual differences between site-to-site and client-to-server VPNs and learn about their real-world applications.

Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Know the foundational concepts behind VPN servers and their applications
2. Learn to differentiate between various VPN protocols and their use-cases
3. Learn to connect to a VPN server and establish a secure session
4. Recognise the importance of VPNs in maintaining privacy and data security
5. Learn to install and configure OpenVPN
6. Learn the basic operation of OpenVPN





Private Cloud Course

In this course, you'll begin by exploring the virtualization technologies that underpin private cloud infrastructures, delving into the world of hypervisors and VM managers. As you progress, you'll become acquainted with popular private cloud solutions like OpenStack and VMware vCloud, understanding the principles of orchestration, scalability, and how private clouds differ in infrastructure management compared to traditional data centers.

Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Learn to distinguish between private, public, and hybrid cloud models
2. Know the architecture and components of a private cloud environment
3. Know to highlight the benefits and challenges of implementing a private cloud
4. Learn to recognize use-cases where a private cloud is a preferred solution
5. Learn to install and configure Nextcloud
6. Learn the basic operation of Nextcloud



Remote Desktop Course

In this course, you'll gain a deep understanding of protocols like RDP, VNC, and SSH, each with unique features and applications. We'll also explore a range of software solutions, including popular options like TeamViewer, AnyDesk, and Microsoft's Remote Desktop. Furthermore, you'll grasp the crucial role of port forwarding, encryption, and authentication in ensuring a secure remote connection.

Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Know Remote Desktop and its primary uses
2. Learn to initiate and manage a remote desktop session
3. Learn to troubleshoot common issues encountered during remote sessions
4. Learn to evaluate security practices associated with remote desktop usage
5. Learn to install and configure Apache Guacamole
6. Learn the basic operation of Apache Guacamole





Mail Server Course

In this course, you'll dive into the entire journey of an email, from sending to reception, through detailed explanations of protocols like SMTP, POP3, and IMAP. We'll explore the critical role of MX records in mail routing and delve into the challenges of spam, equipping you with an understanding of filters and blacklists. Additionally, you'll learn about popular mail server solutions such as Microsoft Exchange and Postfix.

Chinese or English 3 Hours Face to Face

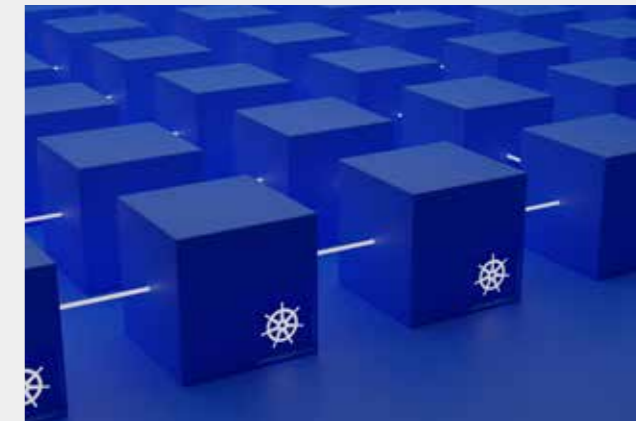
Learning Outcomes

1. Know the role of mail servers in electronic communication
2. Learn to differentiate between SMTP, POP3, and IMAP protocols
3. Know to execute basic email configurations and operations
4. Understand to implement foundational mail server security measures
5. Learn to install and configure iRedMail
6. Learn the basic operation of iRedMail



Backup Software Course

In this course, you'll delve into the world of data protection and recovery. We'll start by understanding the various backup strategies, from full-system backups to granular data backups. You'll explore the significance of compression, encryption, and deduplication in modern backup solutions. Additionally, we'll introduce you to popular backup software solutions and guide you through the importance of off-site storage and seamless integration with cloud backup services.



Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Know the core principles of backup and recovery
2. Learn to differentiate between full, incremental, and differential backups
3. Know to execute basic backup and restore operations using software
4. Know to assess the relevance of backup schedules and best practices
5. Learn to install and configure Duplicati
6. Learn the basic operation of Duplicati



Version Control Service Course

In this course, we'll explore the concepts of commits, branches, merges, and conflicts, providing a comprehensive understanding of version control systems. Furthermore, we'll delve into the role of platforms like GitHub, Bitbucket, and GitLab in collaborative development and continuous integration, ensuring you're well-equipped with the knowledge and tools needed to excel in software development and version control.



Chinese or English 3 Hours Face to Face

Learning Outcomes

1. Know version control and its significance in software development
2. Learn to recognize the differences between centralized and distributed version control systems
3. Learn to perform basic operations using a version control system (e.g., Git)
4. Learn to identify best practices for managing code changes collaboratively
5. Learn to install and configure Gitea
6. Learn the basic operation of Gitea





Internet of Things



Internet of Things

Connecting the Internet of Things

The Internet of Things (IoT) has transformed the way we interact with technology and objects around us. From smart homes to connected cars, IoT devices have become a part of our daily lives. As IoT technology evolves, the potential for innovation and growth is limitless. For businesses, the IoT provides a wealth of opportunities to optimize operations and reduce costs. By leveraging data collected from sensors and connected devices, businesses can gain insights into customer behavior, production processes, and environmental conditions, leading to improved decision-making and new business opportunities.

Consumers also benefit from the IoT, as it offers additional benefits beyond the convenience of connected devices. For example, wearable technology can be used to track health and fitness goals, while smart home devices can automate mundane tasks and improve energy efficiency. As the IoT continues to grow, there will be a demand for skilled professionals who can develop, maintain, and optimize IoT systems.

Why should I explore the field of IoT?

Our courses provide students with the practical knowledge, latest technologies, and open-source tools needed to excel in the field of Internet of Things (IoT). By learning IoT, you can tap into a world of endless possibilities and opportunities in the digital economy and IT industry.

1. **In-demand skills:** IoT is at the forefront of technological innovation, with a wide range of applications across industries. By acquiring IoT skills, you position yourself for numerous career opportunities in fields such as smart cities, industrial automation, healthcare, and logistics.
2. **Solving real-world challenges:** IoT enables the creation of smart systems that address real-world challenges, such as improving energy efficiency, enhancing safety and security, and optimizing resource management. By exploring IoT, you can contribute to solving pressing issues and making a positive impact.
3. **Interdisciplinary collaboration:** IoT requires collaboration between different disciplines, including hardware design, software development, data analytics, and cybersecurity. By immersing yourself in the field, you enhance your ability to work effectively in multidisciplinary teams and tackle complex projects.
4. **Entrepreneurial potential:** IoT opens up opportunities for entrepreneurship and innovation. As connected devices continue to proliferate, there is an increasing need for innovative IoT solutions and services. By exploring the field of IoT, you can develop the skills and mindset needed to create your own IoT startup or contribute to entrepreneurial ventures.



IoT drives change in the Digital Economy

The digital economy is rapidly evolving, and the IoT is at the forefront of this change. By providing real-time data and insights, the IoT enables businesses to streamline their operations, improve efficiency, and reduce costs. Smart factories, for instance, can optimize their production processes by using real-time data to reduce downtime and increase output. In logistics and supply chain management, the use of IoT-enabled sensors can improve tracking of goods, reduce waste, and enhance delivery times.

In addition to these direct benefits, the IoT also creates new opportunities for innovation and growth in the digital economy. The explosion of data from connected devices requires a new set of skills, such as data analysis, machine learning, and cybersecurity. With the IoT driving change, there will be a demand for professionals with these skills who can develop new products and services, and create value for businesses and consumers alike.

Latest Developments

- According to IOT Analytics, the number of connected IoT devices growing 18% to 14.4 billion globally in 2022; by 2025, this could increase to 27 billion connected IoT devices¹
- An IEEE Study of 50 chief technology officers, chief information officers and IT directors found that Industrial Internet of Things (IIoT) will be a top 5 area of technology for 2023 and beyond²
- Industrial Internet of Things (IIoT) market size worldwide is set to cross the 100 billion US dollar mark by 2024³

1. IOT Analytics (2022): State of IoT 2022

2. IEEE (2023): Cloud Computing, 5G, Metaverse, Electric Vehicles Among the Most Important Areas of Technology in 2023, Says New IEEE Study

3. Statista (2020): Industrial Internet of Things (IIoT) market size worldwide from 2017 to 2025, by region

Curriculum Highlights


Educational Program	<ul style="list-style-type: none"> • Internet of Things • Internet of Things for Juniors • Computer Hardware and Integrated Circuit Design • Networking and Cloud Computing
Career Program and Professional Program	<ul style="list-style-type: none"> • Internet of Things: Systems and Devices • Cyber Security Basics • Introduction to Server Setup • Web Server Setup • Business Intelligence and Enterprise Resource Planning
Academic Program	<ul style="list-style-type: none"> • Higher Diploma in Office Transformation • BSc in Business, Finance and Technology • MSc in Office Tools and Digital Transformation • BSc in Office Tools and Digital Transformation



Internet of Things: Systems and Devices

This course is designed to provide adult learners with the knowledge and skills necessary to pursue a career in IoT or to apply IoT concepts to their existing careers. Through this course, students will develop a strong foundation in IoT concepts and skills, including hardware and software development, cloud computing, and data analytics. They will gain hands-on experience with a variety of IoT devices, as well as experience working with popular cloud platforms such as AWS IoT. The course includes a final project, which will allow students to showcase their understanding of IoT concepts and skills.

 Chinese · English

 120 Hours

 Face to Face

Course Outline

Module 1	Introduction to IoT	<ul style="list-style-type: none"> •What is IoT? •Applications of IoT •Overview of the course and final project
Module 2	Microcontrollers	<ul style="list-style-type: none"> •What is a microcontroller? •Basic programming concepts •Hands-on activity: Introduction to coding with Arduino
Module 3	Sensors	<ul style="list-style-type: none"> •What are sensors? •Types of sensors •Hands-on activity: Working with a temperature sensor
Module 4	Actuators	<ul style="list-style-type: none"> •What are actuators? •Types of actuators •Hands-on activity: Controlling an LED with code
Module 5	IoT Communication	<ul style="list-style-type: none"> •How IoT devices communicate with each other • Hands-on activity: Creating a simple IoT project
Module 6	Cloud Computing	<ul style="list-style-type: none"> •Introduction to AWS IoT •Hands-on activity: Integrating IoT devices with AWS
Module 7	Data Analytics	<ul style="list-style-type: none"> •Introduction to Python and Tableau •Hands-on activity: Analyzing IoT data
Module 8	IoT Security	<ul style="list-style-type: none"> •Overview of IoT security •How to keep IoT devices secure •Hands-on activity: Creating a secure IoT project
Module 9	Final Project Preparation	<ul style="list-style-type: none"> •Brainstorming and planning for final project •Reading: More Internet of Things
Module 10	Project Implementation	<ul style="list-style-type: none"> •Smart Home Automation System

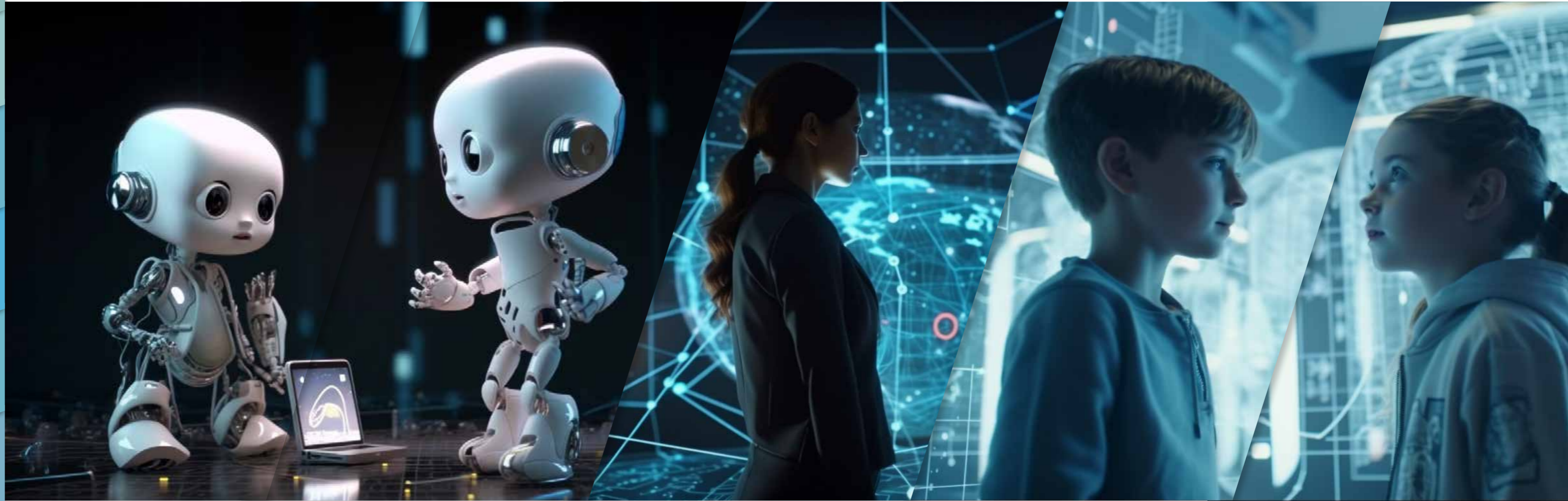


Internet of Things (IoT)

The Internet of Things is a rapidly growing field, and there is a high demand for skilled professionals who can develop and manage IoT systems. In recent years, the number of connected devices has increased significantly, and this trend is expected to continue. IoT has the potential to transform various industries, such as healthcare, agriculture, manufacturing, and transportation, by enabling real-time data collection and analysis, automation, and remote monitoring. However, the complexity and security challenges of IoT systems require expertise in areas such as software development, data science, cybersecurity, and networking. As a result, professionals with IoT skills are in high demand and can command competitive salaries.

Learning Outcomes

1. Develop an understanding of IoT concepts and technologies
2. Learn how to assemble and program IoT devices
3. Gain experience with cloud computing platforms and data analytics
4. Develop teamwork and problem-solving skills
5. Foster creativity and critical thinking skills



Internet of Things for Juniors

IoT is an increasingly important and pervasive technology in our world, and it is important for children to be exposed to it from a young age. This course is designed to introduce 3rd graders to the basic concepts of IoT in a fun and engaging way. By the end of the course, students will have a basic understanding of IoT, how IoT devices are connected, and how they communicate with each other. They will have developed simple IoT projects using microcontrollers and sensors and fostered an interest in STEM fields.

Chinese ▾ English 12 Hours Face to Face

What is Internet of Things (IoT) ?

The Internet of Things (IoT) refers to the network of physical objects or "things" that are embedded with sensors, software, and other technologies to connect and exchange data with other devices and systems over the internet. IoT enables the seamless communication and integration of devices, resulting in increased efficiency, convenience, and automation in various aspects of daily life and industries.

Learning Outcomes

1. Learn the concept of the Internet of Things (IoT) through fun and engaging activities
2. Be able to explain how IoT devices are connected to and communicate with each other
3. Gain hands-on experience through creating simple IoT projects using microcontrollers and sensors
4. Cultivate creativity, critical thinking, and problem-solving skills



Cyber Security Basics

This course is designed to provide employees with the knowledge and skills necessary to protect a company's online presence. The course will cover a variety of topics including cyber security threats, risk management, and cyber security incident response. The course is designed to equip employees with the ability to identify, prevent and mitigate cyber threats in order to protect the company's online business.

By the end of the course, students will have a good understanding of cyber security concepts and common practices, and be well-equipped to safeguard their company's online presence.

 Chinese  40 Hours  Face to Face



Learning Outcomes

1. Understand the basic concepts of cyber security and online threats
2. Learn to identify potential cyber threats and how to prevent them
3. Learn to develop and implement risk management strategies
4. Understand the basics of cybersecurity and secure network design
5. Learn to develop and implement incident response strategies
6. Understand the legal and ethical implications of cybersecurity
7. Be able to develop and implement a cybersecurity plan for a specific company

Course Structure

Module 1: Introduction to Cybersecurity
Understand Cybersecurity and Online Threats
Identify Potential Cyber Threats

Module 2: Risk Management
Develop and implement a risk management strategy
Understand the importance of risk assessment

Module 3: Cybersecurity
Understand the basics of cybersecurity
Secure network design

Module 4: Incident Response
Develop and implement an incident response strategy
Identify and contain cyber threats

Module 5: Legal and Ethical Implications of Cybersecurity
Understand the legal and ethical implications of cybersecurity
Develop a cybersecurity policy





Business Intelligence and Enterprise Resource Planning

Students will be introduced to Krystal's open source business management systems and learn to master these tools to perform data analysis and business administration tasks that are crucial to enterprise management. After this course, students will be prepared for Business Intelligence (BI), Enterprise Resource Planning (ERP) jobs and other vocations related to the IT industry.

The course provides students with the practical knowledge, cutting-edge techniques, and the open-source tools necessary for BI and ERP jobs, which can pave their way into the digital economy and IT industry, maintaining their employment competitiveness.

Chinese 332 Hours Face to Face



Learning Outcomes

1. Be familiar with the use of Krystal's business management systems, the related operation interface, and installation methods
2. Be familiar with the basic software development process
3. To understand the importance of ERP for business administration
4. Use the Krystal Enterprise Resource Planning Platform as the basis for developing enterprise resource planning tools for accounting, human resources, marketing and other corporate departments
5. To understand the importance of business intelligence for business operations and corporate strategies
6. Use the Krystal Business Intelligence platform as the basis for developing real-time reporting tools for enterprises
7. Design and develop business intelligence dashboards using data generated by the ERP platform

The Importance of Business Management Systems

In the post-COVID era, the importance of digital transformation has increased significantly. However, while most companies recognize digital technology as a business development trend, they are concerned that they do not have sufficient understanding of the technology they need to apply, or do not have sufficient capacity and resources to undertake digital transformation. As such, there is a great demand for business intelligence and enterprise resource planning skills to help companies better understand, plan and utilize their resources to complete their digital transformation.





Web Server Setup

A web server is not a physical server, but software that runs on a server. As the name suggests, the job of web servers is to “serve websites” on the internet. Apache is one of the most popular web servers in existence and an open-source platform maintained by the Apache software foundation. One of the biggest challenges web servers face is handling a large number of concurrent sessions and multiple concurrent requests. Yet, Apache can ensure that the communication between the web server and the web client is smooth and consistent. For its advantages, we will be learning how to setup the Apache server in this course.

