

# Pearson BTEC Level 5 Higher National Diploma in Building Services Engineering (Electrical)

Registration Number / Course Code: 252615 / 014P

It is a matter of discretion for individual employers to recognize any qualifications to which this course may lead to.

個別僱主可酌情決定是否承認本課程可令學員獲取的任何資格



## 英國國家高級文憑 (屋宇裝備工程-電機工程)

### Pearson BTEC 簡介

英國愛德思 (Pearson) 國家職業學歷與學術考試機構，是英國規模最大的學歷與職業資格頒證機構之一。Pearson 由英國主要職業資格考試機構「商業與技術教育委員會“BTEC”」和倫敦大學考試與評估委員會 (ULEAS) 合併而成。Pearson 的所有課程都由英國教育與技能部“DfEs”和英國教學大綱與學歷管理委員會“QCA”共同監管。Pearson 跟政府機構、學術機構及企業緊密合作，Pearson BTEC HND 在全球獲 120 個國家的大學認可。

### 課程簡介

- ◆ 電機工程課程內容由英國愛德思國家職業學歷與學術考試機構(BTEC)提供，是結合本港實際工程界的需要，並由香港設施工程學院(HKCE)主辦的晚間兼讀制課程。
- ◆ 此課程給予學員廣泛而全面的知識，為學生建立良好的學術基礎，學員可自行報讀英國或海外大學的學位課程。
- ◆ 以學生為主的互動式教學，讓學生通過完成與職業相關的課程，學以致用，注重應用操作、團隊合作、案例分析、實踐創新。除專業及關鍵技能外，重視職業的通用技能培訓。
- ◆ 摒棄傳統考試的學習評估模式，每學科以習作成績作為評核標準，令學員能輕鬆學習

### 課程首席講師



**Dr Irwin P Kwan**

BSc(Engg), DBA, CEng, Eurlng,  
CDCFOM, FCIBSE, FHKIFE, FIDCE  
RPE (BS, ME, FE, BE) & REA, MHKIE

關博士是香港設施工程學院的榮譽校長，並一直致力於教育及培訓學員。由 1992 他一直希望透過創立本學院，以培植年青工程師達致機械、電機、建築及土木等各方面的設施工程專業水準。

### 證書頒發

- ◆ 學員需在指定時間內成功完成指定 16 科，所有功課經 BTEC 審核合格，並已通過校內英文考試合格 (英文資格如有 IELTS 5.5 或 CEFR 或 PTE 51 或相同資格; 或本校的校內英文試(由本校與 Wall Street English 合辦)), 將獲得由英國愛德思國家職業學歷與學術考試機構(BTEC)頒發國際認可英國國家高級文憑 (Higher National Diploma)。

## 課程認受性

- ◆ 成功取得 BTEC HND 之學員, 可自行向香港學術及職業資歷評審局 ( 評審局 ), 取得本港認可的資格, 申請者而需要符合評審局其他要求。
- ◆ Pearson BTEC HND 在全球獲 120 個國家的大學認可, 本學院介紹或自行報讀海外大學。
- ◆ 成功取得 BTEC HND 之學員, 可申請英國一些相關學會, 成為副會員 (須符合相關要求)。

## 申請註冊電工 B 牌要求

- 持有由香港專業教育學院頒發的電機工程學文憑, 或具有相等資格, 並受僱為電業工程人員最少已 5 年, 其中最少 2 年包括電力工作實際經驗。(資料來源: 機電工程署網頁  
[https://www.emsd.gov.hk/tc/electricity\\_safety/how\\_to\\_apply/registering\\_as\\_an\\_electrical\\_worker\\_for\\_electrical/index.html](https://www.emsd.gov.hk/tc/electricity_safety/how_to_apply/registering_as_an_electrical_worker_for_electrical/index.html))

## 入學條件

標準入學條件	非標準入學條件(需年滿 21 歲)
<ul style="list-style-type: none"><li>◆ 中七畢業 (F.7); 或</li><li>◆ 中學文憑試畢業 (DSE); 或</li><li>◆ 持有基礎文憑 (OD/PD); 或</li><li>◆ 持有英國國家高級證書/專業證書(HNC/HC);</li><li>◆ 英文要求<ol style="list-style-type: none"><li>1. IELTS 5.5 分或以上 or</li><li>2. HKDSE Level 3 or</li><li>3. HKCEE Level D or</li><li>4. A Level Grade E or</li></ol>如不能符合以上英文要求, 需要在申請畢業前完成本校舉辦的英文班並通過考試。</li></ul>	<ul style="list-style-type: none"><li>◆ 中五畢業並有最少 5 年有關工作經驗及面試; 或</li><li>◆ 毅進課程畢業並有最少 3 年有關工作經驗及面試; 或</li><li>◆ 有關 10 年工作經驗及面試</li><li>◆ 英文要求<ol style="list-style-type: none"><li>1. IELTS 5.5 分或以上 or</li><li>2. HKDSE Level 3 or</li><li>3. HKCEE Level D or</li><li>4. A Level Grade E or</li></ol>如不能符合以上英文要求, 需要在申請畢業前完成本校舉辦的英文班並通過考試。</li></ul>

