

# 电子机械

Mechatronic  
(IEMTC)

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### 2 年课程 Years Course

▲ 80% 实践训练  
80% Practical Skills

▲ 20% 理论  
20% Theory

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

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

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:

- 在制造业谋求职业发展。

Career progression within the manufacturing industry.

- 掌握制造业必须具备的知识与技能，成为专业的电路与电板设计师、电子技术师、自动化编程员、产品绘图与设计师等等。

To gain knowledge and skills needed to work in the industry as a professional electronic schematic designer, electronic technician, PLC programmer, product designer and etc.

- 培养技能型、复合型工程技术人材。

To cultivate skilled and professional talents.

- 引导学生掌握相关技能，提高学生就业能力。

To equip participants with the range of skills to enhance their employment opportunities.

两年制电子机械专业技职课程为学生提供3D绘图技术、电板制作、电路图设计、自动化编程、编程技术、传感器技术与应用的实践知识与技能，提高学生就业能力和素质。

The two-year Vocational Course in Mechatronic provides students with hands-on knowledge of 3D drawing skills, circuit design, schematic design, programming, sensor and interface skills to enhance their employment opportunities.

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

- ▲ 涵盖电气原理图，电路制版图设计，电板制作等应用电子技术。

Electrical schematic diagram, circuit design, PCB fabrication and various types of applied electronic skills.

- ▲ 掌握各类感应器原理与应用，配合Arduino控制器，实践电子产品设计与制作。

Design and development of electronic devices by using different types of sensors and Arduino controller.

- ▲ C++, Python and Arduino等编程语言。

Programming languages including C++, Python and Arduino.

- ▲ 学习掌握可编程逻辑控制 (PLC) 在各种自动化和机器控制上的编程和应用。

Learn to master programmable logic control (PLC) programming and application on various automation and machine control.

- ▲ 机械设计与控制上的相关科目，包括液压与气动技术，机械元件设计，机电等原理与应用。

Related subjects in mechanical design and control, including hydraulic & pneumatic technology, mechanical component design, electromechanical and other principles and applications.

- ▲ 通过Python编程, 使用机器学习技术并应用于不同领域。

Learn to use machine learning technology by using Python and apply to different applications.

- ▲ 通过电脑辅助设计CAD软件，进行电子产品外观设计和机械结构机制设计。

Structural design of machine mechanism and appearance design of electronic products by using Computer Aided Design (CAD) software.

## 课程内容 | COURSE OUTLINE

- 工程安全与质量管理  
Engineering Safety and Quality Management
- 电气学概论  
Electrical
- 电子学概论  
Electronics
- 应用电子  
Applied Electronics
- 职场英语1  
Workplace English Communication 1
- 职场英语2  
Workplace English Communication 2
- 与工作相关的软技能  
Work-based Soft Skills
- ICT实务技能  
Practical ICT Skills
- 工程图纸规格与技能  
Technical Drawing
- 代数与三角学  
Algebra & Trigonometry
- 机械运动与动力学  
Kinematic and Dynamic
- 机械制图与投影  
Mechanical Drawing Development
- 零件装配图  
Assembly Drawing
- 3D建模与组装  
3D Modeling
- 金属加工与制造过程  
Metal Machining and Manufacturing Process
- 电路板制作  
PCB Fabrication
- 电路图设计  
Electrical Schematic Design
- C++ 编程  
C++ Programming
- Arduino控制器  
Arduino Controller
- 电力电子与电磁  
Power Electronics & Electromagnetism
- 传感器技术与应用  
Sensor, Actuator and Interface
- 先进制造与材料力学  
Advanced Machining and Materials
- 电气电工布线  
Electrical Schematic and Wiring
- 液压与气动技术  
Hydraulic & Pneumatic
- 机器元件设计  
Machine Element Design
- 工业自动化与机器人  
Industry Automation and Robotics
- Python机器学习  
Machine Learning with Python
- 组合逻辑电路  
Combination Logic Circuits
- 可编程控制器技术与应用  
Programmable Logic Circuits (PLC)
- 电子产品设计与开发(毕业制作)  
Electronic Device Development (Major Project)

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



## 评估标准 | ASSESSMENT

100%作业及实践练习，本课程提供电子机械的理论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 Mechatronic, 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

Diploma awarded by West College Scotland, UK

英国国立西苏格兰学院高级专业文凭

Advanced Diploma awarded by West College Scotland, UK



## 就业前景 | CAREER PATHWAYS

自动化编程员、电路与电板设计师、电子技师、产品设计师。

PLC Programmer, Electronic Schematic Designer, Electronic Technician, Product Designer.






电路板制作、电路图设计与应用的实践知识与技能，提高学生就业能力和素质。  
Hands-on knowledge of circuit design, schematic design and interface skills  
to enhance their employment opportunities.



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