



## 建築物防漏水工程師專業證書課程

### Professional Certificate in Water Leakage Management for Engineers

#### 課程簡介 Course Introduction

本課程透過講解、討論、個案研究、示範、報章分享、圖片、圖則、多媒體、報告、物料說明書等，並以淺顯易明的方式，使各學員能在短期內能掌握一般漏水處理及防水補漏的知識，從而解決日常遇到的建築物漏水投訴及維修問題。

This course provides the practical knowledge through lectures, discussions, case study, demonstration, sharing of news on media, pictures, multi-media, academic reports, material catalogues etc. Besides, the lectures are delivered in simple and practical ways to make the students easier to catch up the general knowledge of solutions for water seepages and leakages so that the students can handle water seepages and leakages complaints and repairing afterwards.

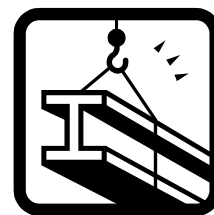
#### 教學目標 Objectives

讓學員能掌握相關專業知識，提升相關技術及學以致用，並於此行業繼續發展，持續自我進修成為專業技術人員。  
To make learners pick up relative professional knowledge, enhance their technology and apply the knowledge in future career development. Besides, this course aims to act as continuous professional development to let the learners become professional technical specialist.

#### 課程大綱 Course Outlines

- **建築物漏水簡介**
  - 漏水的基本知識 (水的特性、變化、來源等)
  - 一般漏水之處理程序及方法/漏水的種類 (窗邊、牆壁漏水、天台漏水等)。
- **Introduction of Buildings Water Seepages / Leakages**
  - Basic knowledge of water seepages (Sources and characteristics of water)
  - General handling process for water seepages/ different types of water seepages and water leakages (Windows, walls and roof leakages)
- **漏水問題處理及漏水成因**
  - 漏水的種類(水缸、泳池、天幕等漏水) / 漏水特徵及成因及建議 / 處理方法 / 漏水投訴跟進 / 責任承擔/管理公司處理漏水投訴之程序。
- **Causes of Water Seepages / Leakages & Handling Methods**
  - Types of Water Seepages / Leakages (Water tank, Swimming pool, Glass canopy / atrium) / characteristics and sources of water seepages / leakages and recommended handling methods / follow-up actions for water seepages / leakages complaints / responsibilities / and property management company handling procedures
- **漏水測試及個案研究**
  - 漏水個案研究 1-15/水壓測試 / 勘察方法 / 專業測試滲漏方法(微波濕度量度, 紅外線, 閉路電視) / 法庭案例 / 勘察報告。
- **Water Leakages Testing and Cases Study**
  - Water Seepage / Leakage cases study 1-15 / Water pressure test / Physical testing methods / Professional investigation methods (microwave humidity measurement /infrared /CCTV)/court cases and investigation reports
- **防水及補漏方法及施工實例**
  - 漏水報章分享 / 防水工程實例 / 防漏工程施工實例(局部天台防水工程 / 全面重鋪天台防水層工程 (塗料)(卷材) / 天台面層防水工程(不起底) / 局部外牆防漏工程 / 外牆大維修工程 / 局部天台連外牆防水工程 / 天花牆身灌漿防漏工程 / 食水缸防漏工程 (灌漿) / 消防水缸防漏工程 / 沖廁水缸防漏工程 / 游泳池翻新維修工程 / 泳池面維修工程 / 升降機槽井防漏工程(灌漿) / 修復地底渠管工程(捲筒式) / 修復地底渠管工程(反套式) / 全面重鋪平台防水層工程(噴塗) / 平台防水層工程(不行人) / 局部平台防水層工程(塗料) / 浴室防水工程 / 行人隧道防水工程(自貼式)。
- **Water Seepage / Leakage Repairing Method and Cases Study**
  - Water leakage cases sharing from media / project management for water proofing works / method statement of water proofing works ( partial of roof / re-laying of the whole roof water proofing works (painting membrane / mat) / water proofing works on roof without hawking off the existing membrane layer / partial of external wall / external wall / partial of roof and external wall / the injection method for roof / external wall / water tanks water proofing work by injection / fire services water tanks water proofing works / flushing water tanks / swimming pool renovation works/ pool deck surface water proofing works / lift pit (by injection) / repairing of the underground drainage by internal and external methods / whole roof by membrane layers / non walking flat roof / partial flat roof by membrane layer / water proofing works for bathroom ceiling / and water proofing works for subways

- 防水及補漏物料/ 工程管理
  - 漏水報章分享 / 選用防水物料的準則 / 認可天面防水物料 / 防水及有關物料介紹(唧膠, 英坭添加劑, 防水塗料, 防水卷材, 打針料, 隔熱板) / 參考圖則 / 施工規格 / 工程管理 / 承建商及物料供應商網頁介紹
- **Water Proofing Material / Project Management**
  - Sharing of news from media / selection criteria / recognized water proofing material for roof / water material introduction (gasket / coving / adhesive agent of cement / water proofing painting material / mat layers / inject epoxy / thermal impact panels etc.) Reference drawings / general and particular specification / project management / contractor and supplier website introduction
- 石屎剝落/ 維修及紅外線勘察技術
  - 常見石屎剝落的位置 / 石屎剝落徵狀成因 / 維修責任 / 選擇修補方法之考慮要素 / 修補物料 / 修補方法程序 / 安全措施 / 紅外線勘察技術原理 / 優點 / 應用範圍 / 使用限制 / 費用
- **Concrete Spalling Repair & Infrared Scan Technology**
  - Concrete spalling locations / symptom and source / repair and maintenance responsibility / repair methods and factors of consideration / repairing material / repairing method statement / safety procedure / theory of infrared scan investigation / advantages / area to be used / limitation and expense.