## 學費 (全期學費分 4-8 期繳交, 每期可選擇修讀 1-5 個單元)

- ◆ 基本學費 : 每單元 HK\$3,200
- ◆ 優惠學費: : 請致電到學院查詢

## 其他費用

- ◆ 報名費 : HK\$500
- ◆ 筆記影印費 : 每科 HK\$300 (學生可自由選擇)
- ◆ BTEC 註冊費 : 三年註冊費 HK\$5,600
- ◆ 英語備試班及考試 : HK\$2,800
- ◆ 因個人原因需要將期票延期或退票, 要收取行政費 HK\$300

## **申請豁免條款 (一經報名, 恕不接受任何豁免申請)**

- ◆ 申請獲豁免科目必須與 BTEC 課程內容相吻合, 為確保豁免科目符合 BTEC 要求, 學員需跟從指示提供相關的學術文件、成績、申請豁免科目的 Assignment, 以供本學院審核並由 BTEC 最終審核。審核費每科 HK\$1,000 (成功與否均不設退還)。

## **授課詳情**

- ◆ 授課語言 : 以粵語教授, 英文輔助, 英文講義
- ◆ 課程師資 : 講師為註冊工程師(HKIS、RICS、CEng and RPE);或註冊設施經理或擁有碩士學歷及教育經驗; 或持有大學學位及相關工作經驗。
- ◆ 單元 : 16 單元
- ◆ 筆記 : 僅提供電子筆記
- ◆ 授課時間 : 7:00pm - 10:00pm
- ◆ 開課日期 : 每年的 3 月、6 月、9 月、12 月
- ◆ 截止報名 : 課程開課前兩星期 (詳情請向職員查詢)

## **課程內容 Course Content**

### **P5E01 - Construction Design Project**

Discuss the stages of a design process and the types of information required to communicate, share and manage the project process. Explain the different types of construction information developed through the course of a project. Produce design propositions that address project requirements defined through feasibility stages. Present a construction information package, highlighting the coordination of information between different project stakeholders to ensure accuracy.

### **P5E04 - The Construction Environment**

Explore the development of the construction industry through the roles and relationships of the professionals involved. Assess the impact of the construction industry; discuss the ways in which the construction industry ensures quality, timely completion and safety. Examine the routes to employment and progression within the construction industry.

### **P5E06 - Digital Applications for Construction Information**

Discuss the key types of construction information that may be produced in support of construction projects. Demonstrate the use of project standards and their setup in digital applications. Generate construction information for a given project using industry-standard digital applications. Present a package of construction information, including drawings, schedules and specifications for a given construction project.

### **P5E15 - Principles of Alternative Energy**

Examine the different contexts that inform discussions on environmental sustainability; discuss types of alternative energy systems and how they support sustainability. Explain the factors that inform the selection of a renewable energy system in relation to a specific installation. Present a strategy for a cost-effective upgrade to an existing building, utilising an appropriate form of alternative energy.

### P5E18 - Principles of Electrical Design & Installation

Discuss the fundamentals of electricity, magnetism, transformers and circuits; analyse the performance, operation and control of AC and DC motors. Explain the different methods of electricity generation and distribution; present a proposal for a non-domestic lighting installation in a given project.

### P5E21 - Electrical Machines

Assess the constructional features and applications of transformers; analyse the starting methods and applications of three-phase induction motors and synchronous machines. Investigate the types of generator available in industry by assessing their practical applications; analyse the operating characteristics of electromagnetic transducers and actuators.

### P5E22 - Scientific Principles for Building Services

Calculate energy transfer rates in different building services contexts; evaluate conditions of static and dynamic fluid flow to determine energy loss. Design electrical circuits for single-phase AC networks; determine the effects of sound and vibration related to building services and human comfort.

### P5E28 - Group Project (Pearson-set)

Assess individual and group skills to allocate roles within a collaborative team; plan a construction project, based on the Pearson-set theme, in collaboration with others to ensure good practice in resource management, staffing and project scheduling. Prepare tender documentation, undertaking work appropriate to a defined role within a team; evaluate own work, and the work of others, in a collaborative team.

