助学生扩展创造力，设计自己的虚拟世界。
Helps expand creativity to design own virtual world.

NEW ERA INSTITUTE
OF VOCATIONAL & CONTINUING EDUCATION
新纪元技职与推广教育学院
L02635
Owned by Dong Jiao Zong Higher Learning Centre Bhd (292570A)

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011-6051 0218 | 011-1688 4915 (DEPARTMENT OF SMART INDUSTRIAL AND HOSPITALITY)
017-372 0230 | 011-1059 9071 (DEPARTMENT OF INDUSTRIAL ENGINEERING)
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软件工程
电子游戏与虚拟科技
Software Engineering
Computer Games Development and VR (SECVR)

◢ 80%实践训练
80% Practical Skills

◢ 20%理论
20% Theory

◢ 2年课程
2 Years Learning

◢ 16岁以上即可报读，无需入学资格
Entry Requirement: 16 Years Old & Above

◢ 教学媒介语以中文为主，英文为辅
Medium of Instruction: Chinese & Simple English

软件工程

电子游戏与虚拟科技
SOFTWARE ENGINEERING
Computer Games Development and VR (SECVR)

2 年课程
Years Course

本课程为因应资讯科技的迅猛发展及有以下意愿的学生而设:
This qualification was developed to keep pace with the fast changing information technology sector and for candidates who want :

- 信息和通信技术(ICT)行业的职业发展
  Career progression within the Information and Communication Technology (ICT) industry

- 掌握资讯业必须具备的知识和技能,发展成为专业的软件工程师、电脑游戏开发、网络开发员、流动应用程序开发员、系统架构师、机器人开发商、等等。
  To gain knowledge and skills needed to work in the IT industry as a professional software engineer for computer game development, web programmer, mobile application developer, system architect, web developer and etc.

- 设计和开发各种高技能电脑游戏。
  To produce highly skilled computer games design and development who are capable of creating games for diverse purposes.

- 开发电脑,网络和移动平台上的创新数码游戏产品 。
  To develop innovative digital game products, particularly on computer, web and mobile platforms.

- 提高学生的就业潜力,并满足各种数码游戏开发行业的需求,特别是专注于独立游戏开发商和新游戏平台。
  To advance students' employment potential and addresses the specific needs of employment in the various digital games development industries particularly focusing on the independent game developer and new gaming platforms.

两年制软件工程专业课程为学生提供了数码游戏技术的动手知识,这些知识是开发现代电脑游戏,电脑编程和移动应用程序开发技能所需,以增强他们的教育和就业机会。该课程借鉴了数码技术的许多领域,包括电脑游戏设计(2D和3D建模和动画)、游戏编程、软件工程、图形设计、人工智能、人机交互、分布式系统等。学生将使用如Unreal或Unity游戏机动之类的工具学习游戏的设计,游戏角色和游戏完整性。虚拟游戏编程可帮助学生扩展创造力,以使用与专业人士相同的产品设计自己的虚拟世界。学生将花费一周的时间学习如何使用Unity来构建虚拟环境或增强的体验。
The two-year Vocational Course in software engineering provides student with hands-on knowledge of digital gaming techniques that required to develop modern computer games, computer programming and mobile application development skills to enhance their educational and employment opportunities. The course draws from many areas of Digital Technology including computer games design (2D & 3D modeling and Animation), games programming, software engineering, graphics design, artificial intelligence, human-computer interaction, distributed systems and etc. Students will learn design levels, characters, and full games using tools such as the Unreal or Unity game engines. VR Game Programming helps students expand their creativity to design their own virtual world with the same products as the professionals. Students will spend the week learning how to use Unity to construct virtual environments or augmented experiences.

学生将学习 / Students will learn and be able to:

- 依据用户的要求以及系统与技术规范,掌握软件及应用程序的设计、开发、测试、维护及记录文档程式代码。
  Software and applications design, develop, test, maintain and document programme code according to user requirements and system and technical specifications.

- 依据用户的要求以及系统与技术规范,掌握数码游戏应用程序设计、研发、测试、维护和记录程序代码。
  Digital games applications design, develop, test, maintain and document programme code according to user requirements and system and technical specifications.

- 通过实际项目开发数码游戏,研发游戏机动、2D动画、3D环境以及基于电脑、互联网和移动游戏的编码。
  Develop digital games through practical projects in areas such as game engine, 2D animation, 3D environments and coding for computer, internet and mobile based games.

- 开发2D和3D角色设计的概念和艺术,例如动画、时间、动作、构图和背景艺术,以及纹理和照明。
  The concepts and craft of 2D & 3D character design such as animation, timing, movement, composition and background art, as well as texturing and lighting.

- 有效声音设计的原则以处理和实现声音。
  Principles for effective sound design plus how to record, process and implement sound.

- 用C#、安卓移动(Android mobile)、Java及iPhone/iPad、Objective C,在Windows视窗移动开发移动程式。
  Mobile Games development for Windows mobile using C#, Android mobile using Java, RxJava, Kotlin and iPhone/iPad using XCode, Objective C, Swift and etc.

- 网络程式开发包含在三个关键方法中,即:PHP/MySQL, Java and C#.NET(ASP)。
  Web application development is included in three key approaches PHP/MySQL, Java and C#.NET (ASP).