Chinese 40 Hours Face to Face

Learning Outcomes

1. Learn basic knowledge of web servers
2. Know the difference between Apache and other major web servers
3. Learn to setup and configure the Apache server
4. Learn solutions to some common problems and issues



Networking and Cloud Computing

Through virtual networks, cloud computing provides on-demand availability of computing power and data storage, giving rise to new business models and unrivaled convenience to consumers. By drawing conceptual diagrams themselves, students will understand the architecture of cloud computing and identify cloud computing business models in everyday services. Students end this course by discussing whether cloud computing alleviates or enforces inequity and inequality.

Chinese \ English 3 Hours Face to Face

Rundown

- Structure of Networks: Explores components of networks, network protocols, the IP suite, and how the Internet has enabled cloud computing
- Architecture of Cloud Computing: Students are asked to illustrate computing at the local, edge, fog, and cloud levels using conceptual diagrams
- Living in the Cloud: introduction to the SaaS, IaaS, PaaS, and FaaS business models enabled by cloud computing, and identification in students' daily lives
- Disparity in the Air: Cloud computing development is compared against economic indicators on inequity for a critical analysis of the social impacts of technology





Internet of Things

The Internet of Things (IoT) connects physical objects to the Internet, forming a powerful solution for modern design problems. The course provides students with practical experience in designing, prototyping, and evaluating IoT systems. By the end of the course, students will have fundamental skills working with open-source hardware and software of IoT.

Chinese · English 3 Hours Face to Face

Rundown

- Building blocks of Embedded Systems: Introduction to the scope of IoT and its basic components
- Arduino Basics: Step-by-step, hands-on coding project making use of temperature and light sensors
- Appreciating IoT: Identify key uses of IoT in daily lives and anticipate security risks of using IoT



Introduction to Server Setup

Servers are an integral part of today's offices and having knowledge of them can be of great benefit to businesses. This course will lead students to learn how to build and configure a self-hosted server from scratch. Topics include Linux/UNIX operating system installation and common instructions, user accounts and privileges, TCP/IP principles, OSI seven-layer protocol, DHCP and DNS concepts, router settings, Nginx maintenance and installation, Firewall and Proxy Server-related features and practical work. Additional content such as creating backups, configuring security features, upgrading software, SSL authentication / OpenSSL will also be covered.

Chinese 99 Hours Face to Face

Learning Outcomes

1. Learn to use the Linux operating system
2. Learn to set up and manage enterprise servers
3. Learn to install your personal Web Server, Mail server and FTP server





Accredited Academic Programs



Accredited Academic Programs



Accredited Academic Programs

The DECT Global Series - Academic Program is a set of accredited programs for those who have completed their K-12 learning path to acquire substantial certifications for their digital economy skills. Empowered by the DECT Partnership Scheme, we work closely with Universities and Higher Education institutions to launch DECT Institutes around the world, supporting our various Diploma, Higher Diploma, Bachelors, Masters, and Doctorate programs spanning 40+ DECT learning areas.

Dual certification upon graduation

Compliance with national standards allows our program graduates to be awarded with accredited certifications upon completion of the Diplomas and Degrees under the Academic Program. Furthermore, the Krystal Qualification Framework, which specializes in testing the digital readiness level of our students, grants an additional method of accreditation that guarantees a learner's level of achievement. By following the learning pathway proposed by Krystal QF, students can embark on a lifelong learning journey and continuously upgrade their skills as the world of technology evolves.

Rigorous instructor and curriculum delivery requirements

Quality assurance mechanisms designed by national awarding bodies, as well as those put in place by Krystal Institute's CIR program, ensure that instructors and delivery of curricula are up to par with DECT standards. In terms of DECT competency, we mandate that instructors attain at least one digital readiness level above the level of teaching; we also require additional pedagogical training specific to technology education, as part of our Train-the-Trainer protocol.



Program Highlights

Dual quality assurance standards

Whether working with self-accredited partners or partnering institutions that comply with their respective national accreditation standards, Krystal Institute diligently and rigorously adheres to the quality assurance mechanisms set forth by our academic partners. In Hong Kong, we work closely with partners to structure our program designs according to requirements of the Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ). Internationally, we work with awarding bodies such as under the United Kingdom's The Office of Qualifications and Examinations Regulation (Ofqual) to deploy global programs. At the same time, Krystal Institute's internal Continuous Improvement and Review (CIR) program ensures that curriculum, instructor, and delivery standards are suitable for digital skills education, resulting in a reinforced pedagogical excellence.

Curriculum Highlights

Diplomas and Higher Diplomas	<ul style="list-style-type: none"> • Diploma in Creative Design and Digital Applications (1 year) • Higher Diploma in Creative Design and Digital Applications (2 years) • Higher Diploma in Office Transformation
Bachelors Degrees	<ul style="list-style-type: none"> • Degree in Creative Design and Digital Applications (3 years) • BSc in Business, Finance and Technology
Masters Degrees	<ul style="list-style-type: none"> • MSc in Technical Artist for Game Development • MSc in Advanced Game Programming



MSc in AI Computer Graphics Production

2 Years Full Time Master Programs

- Master Degree in AI Computer Graphic Production
- Master Degree in AI Computer Graphic Production Engineering
- Master Degree in AI Computer Graphic Production System Engineering
- Master Degree in AI Computer Graphic Production Management and Engineering
- Master Degree in AI Education
- Master Degree in Enterprise Digital Transformation



In today's rapidly evolving digital landscape, the field of computer graphics (CG) production has become increasingly complex and demanding. As the demand for high-quality visual content continues to rise, there is a growing need for professionals who possess a unique blend of creative skills and technical expertise to meet the challenges of the industry. Traditional CG production courses have provided a strong foundation in artistic skills and technical tools, but they often lack the integration of cutting-edge technologies that can revolutionize the field. That's where the AI Computer Graphic Production program comes into play.

The AI Computer Graphic Production program is designed to equip aspiring artists, engineers, system engineers, and production managers with the skills and knowledge required to excel in this dynamic industry. By incorporating the transformative power of artificial intelligence (AI) into the traditional CG production workflow, this program prepares students for the future of visual content creation.

AI has already made significant advancements in various domains, and the CG production industry is no exception. With AI algorithms, machine learning, and deep learning techniques, professionals can now leverage powerful tools to automate and enhance various aspects of the production process. From generating realistic 3D models to automating animation and VFX tasks, AI brings unprecedented efficiency, speed, and creativity to the table.

One of the key advantages of incorporating AI into CG production is its ability to handle complex and repetitive tasks. With AI tools, artists and engineers can offload time-consuming tasks to intelligent algorithms, allowing them to focus on more creative and strategic aspects of their work. This not only accelerates the production timeline but also frees up resources for experimentation and innovation.

Moreover, AI enables the analysis of vast amounts of data, leading to improved decision-making and predictive capabilities. By analyzing past project data, production trends, and audience preferences, professionals can make informed choices that optimize resource allocation, streamline production pipelines, and ultimately deliver content that resonates with audiences.

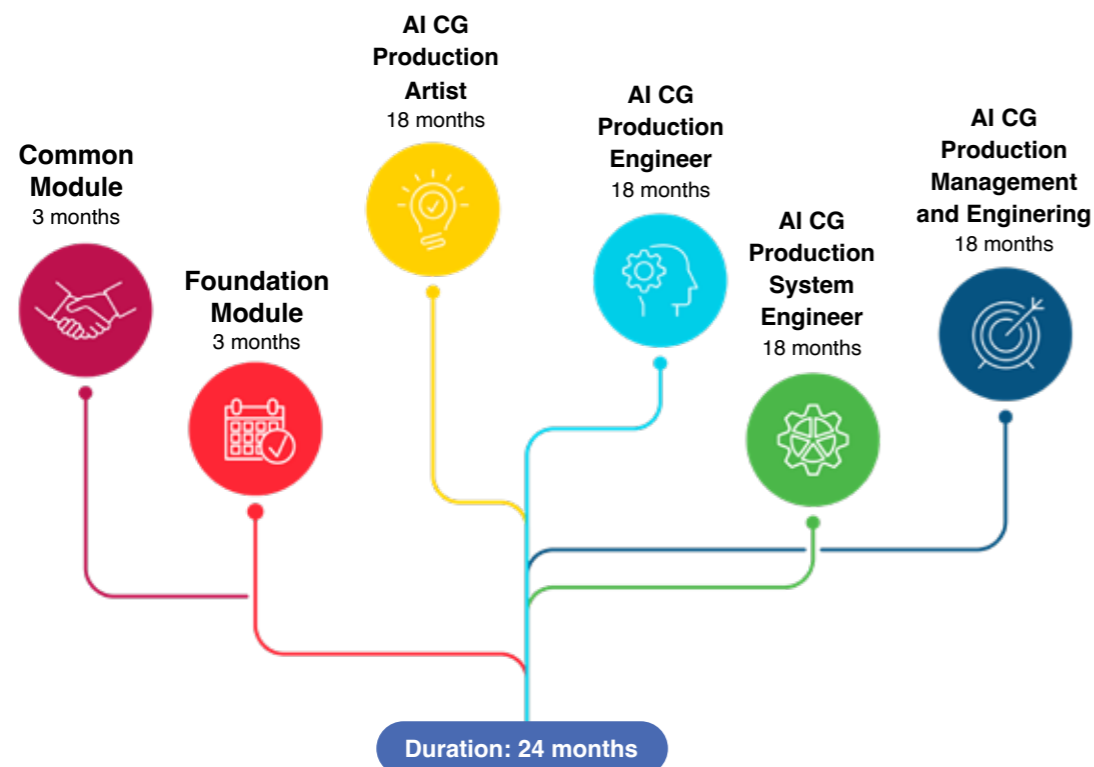
The AI Computer Graphic Production program recognizes the transformative potential of AI and its impact on the industry. By incorporating specialized courses in AI tools, system development, asset management, and production pipeline optimization, students gain a competitive edge in the rapidly changing landscape of CG production. They learn to harness the power of AI algorithms, integrate them into their workflows, and unlock new creative possibilities that were previously unimaginable.

In conclusion, the AI Computer Graphic Production program is an essential response to the ever-evolving demands of the industry. By equipping professionals with the knowledge and skills to leverage AI technologies effectively, this program prepares them to thrive in a rapidly changing landscape. The fusion of creativity, technical expertise, and AI-driven innovation has the potential to revolutionize the CG production industry, paving the way for groundbreaking visual experiences that captivate audiences worldwide.



Program Structure

Our 24 month professional training program requires students to complete both Common and Foundation modules, before specialisation.



Foundation and Common Modules

The foundational and common modules for these professions would cover basic principles of computer graphics, artificial intelligence, programming, digital arts, and project management. This foundation would be a prerequisite before specializing in any of the four main areas: AI CG Production Artist, AI CG Production Engineer, AI CG Production System Engineer, AI CG Production Management and Engineering.

Foundation Modules

- Introduction to Basic office tools
- Basics of Digital Art and Design
- Basics of 3D Modeling and Animation
- Introduction to Programming
- Introduction to Artificial Intelligence
- AI and Computer Graphics
- Introduction to Project Management and Agile Methodologies

Common Modules

- Advanced Computer Graphics and Animation
- Advanced Computer Programming and Software Development
- Computer Systems and Networks
- Cloud Computing and Distributed Systems
- Project Management and Cybersecurity



Master Degree in AI Computer Graphic Production

AI algorithms can easily analyze vast datasets of artistic styles, enabling you to seamlessly blend, reimagine, and even transcend traditional artistic techniques, by creating captivating illustrations and images in seconds. AI is a new creative medium that expands creative boundaries and streamlines creative processes, allowing you to unleash your creativity and amplify your expressiveness in AI's vast possibilities.

Studying in the master's program can build upon your prior knowledge in creative design, enabling you to experiment and innovate with newfound AI-driven and creative design tools. Welcome to be innovators at the cutting edge and bring inspiring innovations to various industries.

Chinese · English 18 months Face to Face



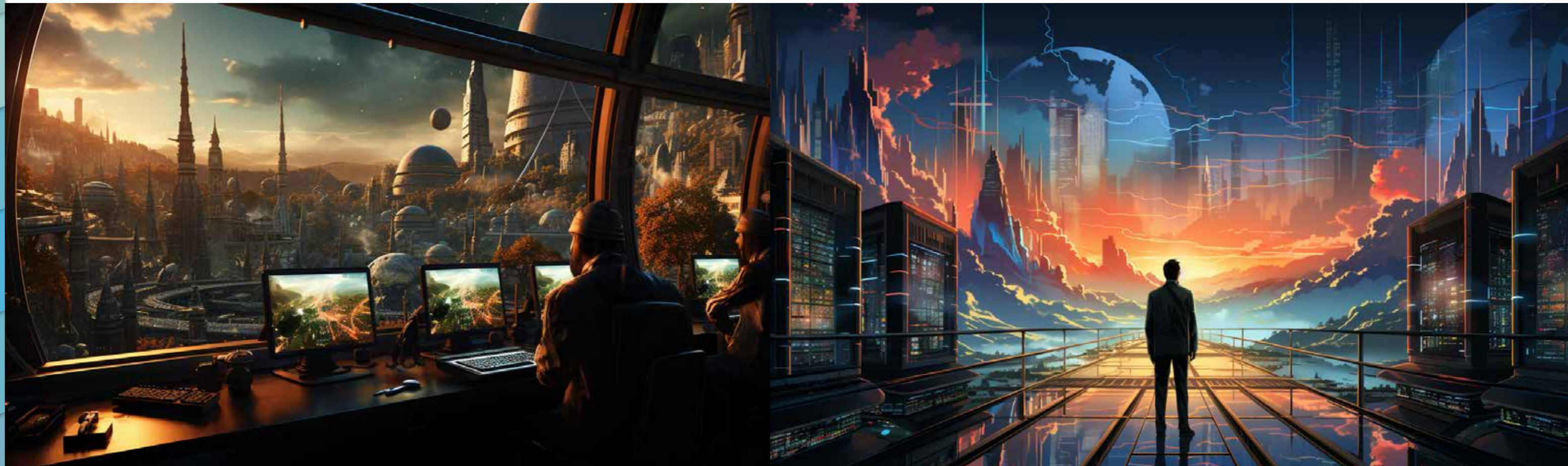
Course Structure

1. Integration of 3D CG Production and AI: In-depth study of 3D modelling, texture processing, and animation techniques. Learn about the application of AI in CG production.
2. Specialized AI Applications: Understand AI for animation and visual effects and AI music generation.
3. Advanced Design and Editing: Learn advanced video and sound editing and advanced compositing techniques.
4. Specialization: In-depth study of professional areas such as 3D modelling, lighting, rigging, animation, compositing, and visual effects.
5. Portfolio Development and Career Readiness: Organize and enhance portfolios that showcase various skills. Participate in real projects and apply skills learned throughout the course.

Course Objectives

1. Proficiently handle fundamental tools used in CG production
2. Effectively utilize advanced 3D modeling, animation, and rendering tools
3. Integrate AI tools to improve production quality and efficiency
4. Demonstrate expertise in a specific area within CG production
5. Compile portfolios that display a variety of skills and areas of specialization
6. Flexibly apply acquired skills in real-world scenarios, demonstrating proficiency





Master Degree in AI Computer Graphic Production Engineering

Nowadays, AI's impact extends into diverse fields and AI computer graphic production engineers play a vital role in developing well-structured system to address pressing problems. They provide solutions to optimize system operations, enhancing production efficiency and quality.

Upon completing the course, you will be well-equipped to handle intricate production requirements, tackle industry-specific problems, and make contributions to the creative process within any organization. Your expertise will be instrumental in shaping a more efficient, interconnected world.

Chinese · English 18 months Face to Face



Course Structure

1. Advanced Programming and AI Tools: Learn Python for AI engineering, machine learning frameworks and tools, and low-level machine programming.
2. AI system development and integration: Understand AI system development, learn the customization of AI tools, integrate AI systems into the production workflow, gain first-hand experience with industry-standard AI software, and explore AI tools for CG production.
3. Specialization: Choose a specialization area in AI cg engineering.
4. Projects and Portfolio: Understand project requirements, apply learned skills to execute projects, evaluate project success and areas for improvement, and compile a portfolio that showcases a variety of skills and projects.

Course Objectives

1. Understand AI tools and their application in the creative industry
2. Proficiency in fundamental programming languages used in AI and CG production
3. In-depth exploration of the complexities of AI CG projects, focusing on tool development, system integration, and cultivating skills to optimize production processes using AI
4. Cultivate the ability to design and develop AI tools customized to specific production needs





Master Degree in AI Computer Graphic Production System Engineering

In the era of AI-driven technologies, optimizing production processes is crucial to ensure that AI systems perform at their best, reducing resource wastage, increasing productivity. Therefore, AI computer graphic production system engineers play a vital role in designing reliable system to ensure smooth integration between AI components and existing infrastructure, allowing organizations to leverage AI effectively.

By the end of the course, you will able to gain their expertise in a wide array of areas, including advanced programming skills, efficient processes and workflow management, mastery the maintenance and development of production, familiarity with system and platform development tools, and the ability to develop AI systems.

Chinese · English 18 months Face to Face



Course Structure

1. Expertise in Operating Systems and Servers: Understand the setup and management of web servers, explore the role and management of cloud services in production, and study of servers customized for CG production.
2. Advanced Programming and AI Tools: Gain proficiency in programming languages necessary for AI and CG systems engineering, explore tools required for web and platform development, understand and apply various AI tools and libraries in production.
3. System and Platform Tools: Research on database management and its role in production, explore libraries required for system and platform management, understand web, cloud platform management and network security.
4. Building AI Systems for Production, Private Cloud, and ERP: Understand production and private cloud platforms, deploy AI tools in different production scenarios, and learn to seamlessly integrate ERP into production systems.
5. Specialization and Practical Application: Choose a specialization area within systems engineering.

Course Objectives

1. Demonstrate a deep understanding of various operating systems and server management
2. Showcase proficient application of multiple programming languages in AI and CG systems engineering
3. Exhibit a high level of proficiency with tools required for system and platform management
4. Design and implement AI systems tailored to specific production requirements
5. Showcase expertise in the chosen area of systems engineering



Master Degree in AI Computer Graphic Production Management and Engineering

AI computer graphic production managers and engineers play a pivotal role in harnessing AI's capabilities to create, enhance, and optimize visual content within AI-driven technologies. They are responsible for implementing AI-driven automation tools, which streamline workflows and reduce manual labor, making production processes more efficient.