### P5E30 - Project Management

Discuss the theory and practice of project management and the context of the profession; explain the roles, relationships and management of stakeholders in a construction project. Describe the activities of a project manager through the different phases of a construction project; present a project management strategy for a given construction project.

### P5E31B - Electrical Systems and Fault Finding

Investigate the constructional features and applications of electrical distribution systems; examine the types and applications of electrical motors and generators. Analyse the types of lighting circuits available in the industry by assessing their practical application; explain the operating characteristics of electrical safety components.

### P5E32 - Advanced Construction Drawing & Detailing

Explore the methods to ensure consistent development and management of construction information; examine the relationship between CAD & BIM data in the production and management of construction information. Discuss the types of information required throughout the lifecycle of a construction project; prepare an information package for a given construction project.

#### P5E34 - Further Mathematics for Construction

Apply instances of number theory in practical construction situations; solve systems of linear equations relevant to construction applications using matrix methods. Approximate solutions of contextualized examples with graphical and numerical methods; review models of construction systems using ordinary differential equations.

#### P5E39 - Personal Professional Development

Assess personal learning needs and opportunities in the context of employment. Plan and manage own personal learning journey, through consultation with employer and/or tutor/instructor. Record personal progress and the feedback of others; responding as appropriate to own future development. Evaluate own learning, based on personal experience and comments from others, in order to plan for the future.

#### P5E49 - Advanced Electrical Design & Installation

Explain the principles and equipment associated with power and distribution systems, electromagnetic compatibility and electrical services. Discuss the protective measures necessary for the safe installation and operation of electrical systems. Design an electrical distribution plan for a complex non-domestic building. Present a report on the national, regional and local standards for sustainability, technical and health and safety regulations that apply to specific building types.

#### P5E50 - Building Management Systems

Discuss the technologies and applications used in building management systems; assess how a building energy management system (BEMS) can optimise cost and energy usage. Evaluate the potential benefits in cost and sustainability through the use of BMS and BEMS technologies. Specify a building management system suitable for a small multi-zone, non-residential building.

#### P5E53 - Utilisation of Electrical Power

Examine the demands, sources and construction of electrical power generation and distribution systems. Explore the interconnections of power systems and their protection to explain the critical processes and the effects of failure and the importance of electrical safety. Evaluate the effectiveness of forms of engineering activity to promote sustainable development, with consideration of the economics of components, power systems and alternative energy sources. Discuss new and emerging methods to optimise energy usage, conversion and storage technique.

## 報名時需提供:

- 已填妥的報名表, 報名費 HK\$500, 及首期學費
- 身份證
- 履歷表
- 畢業證書
- 工作經驗證明

## 報名及付款方式

□ 報名時請備EPS, 現金或劃線支票(信用咭暫不接受)

□ 如以劃線支票, 請在支票上註明收款人

**TD Professional Education Group LTD.”**

If pay by crossed cheque, please specify the payee to be

**TD Professional Education Group LTD.”**

郵寄地址:香港設施工程學院, 九龍旺角廣東道982號, 嘉富商業中心15樓

□ 轉數: 將學費直接存入銀行戶口, 連同銀行收據及填妥之報名表格WhatsApp至: 65286900。

尖端教育集團有限公司: 東亞銀行 514-40-55818-4

尖端教育集團有限公司: 滙豐銀行 124-422288-001

轉數快認識碼: 102669215

Or deposit the payment to our Bank A/C:

**TD Professional Education Group LTD: East Asia Bank A/C: 514-40-55818-4**

**TD Professional Education Group LTD: HSBC: 124-422288-001**

and WhatsApp us the bank receipt accompany your application form at 65286900.

**FPS Code: 102669215**

□ 或連同報名表格及學費親臨本學院繳交。

Or submit the application form with the course fee in person

□ 或支付寶:

- 首先開啟支付寶『掃一掃』
- 再掃描二維碼及輸入金額
- 交易完成



## 注意事項

1. 香港設施工程學院已實施個人資料 (私隱) 政策, 有關資料單張可於報名處索閱, 或閣下可與本學院個人資料管理主任查詢。
2. 香港設施工程學院保留在任何情況下及以任何原因拒絕任何入學申請的權利。申請者繳付學費後, 仍須符合入學的所有條件, 其申請方可獲得接納。
3. 香港設施工程學院保留在任何情況下更改課程內容、授課地點、日期及時間的權利。
4. 如申請退學, 學生需於本課程開始前最少5個工作日以書面通知退學, 否則已繳學費概不退還。申請者申請退還學費需繳交手續費HK\$300。

查詢熱線 : 3165 8069  
電郵地址 : [enquiry@tdpedu.org](mailto:enquiry@tdpedu.org);

WhatsApp : 65286900  
學院網址 : <http://www.tdpedu.org>