- 用MySQL、物件导向分析与设计,面向对象程序设计(Object Oriented Analysis and Design),开发数据库技术,以及用Visual Basic.Net, Java, C++ 开发基于Window视窗的应用程式等技术。
  Skills in database development with MySQL, NoSQL, etc. Object Oriented Analysis and Design, and Window-based application development with Visual Basic.Net, Java, C++ and etc.

课程内容 | COURSE OUTLINE

- 编程概论
  Introduction to Programming
- ICT实务技能
  Practical ICT Skills
- 绘图基础
  Drawing Fundamentals
- 电脑游戏开发软件工程概论
  Introduction to Software Engineering in Computer Game Development
- 职场英语(1)
  Workplace English Communication (1)
- 资讯科技与社会
  IT and Society
- 电脑游戏开发软件工程介绍
  Introduction to Computer Games Technology
- 电脑网络
  Computer Networking
- 电脑游戏设计1(2D插图)
  Computer Game Design 1 (2D illustration)
- 系统分析与设计
  Systems Analysis and Design
- 以Java编写物件导向程式
  Object-oriented Programming using Java

- 电脑游戏设计2(3D模型建构)
  Computer Game Design 2 (3D Modelling)
- 人机互动(HCI)
  Human Computer Interaction (HCI)
- 网站设计与开发(HTML5, JavaScript & XML)
  Web Design and Development (HTML5, JavaScript & XML)
- 动画技术-2D
  Animation Technique I - 2D
- Real-Time 电脑游戏编程
  Real-Time Computer Games Programming
- 与工作相关的软件技能
  Work-based Soft Skills
- 网页应用程式开发(PHP)
  Web Application Development (PHP)
- 数据库管理系统(MySQL, NoSQL)
  Database Management Systems (MySQL, NoSQL)
- 电子商务应用
  E-Commerce Applications
- 电脑游戏开发—2D游戏
  Computer Games Development 1 - 2D Games
- 动画技术2 (3D)
  Animation Technique 2 (3D)
- 职场英语 (2)
  Workplace English communication (2)

- 网络安全
  Cyber Security
- 电脑技术创新
  Innovative Technologies in Computing
- 软件开发方法论
  Software Development Methodologies
- 移动游戏开发—Android (RxJava & Kotlin)
  Mobile Games Development - Android (RxJava & Kotlin)
- 电脑游戏开发2 (3D游戏)
  Computer Games Development 2 (3D Games)
- 数码游戏编程2-C++
  Digital Games programming - C++
- 移动游戏开发-iOS (Objective-C and Swift)
  Mobile Games Development - iOS (Objective-C and Swift)
- 扩增实境(AR)游戏与虚拟实境(VR)游戏
  Augmented Reality (AR) and Virtual Reality (VR) Gaming
- 电脑游戏软件开发 (毕业制作)
  Computer Games Software Development (Major Project)

* Please note that the modules listed are indicative and may be subject to change.

OFQUAL认证 | OFQUAL RECOGNITION

OFQUAL为英国政府学历及考试评审局,受英国议会监察。所有学习材料均由该领域的专业人士和专业学术作者设计和编写,以便每个互动模块都符合OFQUAL规定的特定学习标准,OFQUAL是英国高等教育学术标准的英国政府机构。这些标准确保学生获得高质量的教育以及大学的认证和雇主认可。

The Office of Qualifications and Examinations Regulation (OFQUAL) regulates qualifications, examinations and assessments in England. All learning materials are designed and written by expertise in the field and professional academic authors so that each interactive module is aligned against specific learning criteria specified by OFQUAL, the defining UK Government body for Academic Standards in UK Higher Education. These standards ensure those that learn with us receive a high quality education along with certification that is recognised universally by Universities and employers.

评估标准 | ASSESSMENT

100%作业及实践练习,本课程提供电子游戏与虚拟科技的理论20%与实践80%,聚焦于工作场所的实际应用。鼓励团队合作,让学生学会分组合作或单独工作以完成专题作业。

100% Assignment and Practical Exercises. The course offers both the theory (20%) and practice (80%) of Software Engineering with specialization in computer games development and virtual reality (VR) skills, with a focus on the practical application of these skills in the workplace. Teamwork is encouraged and students learn to work in groups or individual to complete their projects.

考取资格 | QUALIFICATIONS

英国国立西苏格兰学院专业文凭和高级专业文凭
Diploma and Advanced Diploma awarded by West College Scotland, UK

台湾文凭(由台湾各大学颁发)
Diploma Qualification from Universities in Taiwan

第五级专业文凭(资格获得OFQUAL英国政府学历及考试评审局承认)
Level 5 Diploma (Regulated by OFQUAL – Office of Qualification & Examination Regulation)

就业前景 | CAREER PATHWAYS

人工智能软件工程师、机械人软件工程师、精明系统软件工程师、软件系统分析师、互联网应用程序工程师、软件设计工程师、数据库软件工程师、软件测试师、移动应用工程师、电子商务软件工程师、系统构架工程师、主程式员、IT研发工程师、网页软件开发工程师、网页设计师、多媒体软件工程师、IT项目经理等等。

AI Software Engineer, Robotics Systems Analyst, Software Engineer, Web Programmer, UI Software Developer, Database Developer, Software Testing Engineer, Mobile Application Engineer, E-Commerce Software Developer, Systems Architect, Team-Lead Programmer, IT Developer, Web Application Developer, Web Designer, Multimedia Software Engineer, IT Project Manager, etc.