Additionally, they are responsible for nurturing skills in resource allocation and integrating the creative process with technological advancements to excel in managing and leading projects in the dynamic field of AI computer graphics (CG) production.

Chinese · English 320 hours Face to Face



Course Structure

1. Fundamentals of Production Management: Understand core concepts in production management project and management methodologies, learn how to efficiently plan and allocate the necessary resources for projects, and conduct risk management.
2. Technology and Production: Provide a overview of production technologies, learn key concepts of digital asset management and quality management and control.
3. Production Processes and Asset Management: Design efficient production process, develop asset management strategies, and facilitate internal and external communication and collaboration.
4. Leadership and Team Management: Cultivate leadership development, understand key concepts of human resource management and stakeholder management.
5. Portfolio and Industry Practice: Prepare portfolios by applying knowledge gained in real production environments through practical industry internships and project participation.

Course Objectives

1. Proficiently demonstrate capabilities in AI-driven CG production techniques
2. Efficiently oversee and manage entire AI CG projects
3. Develop and manage efficient production processes for optimal outcomes
4. Effectively allocate human, technological, and financial resources
5. Budget management and ensuring financial efficiency
6. Showcase personal leadership abilities and effectively manage team operations
7. Promote and implement sustainable production methods
8. Efficiently manage and leverage digital assets
9. Implement Agile and Waterfall methods to initiate a project





Master Degree in AI Education

As we stand at the intersection of technology and education in the digital age, the integration of artificial intelligence (AI) into education is poised to become a transformative force. Offering a visionary glimpse into the future of learning to educators, which benefits them to be well-equipped with the knowledge and skills to harness AI and AIGC in creative design, web development, and educational technology (EdTech).

Besides, AI would be an innovative approach carries significant implications for the education sector, promising to reshape the way we teach and learn, with a more inclusive learning environment.

Through AI-enhanced creative design, AI integration in web development and AI-powered EdTech tools, educator can explore limitlessly for adaptive and efficient educational approaches, aligning perfectly with the demands of the digital economy, fostering a more engaging and effective learning experience, and providing personalized learning activities for different groups of learners.

Chinese · English 24 months Face to Face



Course Structure

First Semester	AI and AIGC in Education AI and Creative Design AI and Web Development Ethical Considerations of AI in Education
Second Semester	Foundations of Teaching and Learning AIGC and Educational Materials Design AI and Educational Technology Solutions AI in Education and Research Methods
Third Semester	Applications of AI in Different Educational Stages AI and Advanced Web Development
Fourth Semester	Portfolio and Career Preparation

Course Objectives

1. Showcase innovative creations and artwork that demonstrate their ability to use AI tools to enhance or generate designs
2. Create AI-driven educational web platforms and showcase user interactions and learning patterns with adjusted content
3. Develop AI-driven educational tools or platforms to meet the learning needs of diverse individuals through case studies and project demonstrations
4. Feature dynamic educational content generated or enhanced by AI, highlighting the potential of AIGC to innovate educational materials





Master Degree in Enterprise Digital Transformation

In an AI era marked by the rapid progression of digitization, the significance of digital transformation cannot be overstated. Digital transformation, at its core, represents the fundamental shift in how businesses and enterprises operate and interact in an increasingly interconnected world. It encapsulates the adoption of cutting-edge technologies to enhance efficiency, optimize customer experiences, drive innovation, and manage business operations.

By equipping learners with skills and knowledge in essential AI and machine learning concepts, alongside web development and programming skills, they can gain proficiency in harnessing collaborative and cutting-edge technologies, such as ERP systems and open-source tools, and deeply integrate them with AI technologies into enterprise ecosystems.

As learners progress, they focus on specialization and real-world application, preparing themselves to lead in the AI-enhanced digital economy while also positioning themselves to spearhead change, innovation, and disruption in the industries of tomorrow.

Chinese · English 24 months Face to Face



Course Structure

First Semester	Introduction to Artificial Intelligence and Machine Learning (2 months) Web Development and Programming Fundamentals (2 months) Open Source Tools and Platforms (1 month) Digital Business Models and Strategy (1 month)
Second Semester	Advanced Programming and Frameworks (2 months) Enterprise Social Media (2 months) ERP Systems and Integration (2 months)
Third Semester	Industry-Specific AI Applications (2 months) Advanced Open Source Tools and Platforms (1 month) AI-Driven Product Development (1 month) Leadership and Change Management in the AI Era (2 months)
Fourth Semester	Portfolio and Industry Practice Projects and Thesis

Course Objectives

1. Demonstrate a profound understanding of AI technologies and integrate them into various enterprise scenarios
2. Possess in-depth knowledge of web development, languages, social media, and ERP systems
3. Be skilled in using open-source tools to ensure cost-effective, flexible, and innovative solutions for enterprises
4. Have the ability to design and implement AI-centric enterprise strategies
5. Use AI-Driven technologies to add significant value and reshape industries





MSc in Creative Technology

This 2-year masters course is research and project-based, where students are required to finish a graduate project or submit a research paper for degree completion.

Today's global creative industry relies heavily on creative technology to deliver high-quality products efficiently. This course shall help you master a wide range of common creative tools used in major creative industries, such as 3D tools, AI tools, graphic design tools, computer graphics tools etc. With knowledge of these tools and their applications, students will have access to multiple creative fields such as graphic design, animation, game production etc. In addition, students will also learn basic computer programming skills and languages, web tools and platforms, etc., allowing them to also be able to apply their broad knowledge in most digital technology positions.

Chinese · English 300 Hours Face to Face



Learning Outcomes

1. Master a wide range of digital skills, such as using common digital design tools, web tools, AI tools, programming languages etc.
2. Learn the production processes in creative industries such as game production, animation
3. Learn to apply knowledge of creative technology on the preparation and execution of teaching materials for the digital training and re-skilling of students and adults
4. Learn the technology needed for the digital transformation of digital production industries

Course structure

1. Foundation modules:
general design theory, applications of various design tools for production, basic knowledge of 3D tools
2. Common modules:
basic computer programming and languages, web tools and platforms, AI tools, production management
3. Specialization modules:
Applying creative technology to the training and re-skilling of students and adults in the global digital economy
Tool developments in the creative industry
Using AI for design, game production and animation
Digital transformation technologies for digital production industries





MSc in Office Tools and Digital Transformation

“MSc in Office Tools and Digital Transformation” is a full-time postgraduate programme lasting for two years.

The programme is the first of its kind in Hong Kong to meet the huge demand for talents in office tools, and digital transformation and its core technologies in Hong Kong and China. The course aims to nurture more managerial talents highly-skilled in office tools with in-depth knowledge of enterprise resource planning (ERP) and business intelligence (BI). Students in this program will receive comprehensive and diversified training in the use of daily office software, creative software, ERP systems, business intelligence applications, software development, and office efficiency management. This program aims to develop students' independent thinking and enterprise resource management skills to prepare them for the transition to a digital economy.

English 350 Hours Face to Face



Learning Outcomes

1. Understand the digital economy and its core technologies
2. Learn about the Office Transformation Program
3. Master in-depth application of daily office tools
4. Master in-depth application of creative tools
5. Master in-depth application of enterprise resource planning (ERP) systems
6. Master in-depth application of business intelligence (BI) systems
7. Study efficient office transformation methods

Course Structure

- | | |
|--|--|
| 1. Introduction to the Office Transformation Program | 6. Customized Enterprise Resource Planning systems |
| 2. Introduction to the digital economy and core technologies | 7. Customized Business Intelligence systems |
| 3. Introduction to digital transformation tools | 8. Internship |
| 4. In-depth knowledge of office tools | 9. Dissertation |
| 5. In-depth knowledge of creative tools | |





MSc in Technical Artist for Game Development

Under the MSc in Media Technology curriculum, the main objective of the Technical Artist for Game Development Course is to bridge the gap between programmers and artists in game production. There is a great demand for such talent and very few courses are available in the world today to aspire young person to pursue such a career.

Learning Outcomes

1. Be proficient in various CG production tools, such as Blender
2. Understand various scripting languages such as Python, C++, Direct X, etc.
3. Be familiar with different hardware architectures (e.g. Xbox, PlayStation, Switch), and various PC graphics systems (e.g. Steam, WebGL)
4. Understand various game engines to implement the CG graphics production process
5. Master the techniques including lighting, rendering, texturing, modeling, setup, particle system animation, and graphics related programming languages (e.g. Shaders)

What does a technical artist do?

Technical artists are required to make trade-offs in the production process to increase the efficiency of graphics production and to make the game production process more fluid in terms of setup and operation. Technical artists need to be familiar with all areas of the game (including lighting setup, mapping, and graphics-related programming languages (e.g. Shaders)), have a broad knowledge background (and the ability to apply them accurately to specific aspects of project production), and have good teamwork and communication skills.

English · Chinese 336 Hours Face to Face





MSc in Advanced Game Programming

Within the MSc in Media Technology, the main focus of this course is on teaching the production of realistic game environments, aiming to develop high-quality game programming talents.

Students will learn different game programming techniques and deployment strategies (including console game platforms Xbox, PlayStation, Switch; online gaming platforms like Steam, WebGL, as well as online MMORPG games; mobile platforms such as iOS and Android) and try to program games using various engines, kits, and CG models during the course.

At the same time, students will work closely with technical artists and other CG producers to gain a better understanding of the game production process. Ultimately, students will apply what they have learned to actual game development.

English · Chinese 336 Hours Face to Face



Learning Outcomes

1. Understand major CG production tools such as Blender
2. Master basic knowledge of mathematics, physical properties, artificial intelligence, graphics systems, interactive controllers, sound, scripting systems, networking and multiplayer games
3. Master multiple scripting languages, such as Python, C++, Direct X, etc.
4. Understand various game engine scripting languages such as C# (for Unity), GdScript (for Godot), Blueprint (for Unreal)
5. Master 3D game programming, basic mathematics such as Vector, Matrix, Direct3D rendering fundamentals, Direct3D painting, color, lighting, Stenciling masks, Direct 3D libraries, terrain rendering, particle systems, advanced mapping, window programming, etc.
6. Be familiar with different hardware architectures (e.g. Xbox, PlayStation, Switch), and various PC graphics systems (e.g. Steam, WebGL)
7. Master various game engines, familiar with CG graphics production process

What does game development entail?

The game development process involves many steps and aspects. Students will be given all-rounded training on game development with a major focus on programming. Apart from programming, students will learn to use modeling and art tools for the creation of game artwork and 3D assets. Game logic, 3D mathematics, computer graphics, scene management, game AI etc. are also crucial parts to game development that students will practice on.





BSc in Creative Technology

Krystal Institute's "Bachelors Degree in Creative Technology" program is designed to prepare undergraduate students for future employment in global digital creative industries. The program provides students with a broad understand of the latest digital technologies used in creative industries. Students can choose their field of specialization, such as creative design, web tools development, AI technology used in the creative industry, etc. By the end of the program, students will have a comprehensive knowledge of digital skills and tools sufficient to land them employment in the industry of their choice.

The undergraduate program also provides a firm foundation for students interested in pursuing higher education through our "Masters Degree in Creative Technology" program.

Chinese · English 500 Hours Face to Face



Learning Outcomes

1. Master common digital design tools, including 3D tools, vector and raster graphic design tools etc.
2. Master web tool production using programming languages such as Python, C++, Java, JS
3. Master using AI technology for creative productions
4. Learn the operations of creative production studios

Course structure

1. Foundation modules: basic design theory, applications of various design tools for production, basic knowledge of 3D tools
2. Common modules: basic computer programming and languages, web tools and platforms, AI tools
3. Specialization modules:
 - Design and creation - production of 3D games and animation
 - Production of web tools - programming using Python, C++, Java, JS
 - AI for creativity - creative applications of AI technology
 - Creative digital productions - how to effectively run and manage a creative production studio





BSc in Office Tools and Digital Transformation

The "BSc in Office Tools and Digital Transformation" program focuses on delivering to students knowledge of office tools, in order to heighten students' awareness of core technologies in the digital economy and encourage them to apply what they have learned into their daily work environment.

The four-year program is designed for full-time study, with bright career prospects upon graduation. Graduates can choose to take up management posts in enterprises and help ready them for digital transformation. In addition, various government departments, enterprises and SMEs are also in great demand for talents in digital transformation.

English 500 Hours Face to Face



Learning Outcomes

1. Learn about the digital economy and its core technologies
2. Learn the core values of the Office Transformation Program
3. Master everyday office tools
4. Master creative tools
5. Master Enterprise Resource Planning (ERP) systems
6. Master Business Intelligence (BI) systems
7. Learn the methods for office transformation

Course Structure

- | | |
|--|---|
| 1. Fundamental concepts of the Office Transformation Program | 5. Application of creative tools |
| 2. Concepts about digital economy and core technologies | 6. Basic applications of Enterprise Resource Planning systems |
| 3. Basic digital transformation tools | 7. Basic applications of Business Intelligence systems |
| 4. Application of office tools | 8. Internship |
| | 9. Bachelor's thesis |





BSc in Business, Finance and Technology

In an effort to rethink the education of future leaders in the global digital economy, this new bachelor's degree will enable students to be competitive and excel in the global digital economy. By equipping students with the knowledge, skills and tools to become a well-prepared business degree graduate in the future.

Students will learn the latest market trends, effective corporate strategies and business practices in the digital economy. They will also come across and master office tools, Business Intelligence (BI) and Enterprise Resource Planning (ERP) systems. In addition, students will gain insights on business opportunities in the metaverse and virtual currencies. Lastly, students will have the opportunity to consolidate their learnings through a 3-month industrial placement.

English 400 Hours Face to Face



Learning Outcomes

1. Understand business conventions and market trends
2. Master popular programming languages, such as HTML, CSS
3. Mastering DECT skills
4. Master how to use intelligent BI tools for business analysis
5. Master ERP and its application
6. Master the metaverse-related technologies

Importance of digital transformation

Digital transformation refers to the digitalization of all aspects of business. In the post-Covid era, flexibility and quick adaptness to change are crucial for businesses to operate and survive, following significant changes in work patterns and consumer habits. On this note, effective allocation of business resources and forward planning with the help of BI and ERP digital tools are necessary for digital transformation, enabling businesses to stay ahead of competition.





Higher Diploma in Office Transformation

The High Diploma course for Office Transformation Program is designed to train students into digital transformation officers (DTOs) for SMEs. Students who graduate from this course will have the necessary knowledge, skills, tools, and resources to help SMEs transform their current operations digitally, so businesses can run more efficiently and profitably. A DTO is an essential position in any office or enterprise transformation program.

The course will cover the 4 main subjects of OTP, namely Basic Office Operations surrounding office software and online business resources; ERP tools for manufacturing, accounting and finance; BI tools for data analysis; IT Services for Business Operations which involve setting up private email servers, company private cloud, FTP, etc.

Chinese 400 Hours Face to Face



Learning Outcomes

1. Learn about basic business operations
2. Learn about the need of SMEs for digital transformation
3. Master the tools of the trade - Office Tools, Graphic tools, ERP tools, BI tools, IT Tools, and Operating Systems
4. Specialise training in one or more of the tools provided

Course Syllabus

1. Business 101 - Introduction to Business Operations
Learn about basic business operations
2. Digital Transformation Learn about the need of SMEs for SME digital transformation
3. Tools Master the tools of the trade - Office Tools, Graphic tools, ERP tools, BI tools, IT Tools, and Operating Systems.
4. Modular Specialization - Specialise training in one or more of the tools provided
5. Internship
6. Final Project





Higher Diploma in Creative Design and Digital Applications (2 years)

This 2-year program is suitable for graduates of the Diploma in Creative Design and Digital Applications (1 year) program, or those who wish to pursue a career in the design industry. Graduates of this programme can articulate to the Degree in Creative Design and Digital Applications (3 years) program.

Students will develop their creative skills in graphic design through a variety of courses. Among other things, the program will focus on ways to use art for effective visual communication and explore appropriate technical tools to accomplish design goals. In order to develop students' individual styles, students will be provided with design and art culture-related learning opportunities to explore and develop their talents.

English 500 Hours Face to Face



Learning Outcomes

1. Knowledgeable and skillful in producing creative media and appreciative of digital economy core technology
2. Explore different creative styles, techniques and tools, and develop your own personal style in the process
3. Learn different creative digital tools to handle different tasks
4. Be able to apply acquired knowledge and skills to creative work
5. Be eligible to apply for top-up degree programmes in computer science, information technology and related fields in a number of local and overseas institutions
6. Become a multi-faceted, lifelong learner

Core Assessment

Each subject will have in-class assignments and at least two assignments to assess whether student work demonstrates an understanding of the skills, techniques and processes learned in class. In addition, students are required to apply the knowledge and skills they have learned to complete their final projects individually and in small groups. The assessment will include visual expression, technique and creative ability, creativity and imagination, and overall performance.





AI
Meta
Creative
Blender Studio
Office
Web 3.0
IOT
Academic
Youth
Singapore

Diploma in Creative Design and Digital Applications (1 year)

This 1-year programme is suitable for complete beginners with no relevant experience or for those who wish to pursue a career in the design industry. Graduates of this programme can continue their studies with the Higher Diploma in Creative Design and Digital Applications (2-year programme).

In this programme, aside from developing knowledge and skills surrounding the production of creative media, students also have the opportunity to acquire such knowledge through experimenting with different open source software and tools.