**教學對象 Target Audience** 建築或測量工程師，具高中或以上學歷人士亦可參加。

-High school graduates who are interested at this course.

-Suitable for building and surveying professionals and related industry practitioners.

**授課語言 Medium of Instruction** 廣東話 (輔以中文/英文教材) Lectured in Cantonese / Materials in Chinese/English

**報名地點 Venue** 澳門氹仔偉龍馬路澳門科技大學 O 座 2 樓 持續教育學院

SCS, 2/F Block O, Macau University of Science and Technology, Avenida Wai Long, Taipa, Macau

**上課地點 Venue** 澳門氹仔偉龍馬路澳門科技大學 (確實地點將於確認開課時以手機短訊通知)

Avenida Wai Long, Taipa, Macau (Classroom number will be notified after the course is confirmed to commence.)

**上課日期 Course Date & Time**

|                                    |                         |                                     |                             |
|------------------------------------|-------------------------|-------------------------------------|-----------------------------|
| 課程編號 Course code :<br>1807290066-0 | 2019/01/19 & 2019/01/26 | 週六 Sat<br>10:00-13:00 & 14:00-18:00 | 總課時 14 小時<br>Total 14 hours |
|------------------------------------|-------------------------|-------------------------------------|-----------------------------|

**課程費用 Tuition Fee** MOP 2,000 元

**收生名額 Class Size** 20 人

### \* 報名注意事項 Enrollment Notes \*

**報名時間：星期一至五(9:00 - 20:00)、星期六(9:00 - 13:00) [公眾假期除外]**

**Operation hours: Monday to Friday (9:00 – 20:00) ; Saturday (9:00 - 13:00) [Close at Public Holidays]**

1. 首次報讀本院短期課程者，請先登入**網上報名系統**（網址：<https://scs.must.edu.mo/oasc/PersonalInfo.do>）或掃描以下的 QR Code，選擇 **<建築工程>** 類別，預先登記個人資料(不需上傳身份證)，填妥資料後，帶備身份證正、副本至本院辦理報名。For those who enroll for our courses for the first time, please go to <https://scs.must.edu.mo/oasc/PersonalInfo.do> or scan the QR Code below, choose the category of **<Building & Construction>**, and input personal information (no need to upload ID copy). After registration online successfully, please come to our school to make payment. You should bring along with your ID card and copy.
2. 報讀者可以現金/本票或劃線支票（抬頭請寫“澳門科技大學持續教育學院”或“SCHOOL OF CONTINUING STUDIES MACAU UNIV. OF SCIENCE AND TECHNOLOGY”）繳付學費及材料費，**現金收費上限為澳門幣/港幣 5,000 元**。  
Tuition fee and materials fee (if any) should be paid by cash or by cheque/Cashier Order (Please make payable to “SCHOOL OF CONTINUING STUDIES MACAU UNIV. OF SCIENCE AND TECHNOLOGY”). **Cash is accepted for payment of not more than MOP5,000.**
3. 所有費用一經繳交，恕不退還（本院取消開辦該課程除外）或轉讓。  
All payment made is not refundable (except that the course is cancelled by the School) or transferable.
4. 如課程報名人數不足，本院保留課程取消或延期的權利。  
The School reserves the right to cancel or postpone the courses if minimum class size is not reached.



## 查詢 Enquiries

Tel: 8796 1998

Email: [scs@must.edu.mo](mailto:scs@must.edu.mo)

Website: <http://www.must.edu.mo/scs/diploma-certificate-programs>

持續教育學院致力開拓終身學習機會，如欲收到本學院之課程資料，可發電郵至 [scs@must.edu.mo](mailto:scs@must.edu.mo)，並提供閣下之電郵地址，標題主旨為“加入通知群組”。

The School of Continuing Studies develops life-long learning opportunities. Should you wish to receive information on our programs / courses, please send us an email (to [scs@must.edu.mo](mailto:scs@must.edu.mo)) stating your email address in your email and “Join the mailing list” in the Subject line.

我們亦為機構/政府部門/學校等提供內部培訓，按各機構不同之要求(主題/時間/地點/對象)而訂定培訓內容。請與我們聯絡。

We also offer in-house training for corporations/Government Departments/schools, tailor-made with respect to your choices of topics, time, place, and group of attendees. Please contact us for more information.