English 250 Hours Face to Face



Learning Outcomes

1. Knowledgeable and skillful in producing creative media and appreciative of digital economy core technology
2. Experience in different creative software tools and editing techniques
3. Understand relevant design concepts and apply knowledge and skills to different tasks
4. Become life-long learners

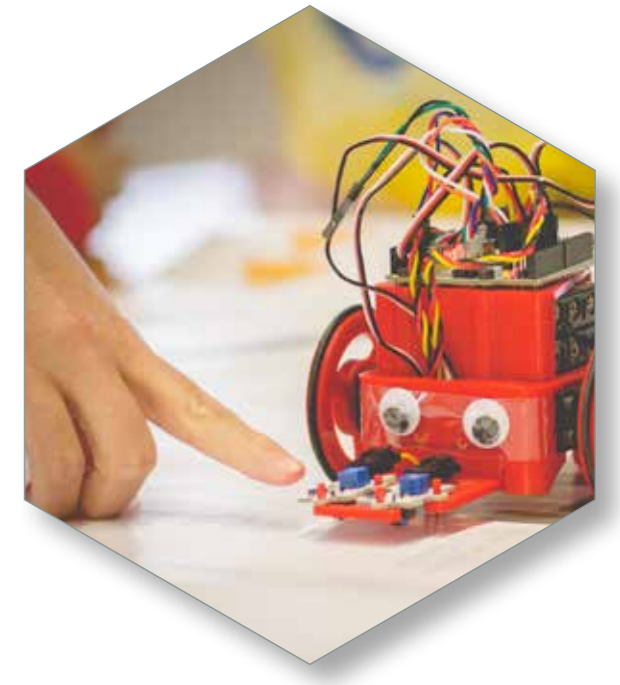
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Youth Enrichment Courses



Youth Enrichment Courses



Youth Enrichment Courses

Students today are under-equipped to work in the digital economy. Knowledge and skills taught in traditional curricula are insufficient, and purchasing professional tools is a financial burden.

Working with world-class industry professionals and software developers, Krystal Institute brings employable skills and free, open-source software to the classroom. Our students pick up tangible skills from a diverse range of DECT workshops that are project-based and experiential. Site visits with our industry partners expose students to the applications of DECT in professional settings.

Our courses cover exciting themes such as Animated Arts, Virtual Worlds, Metaverse, Maker Series, and Digital “ABCD”. Graduates from our courses receive certification under our DECT Global Series curriculum, which is recognized by our industry and academic networks in the Greater Bay Area.

Course Highlights

Meets Education Bureau requirements

Our curriculum is an ideal fit to meet the OLE, ECA, ASA requirements set by the Hong Kong Education Bureau. Our workshops span across the required themes of: Moral and Civic Education, Career-related Experiences, Aesthetic Development.

Articulation Pathway

Completing DECT courses grant each student academic credits under Krystal Institute’s Qualification Framework, designed for students who have not yet gained work experience. These credits are transferable towards Diploma-level and Degree-level qualifications jointly offered by Krystal Institute and affiliated universities worldwide. Credit and qualification holders automatically become part of the Krystal membership network and gain access to our active online learning community. Learn more about our qualification framework and exclusive membership services and benefits on our website, <https://krystal.institute>.

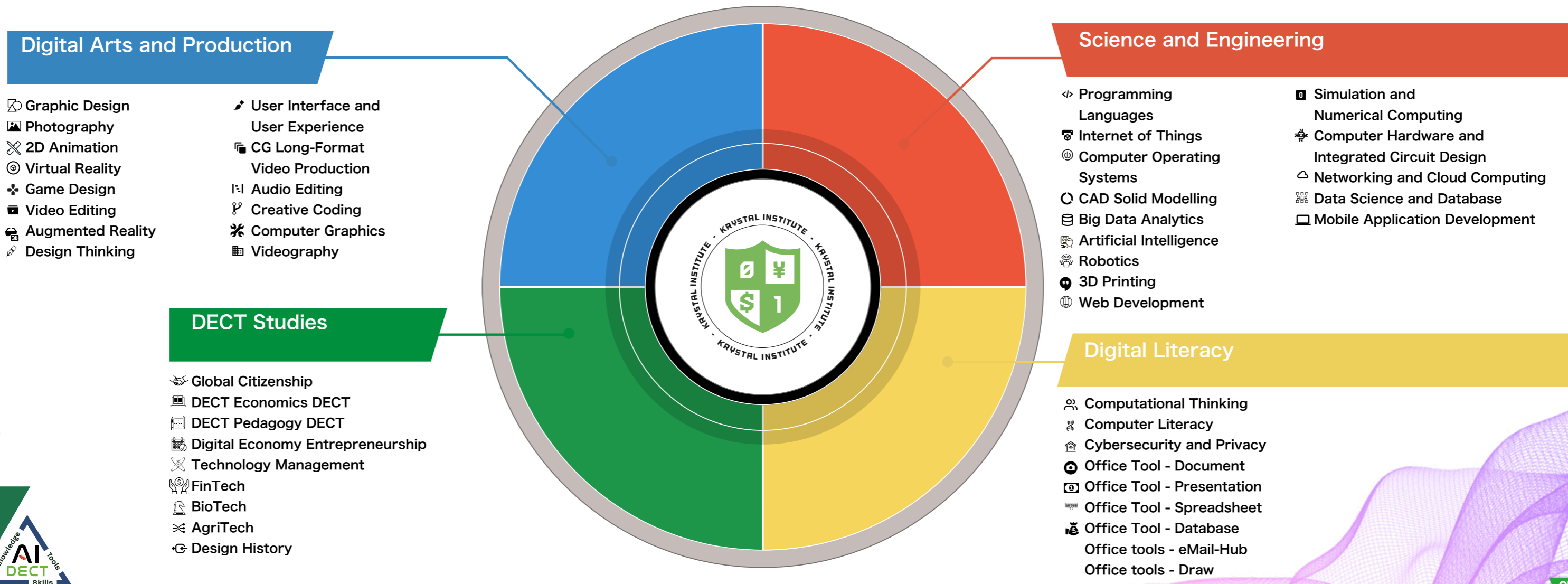
Fun, Activity-based Format

Our courses and workshops offer experiential programs to inspire students’ interests in Digital Economy Core Technology themes. Students explore projects that challenge them to be creative, analytical, and methodical in their approach. By using open-source digital tools such as Blender and Python, students leave our workshops owning the tools that they have now gained experience in, and are empowered to explore their diverse interests further independently.

Professional Ties to Industry

With the Hong Kong Digital Entertainment Association, Hong Kong Comics and Animation Federation, and Hong Kong Game Industry Association, we also offer Site Visits related to our digital economy themes. Knowledge gained by students in our DECT courses can be better understood in the context of real professional environments and industry demands.

Moreover, graduates from our courses receive certification recognized by our partner networks in the Greater Bay Area.





Graphic Design

Graphic design is the use of diverse visual elements to communicate ideas efficiently. Graphic design has broad applications, from magazine publishing, poster design, to logo design. The course introduces design theory through real-life case studies and allows students to build their own aesthetic products. By the end of the course, students should be skilled in applying core design principles to their personal projects.

Chinese & English 3 Hours Face to Face

Rundown

- Crafting Aesthetic Appeal: Applications of graphic design
- Building Blocks of Design: Composition
- Effective Communication: Typography
- Exploring the Spectrum: Color



Photography

Every smartphone user is capable of producing photos, but how many understand the principles behind excellent photography? In this course, the basic history and working mechanism of cameras will be introduced to students. By the end of the course, students will be able to manipulate all levels of photography gear and be able to craft meaningful images.

Chinese & English 3 Hours Face to Face

Rundown

- Photography Foundations: History of photography
- The Exposure Triangle: Three basic elements of cameras
- Finding the Right Shot: Photo composition
- The Art of Selfies: Phone photography





Image Editing

Image processing is a technique to retouch and enhance photos. This course pushes students to go beyond just applying filters to photos. Starting with the basics of digital images, students will explore how images are created beginning with individual pixels. By the end of the course, students should be confident in foundational image manipulation techniques.

Chinese \ English 3 Hours Face to Face

Rundown

- Pixels to Portraits: What makes up a digital image?
- Starting-up with GIMP
- Putting Things in Perspective: Cropping, Scaling, and Selection
- Portrait Beautification: Filtering, Blending, and Retouching



Vector Graphic Tools

Vector graphics are staples of computer graphics. As they are infinitely scalable, they are popularly used in logos, web designs, prints, and character designs. In this course, students will learn to use Inkscape, an open-source design tool, to generate vector graphics.

Chinese \ English 3 Hours Face to Face

Rundown

- Vector Graphics Foundations: Applications of vector graphics
- Starting-up with Inkscape
- Points, to Lines, to Shapes: Layers and paths in Inkscape
- Advanced Graphics: Compound shapes and effects in Inkscape





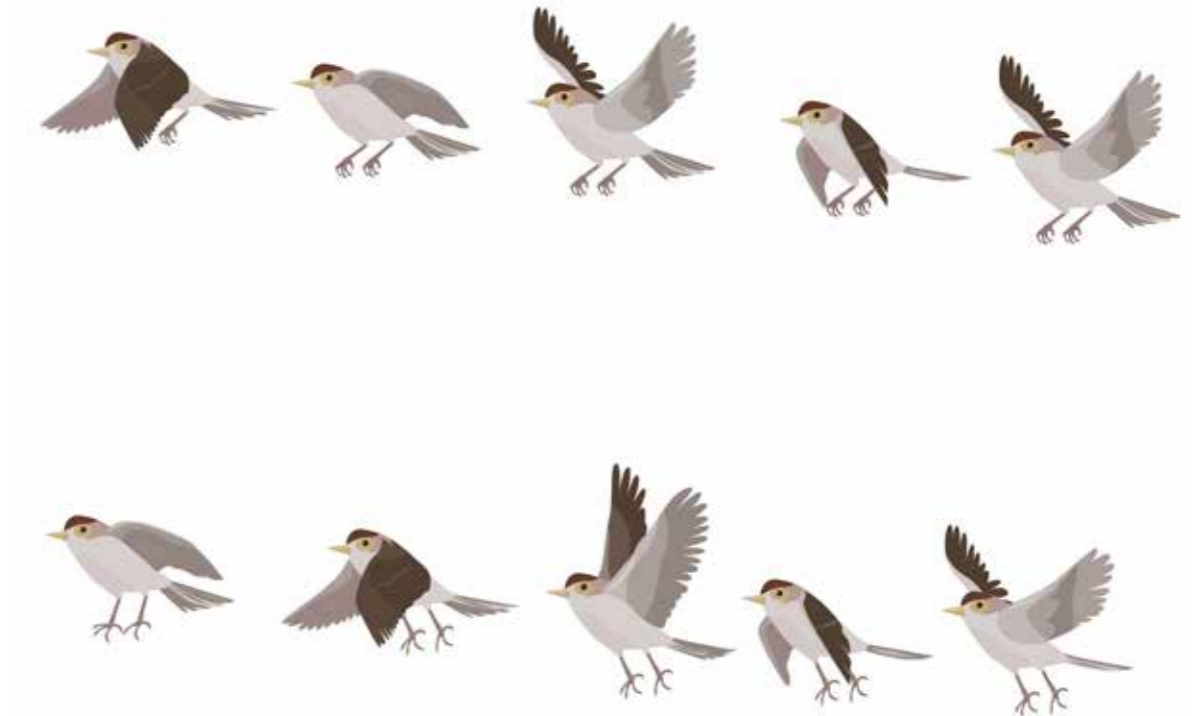
Raster Graphic Tools

Raster graphics are built from grids of individual pixels capable of rendering beautiful gradients, complex compositions, and complicated lines and shapes. As a staple in computer graphics, understanding raster graphics is key to mastering photographs and digital painting. By the end of this course, students will be skilled in using Krita, an open-source digital painting software, to draw detailed digital images.

Chinese · English 3 Hours Face to Face

Rundown

- Raster Graphics Foundations: Applications of raster graphics
- Starting-up with Krita
- Composing Your Painting: Layers and masks in Krita
- Coloring Your Painting: Blending and filters in Krita



2D Animation

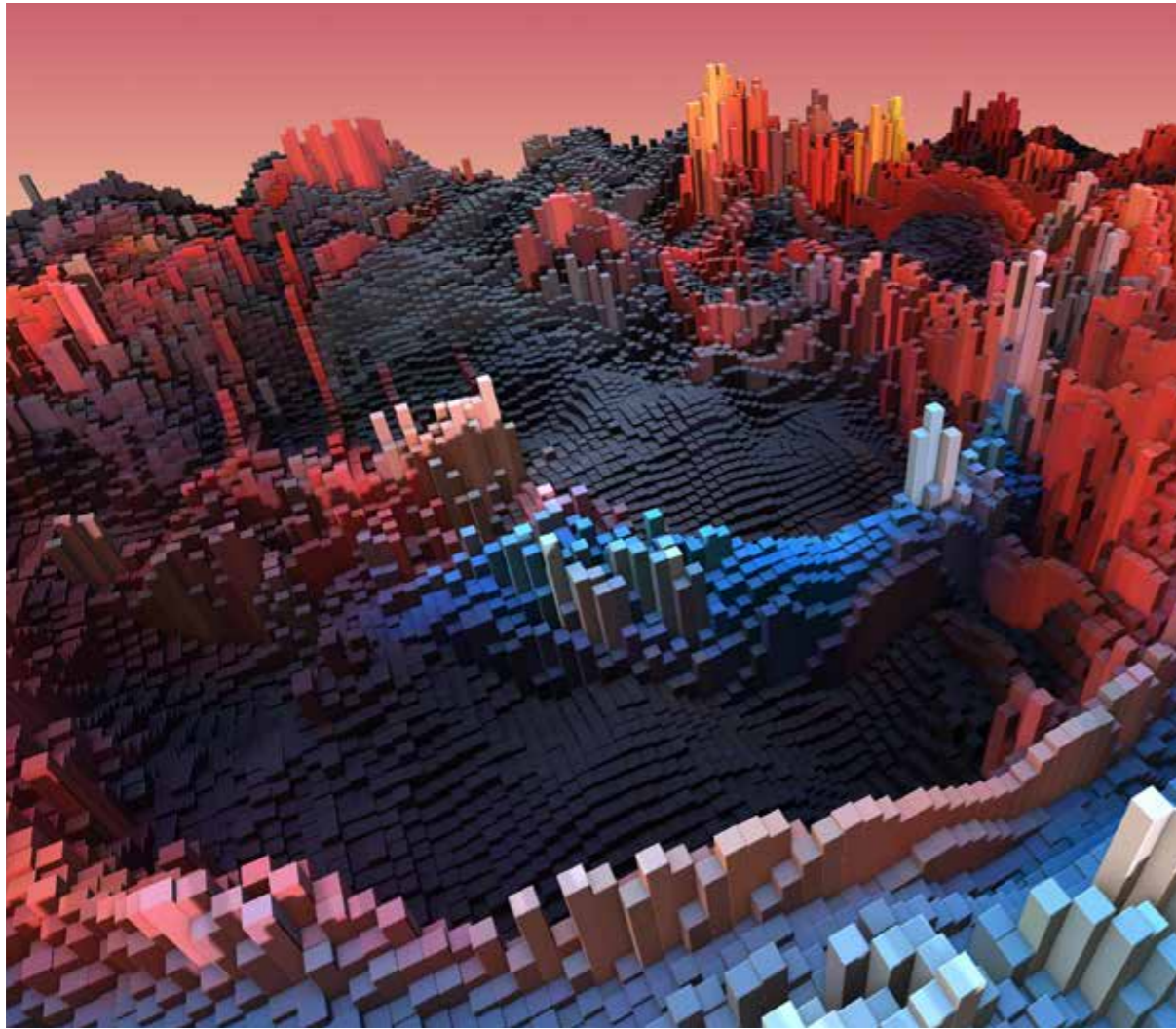
2D animation presents lively characters frame-by-frame. With 2D animation, students can create diverse animated videos in different industries including education, videos and games, and commercials. At the end of the course, students will be able to produce an animated video using Blender, a cutting-edge open-source computer graphics tool.

Chinese · English 3 Hours Face to Face

Rundown

- Frame-by-Frame: Principles of 2D animation
- Drafting in 2D: Sketching your animation
- Animating in 2D: Moving from sketches to animation
- Rendering in 2D: Coloring and finalizing your animation





3D Modeling and Animation

3D modeling and animation allow us to build and capture realistic virtual worlds. This course introduces students to the world of 3D computer graphics, which extend towards diverse applications in architectural design, industrial engineering, video games, and immersive experiences via VR/AR/MR. Students will gain experience with Blender, a cutting-edge open-source computer graphic software. By the end of the course, students will know how to model a basic 3D object and use their designs to create animated videos.

Chinese · English 3 Hours Face to Face

Rundown

- Depth Perception: Learn how to navigate a 3D viewport and create rudimentary 3D objects
- Sculpting a Masterpiece: Modify 3D objects to build a desired final product
- Spruce it up with Color: Enrich designs with color, textures, and lighting to add realistic features
- Let's Get Moving: Rig and frame the created model, to render an animated video



VR and AR

VR (Virtual Reality) and AR (Augmented Reality) are frontier interactive technologies that facilitate human-machine interaction. In this course, students build VR and AR environments using ingredients of their own design, projecting virtual elements in the real world and vice versa. The session ends with a discussion on the limits and potential of this technological field.

Chinese · English 3 Hours Face to Face

Rundown

- Foundation on the sensing, imaging, and processing technologies enabling reality modification
- Virtualizing Reality: Students explore virtual environments and critically assess the strengths and limitations of remote collaboration using VR
- Augmenting Reality: Students sketch and digitize hand-drawn designs before uploading and mapping virtual elements; using smart-phones or otherwise, students then project their designs onto the real world
- Which is Which?: Explore the boundary between virtual and real with emerging Mixed Reality (MR) and Cross Reality (XR) technologies through case studies





Video Editing

Given the ubiquity, diversity, and complexity of today's videos and soundscapes, the demand for video editing skills is ever-rising. Through this course, students will become acquainted with professional video editing software, applying workflow best practices to tackle a video project with diverse media inputs. By the end of the course, students will be armed with a flexible toolkit that they can use in both personal and professional capacities.

Chinese \ English 3 Hours Face to Face

Rundown

- The Gold Standard: Students will learn how good videos communicate messages to their viewers, drawing on case studies from popular culture
- Surveying the Materials: Students will storyboard a video using provided media inputs, then learn to prepare an effective workspace and media pool in Kdenlive
- Laying Bricks: Learn techniques in organizing the video editing workflow, and apply essential functions such as clipping, transitions, and effects
- The Grand Reveal: Student's products will be peer-reviewed, to appreciate the diversity of editing styles and practices



Game Design and Production

The rapid maturation of real-time game engines has made it possible for game developers to build realistic virtual worlds. The experience that students gain while developing with these engines has widespread applications beyond games, including interactive consumer experiences, architectural visualization, and scientific simulations. This course introduces the Godot engine to students, challenging them to design and build a game; there will be a focus on the production considerations that go into game design. Students will also reflect on the causes and consequences of the rise of the e-sports economy.

Chinese \ English 3 Hours Face to Face

Rundown

- Start Your Adventure: Students learn the fundamental parts of video games, and the core qualities that make a successful game; students will understand the key personnel in a development team required to execute game designs
- Level after Level: Students design and build their own game through a guided workshop, using Godot and scripting in GDscript
- Work Hard, Play Hard: Discuss the rise of the e-sports industry; the technological and social trends that have furthered its development; the personal and social impacts that video games have on society





User Interface/ User Experience (UI/UX)

User interface (UI) design determines the look and feel of technological products; while user experience (UX) design improves the customer journey. Businesses are increasingly reliant on digital channels, presenting an imminent need for UI/UX designers. The course takes students through the gold standards in UI/UX through case studies, drawing from diverse design ideas in historical and modern contexts. Students then apply these skills in designing and prototyping a web page or app. Finally, students consider the importance of UI/UX inclusiveness through accessibility features.

Chinese · English 3 Hours Face to Face

Rundown

- From Feng Shui to Fashion: Expanding the definition of UI/UX design, drawing on an ocean of inspiration spanning from historic principles in Ancient China and Greece, to modern design thinking techniques
- Stepping into the User's Shoes: Best practices in UI/UX are offered to students, who will apply them in prototyping a web page or app design using Penpot
- Universal Designs: Discuss the importance of universally appropriate interfaces and experiences, and incorporate accessibility considerations into students' design prototypes



CG Long Format Production Pipeline

This course is a taster on the inner workings of the digital content creation and production space, designed for those with a deep interest in the creative media sector. Structured as a simulation, students live the life of a digital content creator, gaining a deep understanding of the roles and challenges faced by each employee within a production studio. Taking both a historical and forward-looking view, students gain a holistic appreciation of trends in CG production and will leave the course with insights privy only to those who have gained work experience in the field.

Chinese · English 3 Hours Face to Face

Rundown

- From Photos to Photorealism: Students discover the journey visual media has taken from 2D still images to photoreal virtual worlds, and the technology underpinning these developments
- Day in the Life Of...: In-depth case study on CG long format production using Krystal Institute's proprietary management software, featuring assets from China's first CG animated feature film; Students role-play as employees in a production studio, learning about the key contributions of each role and the importance of a strong core task handling protocol
- Predicting the Future: Industry professionals share their insights on the newest techniques in CG production, such as XR and real-time techniques to overcome frictions between developing 3D content with 2D screens





Real Time Project Management

While Agile methodologies have been widely accepted in software development, traditional production pipelines remain valuable in certain applications. This course encourages students to appreciate the importance of choosing an appropriate project management strategy, through a live simulation game. Students will be using Krystal Institute's proprietary platform to implement the different management techniques introduced.

Chinese \ English 3 Hours Face to Face

Rundown

- The Old Reliable: Students appreciate the strengths of the traditional waterfall pipeline through case studies, particularly in computer graphics film production
- Downfall of the Waterfall: Students are introduced to key Agile themes
- Agile in Action: Students take a deeper look at one chosen Agile framework through sharing by industry professionals, including Scrum, Kanban, and Extreme Programming
- Right Tool for the Job: Students will be introduced to numerous digital tools and will apply them in a simulation game; in teams, students will critically evaluate their chosen tools using KPIs, and present findings to the class



Programming Languages

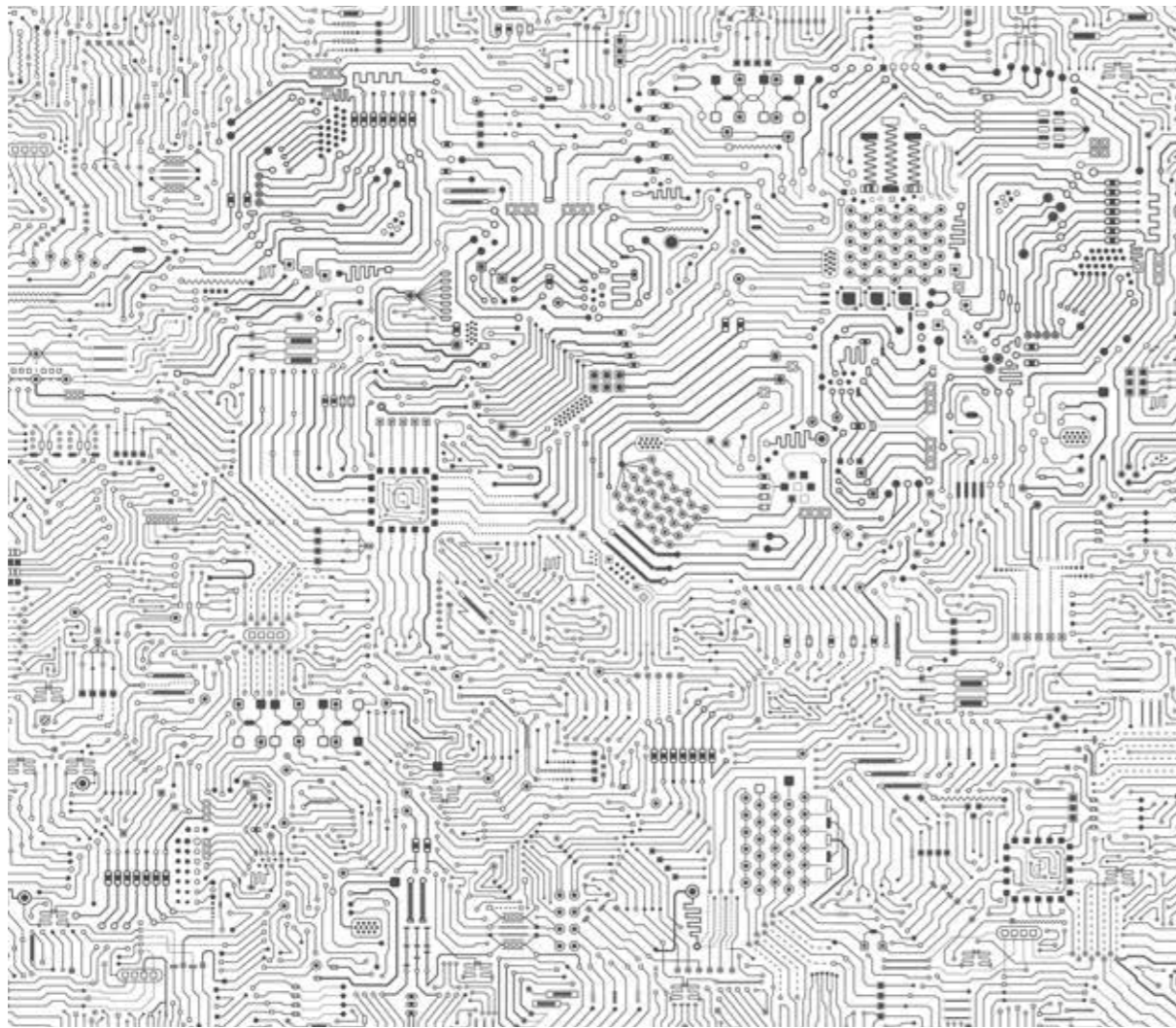
The course will introduce students to the world of computer programming. Understanding programming languages is fundamental in enabling rising technology-users to excel in the digital economy. Whether it is to facilitate office automation in general business or to design technical solutions to engineering problems, coding is a core skill required to interface with machines.

Chinese \ English 3 Hours Face to Face

Rundown

- How do computers speak? Introduction to the language of a computer
- Starting from Scratch: practice computational logic by creating a maze game on MIT Scratch
- Creating a Python hangman game: examine and apply commands of high-level programming languages
- Workplace competitiveness via code: use Python to automate Excel data visualization and report generation and appreciate how programming will displace and create jobs





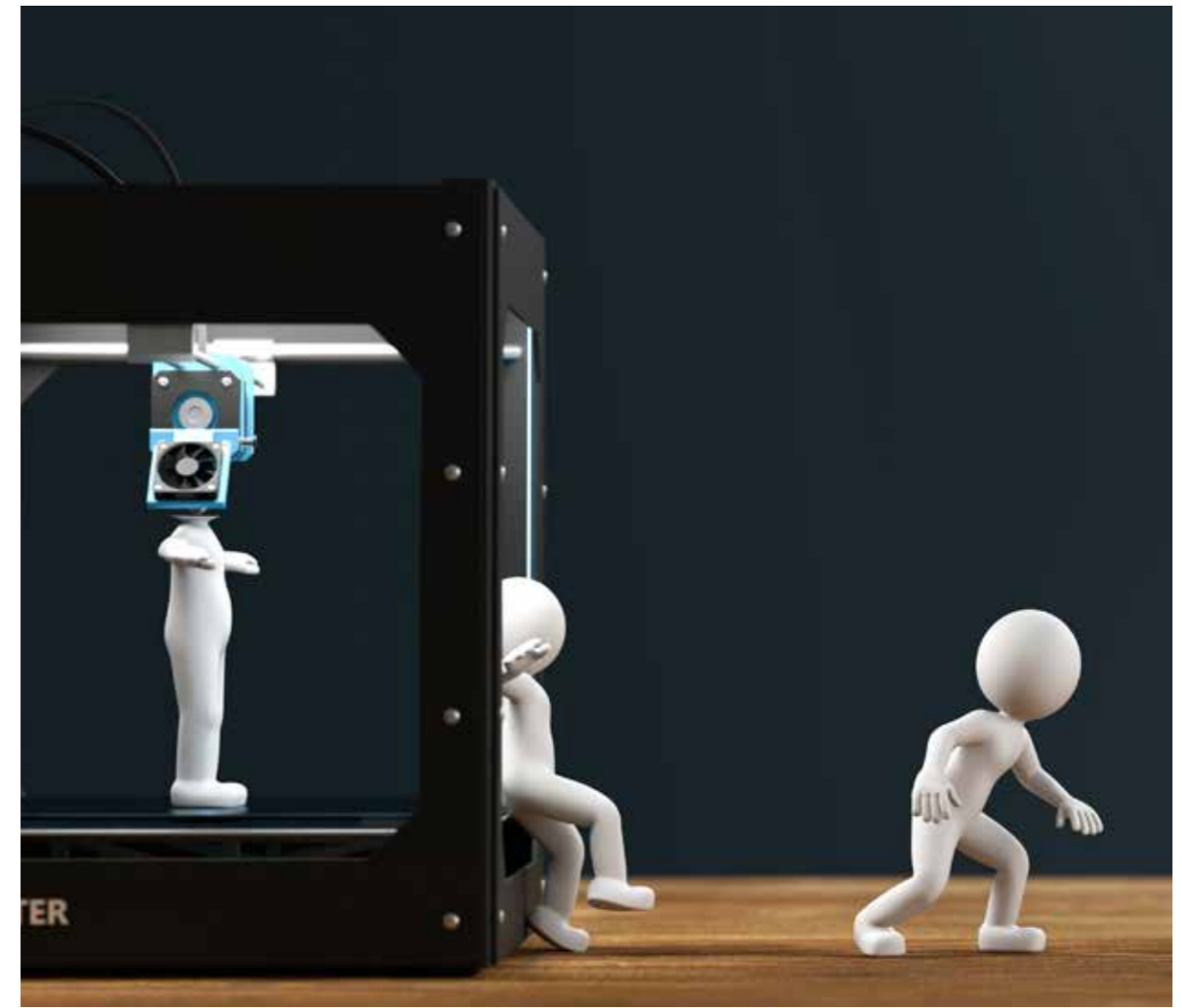
Computer Hardware and Integrated Circuit Design

The integrated circuit (IC) is the centerpiece of modern computing and has become the subject of international competition. This guided course teaches students how to build an 8-bit computer, utilizing the power of ICs. Parallel to the tasks, students are introduced to the physics of semiconductors and transistors. This course ends with a supply chain perspective of IC, allowing students to appreciate the geopolitics of technology.

Chinese · English 3 Hours Face to Face

Rundown

- Challenges in IC design: Introduction to how IC is developed and made
- Physics of IC: Explaining the physical mechanisms of semiconductors and transistors, and how these properties enable the function of IC
- 8-bit Computer: step-by-step, hands-on project to construct an 8-bit Computer, with side-by-side reference to modern CPUs
- Global IC: decipher the supply network of a typical IC and explain why IC has embodied international tension in recent years



CAD and 3D Printing

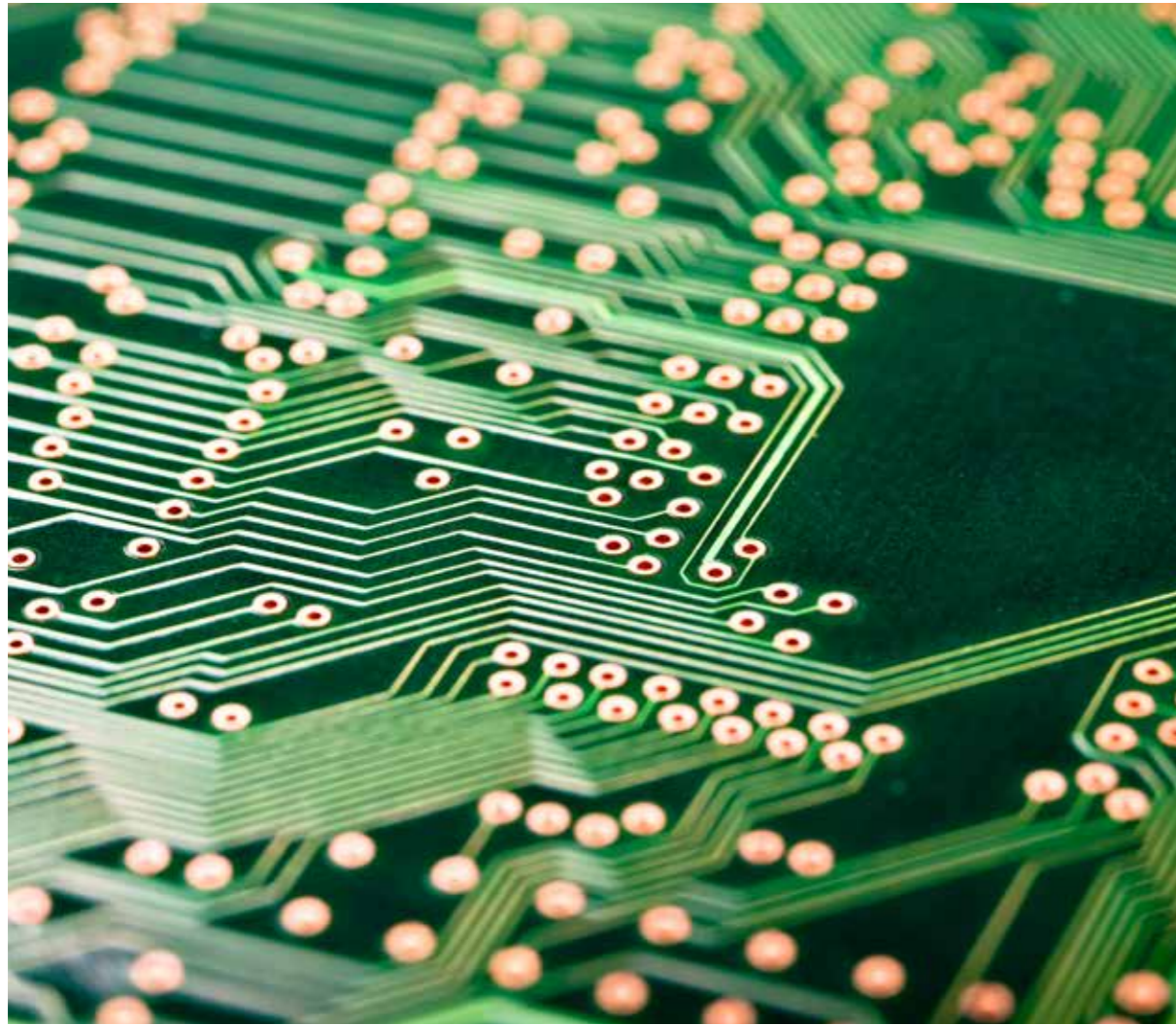
Computer-aided Design (CAD) and 3D printing are indispensable elements of contemporary manufacturing. Combining concepts in raster graphics and 3D modeling, this course introduces students to the working principles of 3D printers, and provides students the opportunity to design and print their own 3D models using open-source software.

Chinese · English 3 Hours Face to Face

Rundown

- From 2D to 3D: Types and working principles of 3D printers
- Fundamental operations in CAD: practicing basic operations on FreeCAD
- Your own CAD model: hands-on opportunity for students to create and troubleshoot their own 3D model on FreeCAD with guidance; models can be exported for 3D printing
- A Printed World: observe use cases of 3D printing from artificial meats to printed organs; evaluate the economic impact of additive manufacturing





Computer Operating Systems

Operating systems (OSs) coordinate computer hardware and software resources, enabling mass adoption of computing services. This course explores the purpose, components, and functions of OSs. The course also unveils the principles behind the simple user interfaces of popular OSs, so students can appreciate the benefits of both text-based and graphical interfaces. Through the course, students will excel in the use of different OSs and explore open-source alternatives such as Linux.

Chinese \ English 3 Hours Face to Face

Rundown

- Bit-by-Bit: Building blocks and evolution of operating systems
- Side-by-side: Navigation through common operating systems and identification of similarity and differences among them
- File-by-file: Understand file structure and operations within operating systems
- Mayday, Mayday!: Concepts in virtual memory, failure classification, storage structure, and remote backup; learners will work through different types of crash recovery



Data Science and Database

The course will expose students to data science using real-world data. Students will learn the techniques of data visualization and the process of identifying patterns and trends. Students will also learn how to systematically manage data through databases. By the end of the course, students will be empowered to use data to investigate and solve problems in the real-world.

Chinese \ English 3 Hours Face to Face

Rundown

- Is Data Science a Science?: Explore the investigative cycle of data science and distinguish between data and information
- Data as an Art: Learn about data visualization standards in academia and business settings using LibreOffice and R Studio
- Creating a Database: Explore real-world applications of database usage and learn basic database operations on MySQL or MongoDB
- Data Science Project: Guided project for students to create their own databases using real-world data followed by data visualization to identify trends





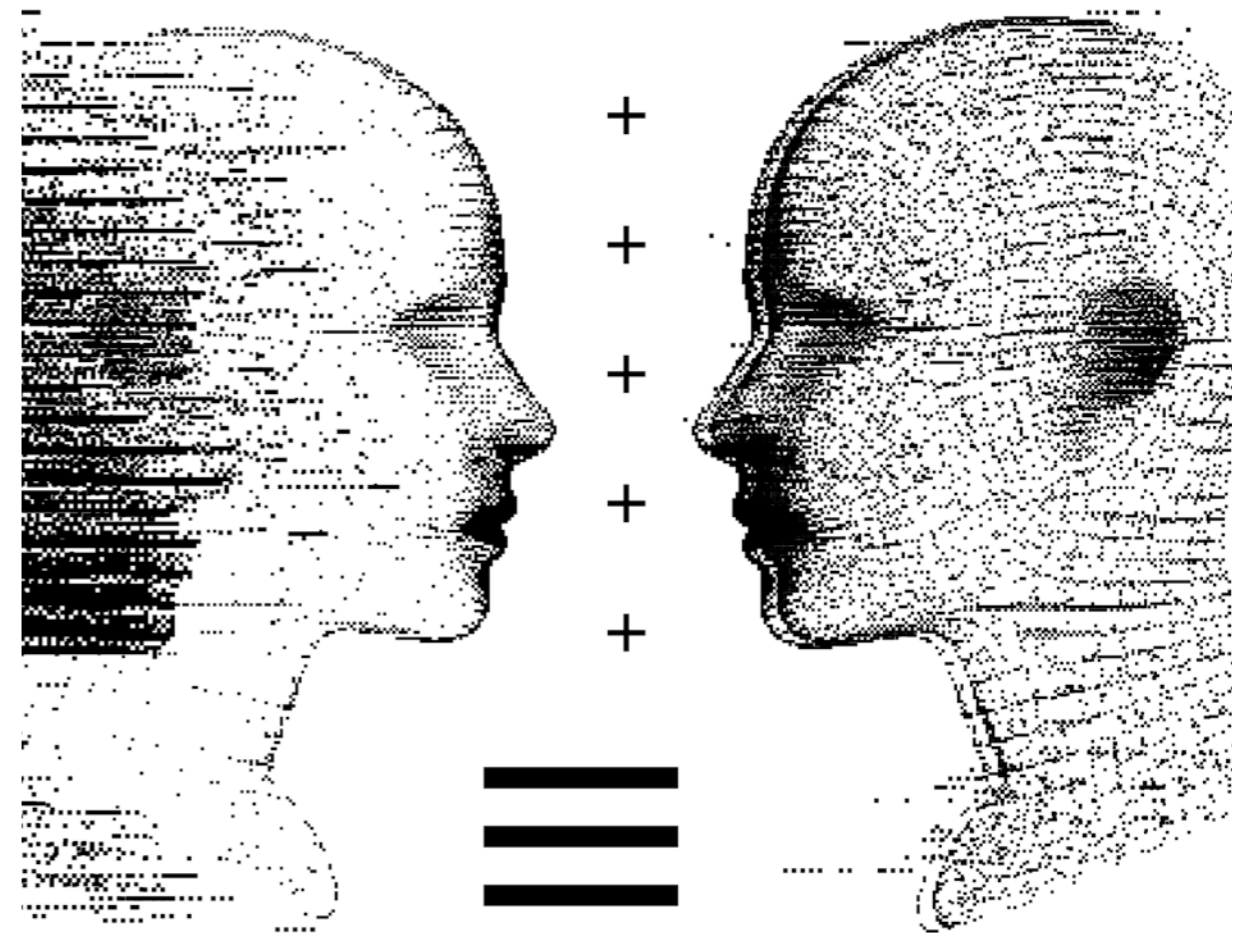
Big Data Analysis

Due to data explosions, traditional data analysis methods are increasingly obsolete. This course allows students to understand what causes data explosions, the properties of big data, and how to extract useful information from large amounts of data. The course concludes by discussing the social impacts of big data.

Chinese \ English 3 Hours Face to Face

Rundown

- ABC and 5V: Explore the properties of big data and the formats of displaying big data through case studies
- Managing Big Data: Work through database management systems and work through a data analysis cycle using COVID-19 data
- Visualizing Big Data: Using the same dataset, visualize pandemic trends on R Studio and extract insights
- A Data World: Identify where data are created, discuss whether the data is beneficial, and identify the biggest beneficiaries of big data



Artificial Intelligence and Machine Learning

Artificial intelligence (AI) is a cliché that is not well understood. Through this course, students will understand that the scope of AI is a technological as well as a philosophical one. They will learn to distinguish between AI, machine learning (ML), and deep learning (DL). The end of this course highlights the industrial applications and ethical challenges of AI, inviting students to explore the relationship between humans and machines.

Chinese \ English 3 Hours Face to Face

Rundown

- What actually is AI? : Explain and compare multiple definitions of AI and explore cases of AI in recent history
- ML and DL as subsets of AI: Through case studies and an avoidance of jargon, explore the mechanisms of cognitive computing and neural networks
- Power of AI: Discuss industrial applications of AI from medicine to media and identify the limits of AI
- "Ai" for "Love"? : Guided discussions of the ethical challenges of AI with students forming teams to visualize AI dystopia or utopia





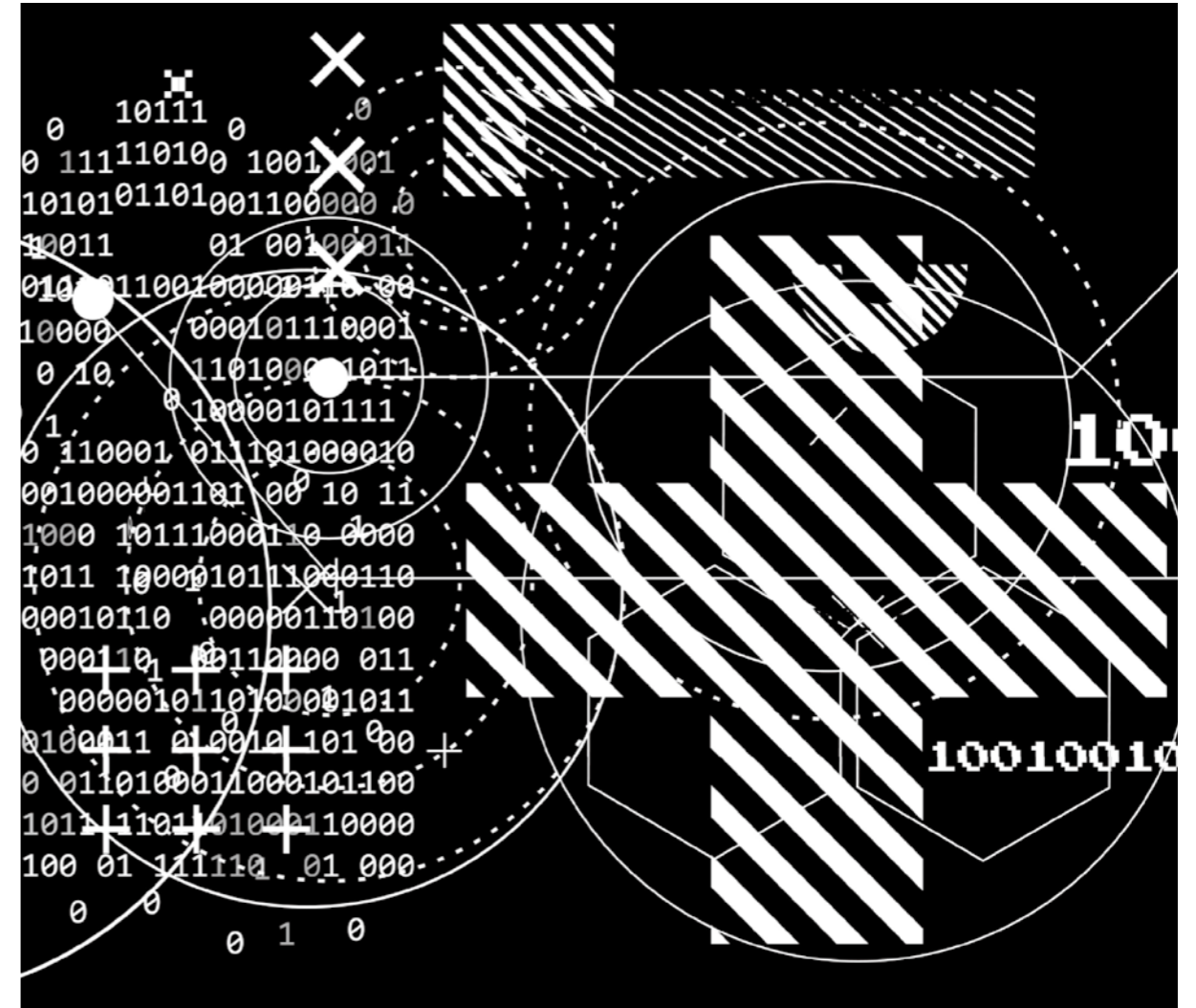
Robotics

Robots are at the interface between the binary and physical world. This entirely hands-on course introduces the hardware and software components of robots, allowing students to design and implement a robotics solution. Students will use popular open-source robotics hardware, such as the Arduino development board or Raspberry Pi, to build their robots.

Chinese · English 3 Hours Face to Face

Rundown

- Physics for Robots: Understand the basic principles of motion for robotics application and apply basic circuit components
- Talking with Robots: Program and control robotic systems using high-level or drag-and-drop programming languages
- It's Alive!: Applying knowledge in robotics hardware and software, design and implement a navigation solution in robots while troubleshooting in teams
- Everyone can be an Engineer: Review and stylize the robotic design process used during the above project



Numerical Computing

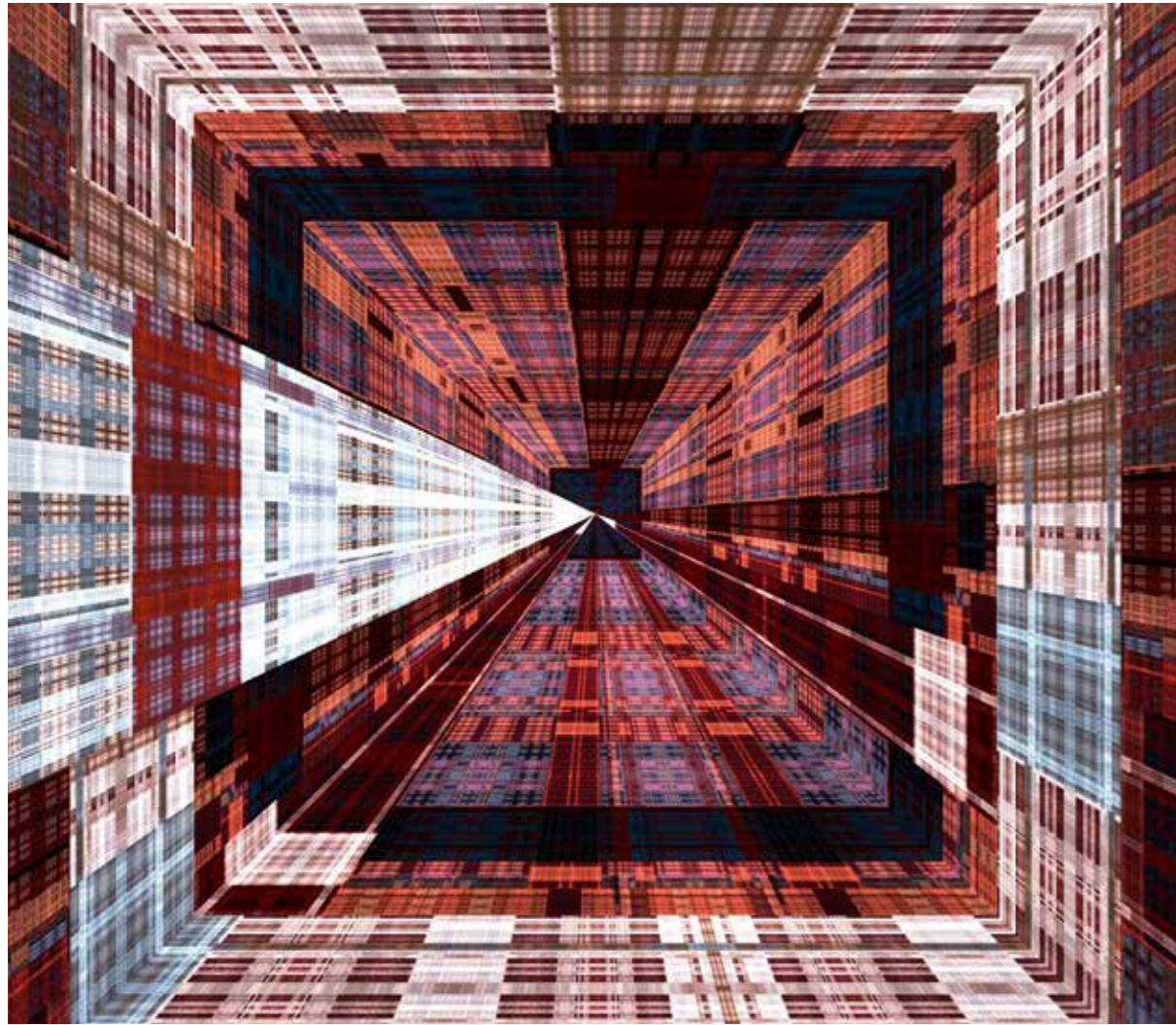
Numerical computing allows students to solve complex mathematical problems using only simple operations and compact notation. This course introduces the programming operations on Scilab, allowing students to solve complex mathematical and modeling problems efficiently. Students will leave the course with a fresh view of the mathematical problems they solve in compulsory education and first-hand experience of mathematical approaches in higher education.

Chinese · English 3 Hours Face to Face

Rundown

- Why Compute Numbers? : Historical development of numerical computing, contemporary software regimes, and famous mathematical problems solved on computers
- Working with Numbers on Computers: practice Scilab as a programming language and navigate through the software environment to solve mathematical equations
- Solving Numerical Problems: Explore the types of mathematical problems that can only be solved on computers and work through statistical, matrix, calculus, and quaternion problems on Scilab





Computational Thinking

Computational Thinking (CT) is now regarded as an essential skill by those living in the digital era. Covering decomposition, abstraction, pattern recognition, and algorithms, concepts of CT are closely related to our everyday activities. By the end of the course, students will become experts in applying CT concepts in methodical problem-solving.

Chinese \ English 3 Hours Face to Face

Rundown

- First step in CT: Applying the 4 basic CT elements in a tooth-brushing exercise
- CT for Grownups: Expanding CT concepts to encompass automation, data collection, data analysis, data representation, parallelization, pattern generalization, and simulation – applied to real-world processes
- Advanced Algorithms: Students are asked to create algorithms to solve optimization problems, e.g. calculating the number of elevators needed for the skyscrapers. Students are required to peer-review and debug others' algorithms
- Becoming like Computers: Exploring the value of CT and discussing the social impact of widespread adoption of creative and computational thinking



Office Tools

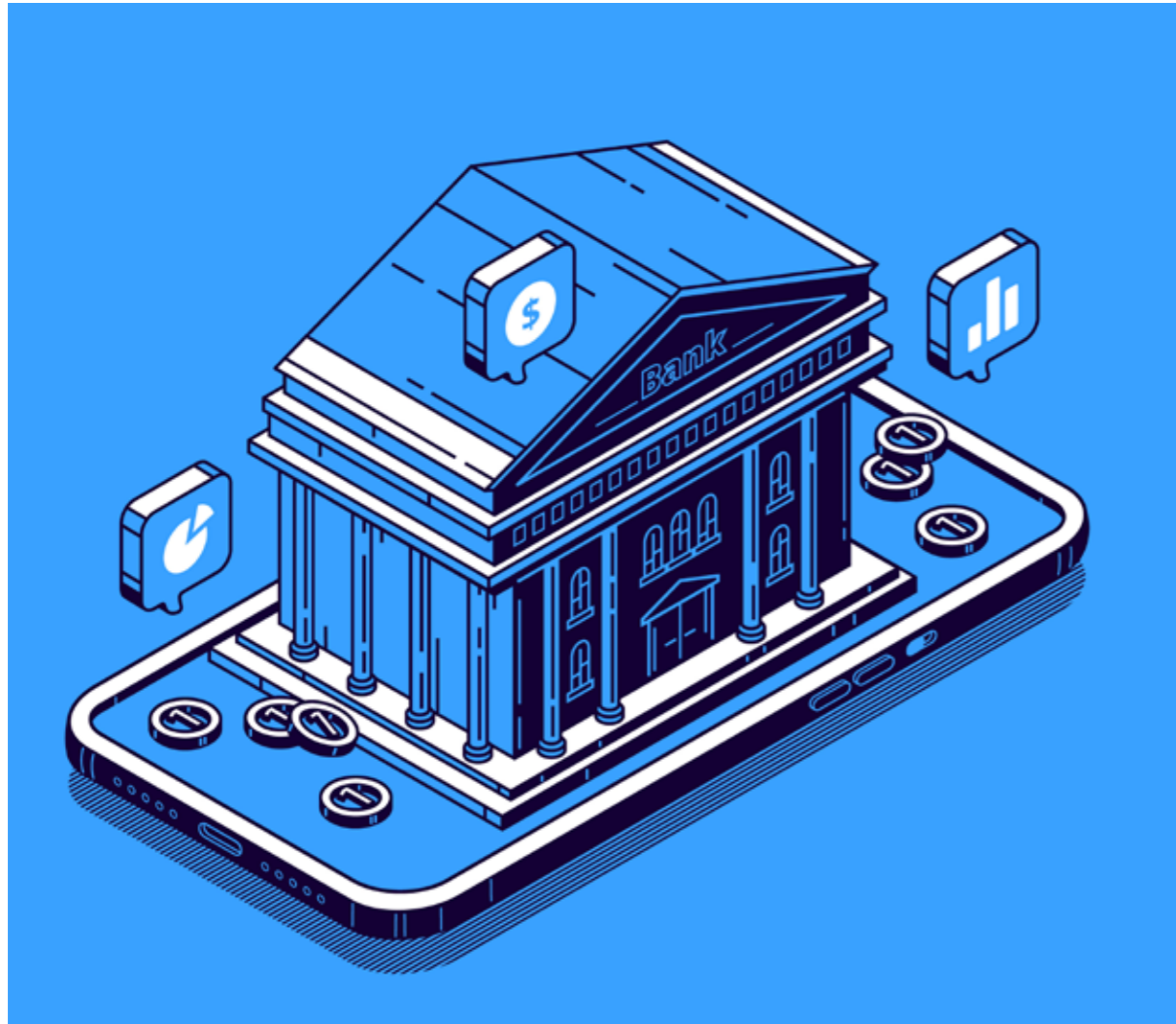
Office tools are commonly used in school life and the workplace. Proficiency with the office suite is undoubtedly an essential quality for students. Through this course, students will enhance their information processing capabilities through advanced applications of office tools. After this course, students will be equipped with improved skills in word processing, presentation, and data analysis.

Chinese \ English 3 Hours Face to Face

Rundown

- Compose with Ease: Deep-dive into Writer Documents
- Express with Style: Dissecting Impress Presentations
- Compute with Efficiency: Expertly navigate Calc Spreadsheets
- Store with Structure: Efficiently tackle Base Databases





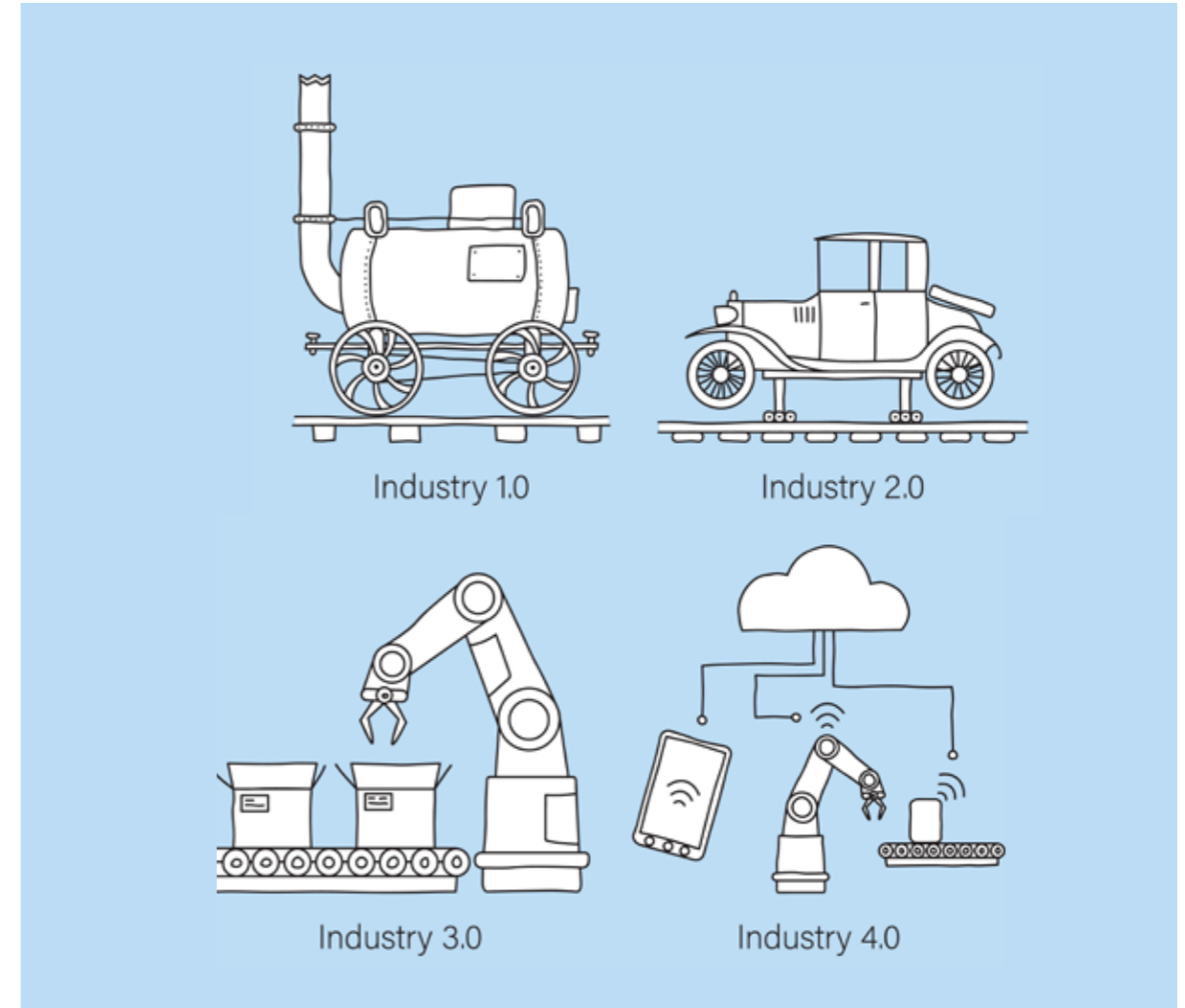
Fintech

FinTech (financial technology) is a living example of how technology transforms our daily lives and denotes any system that enables us to work with money in easier ways. The course opens with a discussion of the meaning of “money” and outlines the archetypes and principles of common Fintech. The course then delves deeper into the working principles of blockchain and cryptography – key enablers of cryptocurrency. Learners will leave the course understanding how most Fintech works and appreciating their regulatory challenges.

Chinese · English 3 Hours Face to Face

Rundown

- From Coins to Bitcoins: Economic history of money and payment; students are also asked to identify the goals of Fintech and use cases in personal and corporate finance
- Blockchain Game: A modified Monopoly game to explain the principles of blockchain and cryptography
- Policing Fintech: Class debate to discern attitudes towards payment systems, Fintech’s regulatory challenges, and differential adoption across the world



Technology and Society

This course is designed to help students understand the impact of technology on individuals, organizations, and the planet. Through real-world examples, students will learn that intellectual property rights encourage future innovations. Students will discover how the digital economy will affect demographics, then visualize a smart city incorporating promising technologies they know of.

Chinese · English 3 Hours Face to Face

Rundown

- Intellectual Properties Pop Quiz: Economic rationales and main archetypes of IP – patent, copyright, trademark, registered design, secrecy
- Forecasting the Digital Economy: Using raw data sets on different industries’ outputs, students will use R Studio or LibreOffice to plot graphs to predict the growth of the digital economy and anticipate demographic impacts
- Painting the Future: Using creative media of their choice, students will create a poster to visualize their versions of a smart city by incorporating the most positively and negatively impactful technologies they know of





Cybersecurity and Privacy

In this course, students shall understand different forms of cyberattacks, then examine the techniques used by engineers to protect networked systems. Students will further their knowledge by exploring preventative organizational policy, network designs, and software. Finally, students will explore the concept of digital footprints and develop their own ideas about protecting their data.

Chinese \ English 3 Hours Face to Face

Rundown

- Battle of the Binary: Distinguish cyberattacks and categorize cybersecurity mechanisms including firewalls, MAC address filtering, modular testing, and more
- Cybersecurity Card Game: Students will receive cards with different cyberattack and cybersecurity protocols; applying knowledge on cybersecurity, students need to devise strategies to win over opponents
- Data is the New Oil: Understand the indestructible nature of data, browse through privacy settings on own social media accounts to understand what digital dividends students are paying companies
- Developing Digital Immunity: Applying knowledge in cybersecurity and privacy, students will develop a set of enactable protection measures



Entrepreneurship in the Digital Economy

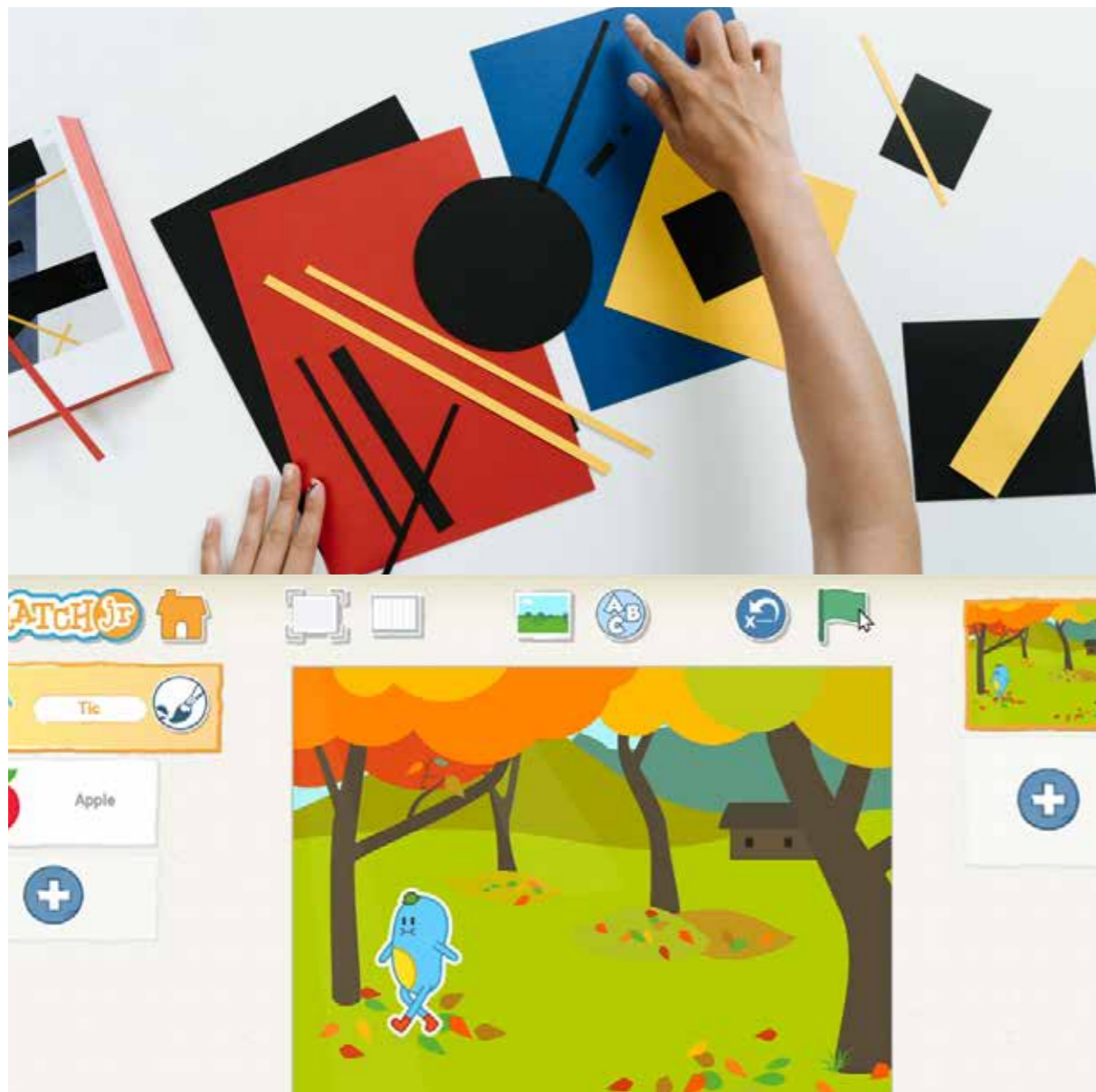
Technologies in the digital economy transform how new business ventures are created and operated. Students will first be introduced to archetypical frameworks of entrepreneurship to generate business ideas. By the end of this course, students will be able to integrate digital inputs, outputs, and environments with traditional entrepreneurial frameworks. Students will leave the course with an original business idea for the digital economy.

Chinese \ English 3 Hours Face to Face

Rundown

- A Rough Draft: using entrepreneurial frameworks on market entry analysis, hypothesis testing, business model, and IP protection, students will map out their unique business ideas
- Digitalize the Plan: Enrich the ideas by adding dimensions related to the digital economy – digital actors, activities, motivations, organizations
- Elevator Pitch: Students will present their digital entrepreneurship ideas in 60 seconds and be peer-reviewed
- Up or Out: Exploring the accelerated process of creative destruction in the digital economy and explaining the winner-takes-all phenomena in networked sectors





DECT Digital Storytelling Course

The course is designed for children aged 4-7 to develop them to tell inspiring stories. Children can exercise their creativity by learning different DECT contents and be able to solve problems logically using computational thinking skills. As a preparatory course, children can be equipped with the knowledge to better study the corresponding DECT modules.

Chinese 3 Hours Face to Face

Rundown

1. Covering 3 major elements, including CAD and 3D printing, graphic design and computational thinking, providing a diversified learning experience
2. Interactive and interesting stories are used throughout the course to enhance children's interest in learning
3. Advanced open-source software is used for teaching, making teaching more digital
4. Special learning themes are designed to allow children to play different roles in the classroom for immersive learning



Global Citizenship and Responsibilities

Global digital citizenship describes how a person should behave in the digitalized world. Students must comprehend how technologies of the digital economy will impact their role in society. By the end of this module, students will understand the technological methods employed by organizations. Students will also consider issues surrounding accessibility and inclusivity, platforms that foster collaboration, and the responsibilities required of them in a globalized world.



Chinese · English 3 Hours Face to Face

Rundown

- 24/7/365?: Global digital citizenship begins with an understanding of how the world works; students will explore the modern world of work by looking into a workday in the quantitative trading sector; students will outline key methods in collaboration and automation in contrast with traditional working practices
- The 4As: Students will discuss whether digital economy technologies enable access, availability, affordability, and acceptability of economic activities across the world; students will also identify tools that would improve the 4As and consider whether these tools are applicable during the COVID-19 epidemic



Site Visit (Digital Arts)

Students can visit companies in the digital and creative media industry. During the site visit, they can meet with company staff and understand industrial developments. They can also have site visits after taking other digital arts courses provided by Krystal Institute.



Chinese · English 3 Hours Face to Face

Rundown

- Introduction to Industry
- Introduction to Company
- Site Visit
- Sharing and Reflection





Academic and Development Projects in Singapore



Academic and Development Projects in Singapore

Through the Institute for Digital Game Technology (IDGT) established by our Founder in Singapore at the Nanyang Technological University (NTU), we have rolled out a series of academic and research & development projects in the realm of digital media technology, empowering future leaders of the Asian digital economy. This initiative was funded by Workforce Singapore (formerly the Singapore Workforce Development Agency), with the objectives of helping Singapore to equip its citizens with knowledge, skills and tools for entering the global game industry.



Research Topics

- | | |
|---|--|
| <ul style="list-style-type: none"> • GPU Physics on Water Physics Simulation • Physical Deformation of Plants • Real-time Collision Deformations • Cloud Simulation • Real-time Procedural Modeling of the Fracturing of 3D Models • Brittle Materials in Games • Managing and Rendering Large Terrains • GPU Based Terrain Erosion | <ul style="list-style-type: none"> • Real-time Global illumination • Real-time Subdivision Surfaces • Terrain Triangulation techniques • Wildlife Animation System • Neural Network based AI • Effective Load Management Technique for AI Characters in Games • Network System for Racing Games • Digital Audio Reverb for Games |
|---|--|



Key Project Baja: Edge of Control

Baja: Edge of Control is an off-road racing game based on the real-life Baja 1000 race series held in California. The tracks are set in a desert environment and there's over 1000 miles of racetracks to explore. In the main career mode, the idea is to start at the bottom class of off-road racing with a VW Beetle. By performing well in races, players earn prize money, sponsorships and experience points to buy better equipment and unlock higher classes. In order to secure the sponsorship money, their logos must still be on the car at the end of the race, so too much damage to the car will result in the player not getting paid. The vehicles can be tuned and modified to increase performance.

There are five different race modes; circuit which is the standard race where you do a few laps around a track against opponents; rally which is a point-to-point time trial; mountain climb which, as the name suggests, is to drive up a steep hill and then return back down; open class where different categories of cars race against each other with a handicap system in place to disadvantage the more powerful ones. Baja which is a racing game all about endurance, averaging between 250-1000 miles of racing. The Baja mode races can last up to several hours.

Academic Programs

The flagship projects of IDGT were to develop 2 programs, namely two Masters Degrees for training Advanced Game Programmers and Technical Artists. The IDGT campus was located within NTU, boasting world-class development kits, dedicated labs, and in-house proprietary software to empower students' research. IDGT courses offer students an opportunity to earn a Masters degree, while simultaneously working on real world projects that require advanced research and development. Students engage in independent research, and their project focuses are directly related to the real world development for digital games, from next generation console games to more traditional online and PC games.

National Accreditation Standards

IDGT curricula are certified and built according to national work qualification standards in Singapore. Commissioned by the Singapore Government, IDGT defined the qualification standards for the digital media sector by designing 28 Singapore Workforce Skills Qualifications (WSQ) across areas such as Game Design and Production, Modeling and Texturing 3D Game Assets, Rigging, and Concept Art Design.

Research and Development

IDGT offers a list of research topics that our Master students can choose from to do their research thesis on. Each of the Master students are assigned an IDGT supervisor to help refine and guide their research processes. Students are encouraged to dive into research areas that empower real world applications. IDGT research outcomes were even showcased in Singapore Media Expo of the Expo 2010 Shanghai China, where visitors could experience 3D racing games and see the city of Singapore through an arcade racing game, with compelling 3D visual effects and a realistic simulation engine.





Course Material Samples

CROSS REFERENCE MATRIX

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

PROGRAM STRUCTURE

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

PROGRAM STRUCTURE

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

LESSON PLAN

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

ASSESSMENT PLAN

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

EVIDENCE GATHERING PLAN

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

TRAINER'S GUIDE

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

Institute of Digital Game Technology

ASSESSMENT PLAN

Game Design and Production

INDUSTRY
Creative Industries

COMPETENCY UNIT CODE
CI-GD-416S-0
CI-GD-509S-0

COMPETENCY CATEGORY
Game Development

COMPETENCY UNIT
Document Game Design
Develop Technical Design Document

Course Material Samples

COURSE OUTLINE

Course aim: Create, design and implement a game

Learning Outcomes

- 1) Create and design a game.
- 2) Understand roles in game development and game production pipeline.
- 3) Write game design document to describe mechanics and gameplay of the game.
- 4) Write technical design document to describe technical features of the game.

Target audience

- 1) Fresh diploma or degree graduates from the relevant courses like computer science, computer engineering, SEM, ICT etc.
- 2) Learners with relevant ITE/C with relevant skills and knowledge.

Prize knowledge and experience

- 1) Game development experience, i.e. game programming for game programmers and game art for artists.
- 2) Broad knowledge of game technology.
- 3) Pass the entry test conducted by the ATO.
- 4) Pass the interview conducted by the ATO.

Course assessment

Group project

Submissions of the end of the course

Working game demo with the game design document and technical design document related to the game demo.

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5.1 The Seven Deadly Sins

The Seven Deadly Sins or Cardinal Sins is a classification of the worst sins that have been mentioned in the Bible. They are:

1. Lust or lechery is excessive thoughts of a sexual nature. (Being in lustfulness can lead to lust which can lead to adultery, fornication, and other sexual sins.)
2. Greed is the excessive desire for material possessions or anything to the point of hoarding.
3. Envy is the desire to possess what others have without deserving it. It is often characterized by a feeling of bitterness, jealousy, and a desire to see others fail.
4. Wrath or anger is the desire to harm others. It is often characterized by a feeling of anger, hatred, and a desire to see others fail.
5. Sloth is the failure to use one's gifts and talents to the best of one's ability. It is often characterized by a feeling of laziness, apathy, and a desire to avoid work.
6. Gluttony is the excessive consumption of food and drink. It is often characterized by a feeling of overeating, binge eating, and a desire to eat and drink excessively.
7. Drunkenness is the excessive consumption of alcohol. It is often characterized by a feeling of intoxication, loss of control, and a desire to drink excessively.

EMERGENCY TASKS

TASK 1: Create a card game for one of the Seven Deadly Sins.

1. Form groups of 4 to 5 members. Assign one group member to be the group leader.
2. The group leader will describe the mechanics and rules of the card game to the other group members.
3. Each group will create a card game for one of the Seven Deadly Sins.
4. Present the results to the instructor and provide a brief description.

Requirements for the group report

1. The group members must be identified in the report.
2. The report must be typed and 10 copies must be submitted to the instructor.
3. The report must be submitted to the instructor by the deadline.

Course Title: Game Design and Production
Document: Game Design - CI-GD-415S-0
(Developing Technical Design Document - CI-GD-509S-0)

Synopsis

This course is designed to introduce how to design, develop and produce a game. All necessary information such as roles in game team, game production pipeline, game development techniques and systematic game design will be explained as well. To enhance the knowledge of game designing, a 3-day workshop will be conducted so the students will have a chance to actually design and develop game mechanics.

This unit also covers on how to write and document the design to help establishing communication between designers and the game team and ensuring everyone in the team go to the same direction. It includes game design document (GDD) and technical design document (TDD). These two documents are critical reference that everyone in the team should refer to in their task execution. This unit will focus more on what to write in the documents, with some quick foundation of the knowledge in technical skills required for the documents. In the end, actual practical game development environment is the major highlight of this course to give the students hands-on experience of the actual development process rather than just theory.

Course aim: Create, design and implement a game

Training Objectives:

- Able to create and design a game
- Understand roles in game development and game production pipeline
- Able to write game design document
- Research games in the same genre to determine their design direction and gather information of appropriate game design documentation

Game Design and Production LESSON PLAN

Day	Topic	Time	Content	Activities	Resources
1	Game Team and Game Production	Page 1-10	Game Team and Game Production	Game Design Document	Game Design Document
2	Game Design	Page 11-15	Game Design	Game Design Document	Game Design Document
3	Game Design	Page 16-20	Game Design	Game Design Document	Game Design Document
4	Game Design	Page 21-25	Game Design	Game Design Document	Game Design Document
5	Game Design	Page 26-30	Game Design	Game Design Document	Game Design Document

Game Design and Production LESSON PLAN

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Game Design and Production LESSON PLAN

Day	Topic	Time	Content	Activities	Resources
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3	Game Design	Page 16-20	Game Design	Game Design Document	Game Design Document
4	Game Design	Page 21-25	Game Design	Game Design Document	Game Design Document
5	Game Design	Page 26-30	Game Design	Game Design Document	Game Design Document

Cross Reference Matrix for WSQ Competency Unit

Applicant: Institute of Digital Game Technology

Competency Unit: Document: Game Design

Competency Code: CI-GD-415S-0

Competency Unit: Develop Technical Design Document

Competency Code: CI-GD-509S-0

Legend:

CU: Competency Unit
CE: Competency Element
PC: Performance Criteria

TD: Trainer's Guide
PS: Powerpoint Slides

CE - PC	Underpinning Knowledge	Range and Contexts	Assessment Criteria (State what is expected and required from the candidate)	Proposed Assessment Methods	Coverage of Course Content for a specific PC item	
					TD (Pages)	PS (Slides)
1.	Game Design Document - Research games in the same genre to determine their design direction and gather information of appropriate game design documentation.					

WORKFORCE SKILLS QUALIFICATIONS

WS SINGAPORE WORKFORCE SKILLS QUALIFICATIONS

NATIONAL COMPETENCY STANDARD

Framework : Creative Industries Framework

Competency Category : Games Development

Competency Code : CI-GD-601S-0

Competency Unit : Create Concept Papers

Competency Descriptor : This unit covers conceiving, agreeing and setting out in writing the core concepts of the game and of gameplay. The skills include creating a document or documents which explain the game's principles to colleagues and stakeholder; demonstrating in words what the game will be about, how it will be achieved; and, setting out the structural basis that will inform a player's progress through the game.

Competency Level : 6

Credit Value : 4

Version Number : 0

Effective Date : 31 March 2009

Review Date :

Developer : WDA

Custodian : Community & Professional Services Division

WDA singapore workforce development agency

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WS SINGAPORE WORKFORCE SKILLS QUALIFICATIONS

NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries

Competency Category : Games Development

Competency Code : CI-GD-506S-0

Competency Unit : Analyse and develop the game UI design through appropriate information architecture

Competency Descriptor : This unit covers analysing the information architecture, and designing the player interface of a game. The skills include writing the design brief, defining the elements required for the information architecture, writing the user experience diagram, overseeing stylistic vision of the UI keeping with the aesthetic of the game.

Competency Level : 5

Credit Value : 3

Version Number : 0

Effective Date : 4th July 2009

Review Date :

Developer : WDA

Custodian : Community & Professional Services Division

WDA singapore workforce development agency

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WS SINGAPORE WORKFORCE SKILLS QUALIFICATIONS

NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries

Competency Category : Games Development

Competency Code : CI-GD-509S-0

Competency Unit : Develop technical design document

Competency Descriptor : This unit covers documenting and maintaining details of integration technology and architectural components important in developing an integration blueprint.

Competency Level : 5

Credit Value : 3

Version Number : 0

Effective Date : 4th July 2009

Review Date :

Developer : WDA

Custodian : Community & Professional Services Division

WDA singapore workforce development agency

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WS SINGAPORE WORKFORCE SKILLS QUALIFICATIONS

NATIONAL COMPETENCY STANDARD

Framework : Creative Industries Framework

Competency Category : Games Development

Competency Code : CI-GD-505S-0

Competency Unit : Create the Art Bible

Competency Descriptor : This unit covers establishing and recording the Art Bible for the game project which can be consulted by all colleagues to ensure a consistent visual approach and coherent styling to all game assets.

Competency Level : 5

Credit Value : 3

Version Number : 0

Effective Date : 31 March 2009

Review Date :

Developer : WDA

Custodian : Community & Professional Services Division

WDA singapore workforce development agency

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WORKFORCE SKILLS QUALIFICATIONS



NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Game Development
 Competency Code : CI-GD-419S-0
 Competency Unit : Modify and optimise graphics rendering
 Competency Descriptor : This unit covers managing the graphics rendering processes in the rendering engine. The skills include developing new code; implementing shaders and writing shader scripts; and, optimising graphics rendering to deliver faster frame rate.
 Competency Level : 4
 Credit Value : 5
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-420S-0
 Competency Unit : Modify and maintain code for game engines
 Competency Descriptor : This unit covers maintaining game engines. The skills include reading and analysing a brief to understand the requirements to the engine that the game concept and content demands; adapting or amending the game engine code to achieve new functionality; maximising efficient use of game engines.
 Competency Level : 4
 Credit Value : 5
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-415S-0
 Competency Unit : Design game's economic system
 Competency Descriptor : This unit covers designing the in-game economy in Strategy, role-playing game (RPG), massively multiplayer online games (MMOGs), etc. It involves creating the economy and the mechanisms by which in-game commerce is conducted. The skills include allocating values to all traded commodities, testing the economy through paper piloting (pen & paper) and amending values as appropriate. In MMOGs, it will involve setting out the parameters for a dynamic economy to ensure that players' actions do not destabilise the game economy. It may also involve building systems to manage the relationship between in-game and real-world currencies.
 Competency Level : 4
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-417S-0
 Competency Unit : Develop and implement testing tools
 Competency Descriptor : This unit covers the outcomes required to create a comprehensive set of testing and feedback tools designed to deliver a polished and 'bug free' product. It covers the process of systematically analysing and assessing the current development build of the software product and generating useful reviews designed to maximise product quality. The skills include (amongst others) conceptualisation, design, and implementation of a test plan and bug tracking systems to facilitate efficiency.
 Competency Level : 4
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-412S-0
 Competency Unit : Design in-game audio
 Competency Descriptor : This unit covers designing the in-game audio environment which will provide sound effects, dialogue and music for music scenes throughout the game. The skills include reading and analysing the script; analysing audio requirements; working with the level design team to create the audio map and locating triggers to run audio files; sourcing, obtaining or recording all required audio files; mastering and saving them to required formats and labelling them accurately.
 Competency Level : 4
 Credit Value : 4
 Version Number : 0
 Effective Date : 17th August 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-414S-0
 Competency Unit : Manage game quality and lead design in testing
 Competency Descriptor : This unit covers the management of game quality through the process of iterative quality assurance testing procedures. It involves understanding the phases of game design and leading the testing involved in each phase, the development of test scripts and use cases, and the process involved for bug tracking, fixing and testing.
 Competency Level : 4
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

Framework : Creative Industries Framework
 Competency Category : Games Development
 Competency Code : CI-GD-416S-0
 Competency Unit : Document Game Design
 Competency Descriptor : This unit covers establishing and recording a global design template for the game project which can be consulted by all colleagues to ensure a consistent functionality and design philosophy to all game assets.
 Competency Level : 4
 Credit Value : 4
 Version Number : 0
 Effective Date : 31 March 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-418S-0
 Competency Unit : Research and develop game design
 Competency Descriptor : This unit covers the outcomes required to create a well thought-out and relevant game design that properly serves the target audience and includes a high degree of interactivity and engagement. It covers the process of creative development and design to create unique, challenging, and accessible games.
 Competency Level : 4
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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WORKFORCE SKILLS QUALIFICATIONS

NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries Framework
 Competency Category : Games Development
 Competency Code : CI-GD-411S-0
 Competency Unit : Adapt games to meet language and cultural context
 Competency Descriptor : This unit covers adapting a game product to a range of international markets. The skills include ensuring accurate, colloquial translation of script and text assets; writing a brief for subcontracted agents or agencies; contracting and managing the dependencies; overseeing the creation and implementation of subtitles; subcontracting international voice acting and managing those dependencies; applying an understanding of cultural difference in international markets; and, briefing the production team on the customization of assets, UI and gameplay to meet the distinct needs of those markets.

Competency Level : 4
 Credit Value : 5
 Effective Date : 31 March 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division

WDA Singapore Workforce Development Agency

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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-325S-0
 Competency Unit : Create 3D art assets for a game
 Competency Descriptor : This unit covers constructing 3D models and textures for use in a video/computer game. The skills include analysing a concept drawing; determining the correct process to follow, such as organic high poly vs. hard surface modelling; using professional skills and tools to create the assets; optimising the assets and ensuring the assets meet the technical specifications, requirements and art guidelines of the game.

Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 17th August 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division

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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-327S-0
 Competency Unit : Create or modify game software tools for use in games creation
 Competency Descriptor : This unit covers creating or modifying game software tools to meet the ongoing needs of a game. The skills include analysing the software needs of a game; researching whether software solutions are currently available; modifying commercial solutions or creating new tools from scratch; and, training colleagues in the use of software tools.

Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division

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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Game Development
 Competency Code : CI-GD-331S-0
 Competency Unit : Review and test game source code to find and repair errors
 Competency Descriptor : This unit covers reviewing and testing game source code to identify and repair vulnerabilities (e.g. security holes, crashes, memory leaks, buffer overflows). The skills include setting objectives and reviewing the code with code review tools, and, revising errors.

Competency Level : 3
 Credit Value : 3
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services

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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Game Development
 Competency Code : CI-GD-336S-0
 Competency Unit : Develop technical art solutions for the game
 Competency Descriptor : This unit covers the outcomes required to effectively investigate and solve technical problems or production issues associated with the creation of artwork for a game.

Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division

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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-326S-0
 Competency Unit : Balance game rules
 Competency Descriptor : This unit covers testing the draft rule system in a game to determine whether it creates unbalanced gameplay. The skills include researching and understanding the draft rule set and testing them in play with a prototype. It involves exploring all possible permutations of gameplay. Where imbalances are found, it involves articulating the issues clearly and where possible suggesting potential solutions. It involves retesting amended rules and algorithms to determine whether they have rectified the identified issues.

Competency Level : 3
 Credit Value : 3
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division

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NATIONAL COMPETENCY STANDARD

Framework : Creative Industries Framework
 Competency Category : Games Development
 Competency Code : CI-GD-332S-0
 Competency Unit : Test usability of the game UI
 Competency Descriptor : This unit covers focus testing of the game UI for its usability by a range of different users. The skills include overseeing and managing a process of testing; obtaining and interpreting feedback from testers (feedback should address standard usability criteria); and, amending UI design in the light of feedback.

Competency Level : 3
 Credit Value : 3
 Version Number : 0
 Effective Date : 31 March 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division

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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-333S-0
 Competency Unit : Design game levels (maps) and environments for games
 Competency Descriptor : This unit covers designing levels (maps) for games. The skills include reading and analysing a brief, game script or concept sketches to understand the producer/lead artist's vision; researching aspects of landscape, urban design and architecture; and applying them to the level design to add realism; and, submitting designs back up the pipeline for approval and, where necessary, amending designs in the light of critical feedback.

Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
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WORKFORCE SKILLS QUALIFICATIONS



NATIONAL COMPETENCY STANDARD

Framework : Creative Industries Framework
 Competency Category : Games Development
 Competency Code : CI-GD-334S-0
 Competency Unit : Maintaining MMOG Communities
 Competency Descriptor : This unit covers running MMOG dedicated communities. The skills include scrutinising and moderating content and encouraging discussion of the MMOG; and, solving problems and issues arising from game play.
 Competency Level : 3
 Credit Value : 5
 Version Number : 0
 Effective Date : 31 March 2009
 Review Date :
 Developer : WDA
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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Game Development
 Competency Code : CI-GD-335S-0
 Competency Unit : Create visual effects for games
 Competency Descriptor : This unit covers the outcomes required to create visual effects for games from an artist's perspective using game tools and technology such as particle systems, shaders and post-render effects.
 Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Game Development
 Competency Code : CI-GD-321S-0
 Competency Unit : Scripting Artificial Intelligence behaviours for games
 Competency Descriptor : This unit covers using Artificial Intelligence (AI) programming scripts/codes to give non-player characters (NPCs) convincing sentient behaviours. The skills include reading the game script/code and analysing the AI behaviours required of the NPC; researching human and animal behaviours and applying that research to creating AI routines which emulate those behaviours; and, writing scripts/codes or tools to control NPCs; to understand the purpose of, and how to use, game development environments.
 Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Game Development
 Competency Code : CI-GD-322S-0
 Competency Unit : Create concept art for a game
 Competency Descriptor : This unit covers the outcomes required to create concept art that establishes or clarifies the mood or style of a game and the specific attributes and the look of various art assets.
 Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Game Development
 Competency Code : CI-GD-323S-0
 Competency Unit : Create storyboards
 Competency Descriptor : This unit covers the outcomes required to create storyboards that visually depict real-time or pre-rendered cinematics, scripted events, gameplay and other game features.
 Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 4th July 2009
 Review Date :
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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-324S-0
 Competency Unit : Design and implement the layout and user flow of the player interface (GUI or UI) of a game
 Competency Descriptor : This unit covers designing and implementing the player interface of the game. The skills include understanding the Interface Design Document; breaking the requirements down into the elements of the UI, i.e. menus, HUD; applying an understanding of Human/Computer Interaction (HCI) psychology and existing user interface metaphors to the design; styling it according to the brief in keeping with the aesthetic of the game.
 Competency Level : 3
 Credit Value : 4
 Version Number : 0
 Effective Date : 17th August 2009
 Review Date :
 Developer : WDA
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NATIONAL COMPETENCY STANDARD

WSQ Framework : Creative Industries
 Competency Category : Games Development
 Competency Code : CI-GD-318S-0
 Competency Unit : Create dialogue, scripts, items and entity descriptions
 Competency Descriptor : This unit covers writing the game hypertext narrative. The skills include drafting the game script; revising the narrative and script in the light of review feedback; and, creating in-game texts and writing character and entity descriptions.
 Competency Level : 3
 Credit Value : 3
 Version Number : 0
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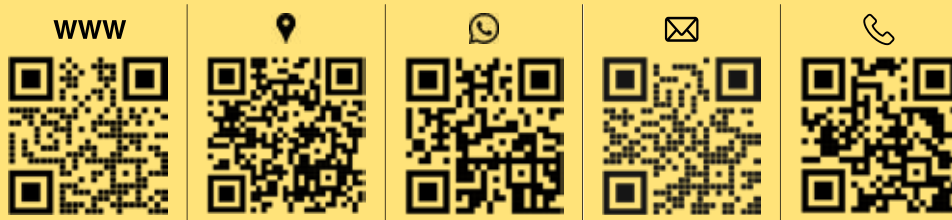
NATIONAL COMPETENCY STANDARD

Framework : Creative Industries Framework
 Competency Category : Games Development
 Competency Code : CI-GD-235S-0
 Competency Unit : Play and analyse games to improve game play
 Competency Descriptor : This unit covers play testing. The skills include playing the game during the latter stages of its production and assessing all aspects of design, interface and game play; recording all issues accurately and reporting them to the design team; and, retesting the game after changes have been made to check that issues have been resolved.
 Competency Level : 2
 Credit Value : 3
 Version Number : 0
 Effective Date : 31 March 2009
 Review Date :
 Developer : WDA
 Custodian : Community & Professional Services Division



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