AEEMM
澳門機電工程師學會
Associação dos Engenheiros Electrotécnicos e Mecânicos de Macau
The Macao Institution of Electrical and Mechanical Engineers

澳門機電工程師學會

The Macao Institution of Electrical and Mechanical Engineers

持續進修發展計劃

Program of Development and Continuous Study

應用於家居節能自動化的信息通訊技術

Deployment of ICT in Home Automation for energy efficiency

講者:張子惇 工程師
Lecturer: Ir CS Chang

學時:14 小時
Class Hour:14 Hours

日期:2012 年 2 月 18 日和 2 月 25 日（星期六）
Date: 18 February 2012 & 25 February 2012(Two Sunday

上課時間:9:30-13:00,14:30-18:00
Time: 9:30-13:00,14:30-18:00

地點(Venue): 澳門羅理基博士大馬路 600 號E, 第一國際商業中心, 1505 室

人數:20 名額有限，報名從速!
Class :20 students Quota is limited, Please be quick!

參加者於完成活動後將獲本會頒發持續專業進修（CPD)系統認可的證書一張
Certificates of Attendance will be given to Participations(CPD)

Course Introduction

Abstract

Home Automation is becoming more and more popular nowadays. Home Automation integrates different electrical devices in a home setting to interact with each other so as to provide a higher degree of convenience and comfort to the users at home. In general, home automation would include the integration of HVAC systems (air conditioning, ventilation and heating), electrical appliances, centralized control of lightings (dimmers, LEDs, florescent lights), surveillance system and AV systems in order to provide greater comfort, improved energy efficiency as well as higher degree of convenience and security. Such automation system may also provide a platform for tele-health service so that important and critical information can be delivered to the relevant parties in the most time efficient way for the benefit of the users. Automation could also provide better quality of life for the elderly persons who require substantial institutional care.

Through the integration of Information and Control / Communication Technologies into the home environment, systems and appliances are able to communicate in an integrated manner which results in increase in the level of convenience, energy efficiency and safety. Typically, a new home will be fitted with the necessary provisions for home automation as part of the design on the wall partitions, outlets and utility rooms in order to accommodate the installation and hence application of certain ICT technologies. For existing buildings, wireless systems are commonly installed as this will reduce the wiring requirements which could be rather complicated and hence costly. An alternative will be the use of the existing power line network already installed in the buildings for the communications of the home automation signals with a central controller. In this way, network sockets can be installed in every room using the AC power receptacles.

While a vast amount of electricity consumption is still based on fossil fuel, such consumption will yield in tremendous amount of carbon generation which in turn results in global warming. The global warming/climate change issue has become a world-wide hot topic that all nations are putting a lot of effort to tackle. As a result, comprehensive solutions for carbon management and strategy development are desperately required. The smart metering is considered to be a solution to remedy such a problem and it is closely linked to home automation.

This training will focus on Home Automation – its development and applications and it will also cover the background and the need of Advanced Metering Infra-structure (smart metering) including its related technologies. A holistic approach will be adopted in the training including a comprehensive analysis of the Carbon Footprint in the society. The basics of automation, electricity pricing strategy, the Demand Response in electricity markets, energy conservation, home/office/building automation systems, automation and metering technologies will be discussed. In addition, the systems and methods for effective and smart energy profiling based on ZigBee, a communication technology, will also be covered.

課程內容 Course Contents：

1 家居節能自動化的概念和介紹 Introduction to Home Automation

什麼是家居節能自動化 What is Home Automation
家居節能自動化的優勢 Benefits of Home Automation
家居節能自動化系統的組成部份 Key Components of Home Automation

2 家居節能自動化其它應用 Other Applications related to Home Automation

遙距醫療系統和應用 Tele-health system and application
改善長者的生活質數 Improvement on the Quality of Life for the Elderly

3 信息通訊技術於家居節能自動化的應用 ICT Technologies in Home Automation

控制系統技術 Control System Technologies
通訊系統技術 Communication Systems Technologies
應用的國際標準 Applicable international standards
執行所需要的技術 Implementation of the technologies

4 家居節能自動化與環境 Home Automation and the Environment

碳足跡和碳的管理 Carbon Footprints / Carbon Management

全球氣溫上升 Global Warming

5 智能電錶 Smart Metering

什麼是智能電錶 ? What is smart metering ?
智能電錶如何影響我們的日常生活? How would smart metering affect our daily life ?
智能電錶的應用 Application of Smart Metering
智能電錶的施工 Implementation of Smart Metering
智能電錶的相關問題 Problems related to Smart Metering
電力的定價 Electricity Pricing
應用實例和討論 Practical examples and discussion

6 考試/問題 筆試/討論形式 Discussion/Question/Examination

上課時間表 Course Schedule (14hours)：

2012年2月18日 (星期六), 18 Feb. 2012 (Sat.)
9:30-13:00 , 14:30-18:00

2012年2月25日 (星期六), 25 Feb. 2012 (Sat.)
9:30-13:00 , 14:30-18:00

適合參加的人士 Who will Attend：

對智能家居的節能自動化感興趣的電力工程從業人員、工程師、工程系學生等。
Electrical Engineering Workers, Engineers, Students in Engineering etc are interesting in Home Automation for Energy Efficiency

報名方式 Registration：

填妥報名表格,通過傳真(853)2883-7701或電郵 info@aeemm.org.mo 發給本會,讓我們為您預留位置(報名表格 – 附件1)。

Please fill the form in annex 1 and return by fax (853)2883-7701 or email info@aeemm.org.mo to AEEMM for reservation

學費 Registration Fee:

MOP 840

繳費方式 Payable :

請將報名費用存入本會大西洋銀行戶口(號碼：9008987130)， 並將填妥的報名表及存款證明傳真(853-2883-7701)或電郵 info@aeemm.org.mo 至.本會，將有專人回覆確認收妥 。

Please be payable to BNU account (No. 9008987130). The payable document with the registration form should be returned by fax (853-2883-7701) or email info@aeemm.org.mo for confirmation by AEEMM

講者簡介 Biography of Speaker

Ir CS Chang obtained his BSc degree in Electrical Engineering majoring in computer software from the University of Hong Kong and an MBA degree from Chinese University of Hong Kong. He has worked in France for the development of the software which was used in the MTRC Island Line Train Control System. Since then, he has been working as a project manager on various multi-disciplinary control, communication and signaling projects for both the operational railway and new railway lines for Mass Transit Railway Corporation, Kowloon Canton Railway Corporation and now MTR Corporation Limited after MTRC and KCRC merged into one company in December 2007. In the mid eighties and early nineties of last century, CS has worked in the IT industry on both Sales & Marketing as well as Technical Support aspects.

In June 2008, CS decided to leave the "employee" life and started his own consultancy business in the areas of System Engineering / System Integration and Project Management as well as Training. He is now the Chairman and Director of Key Direction Limited, the Executive Director of PYPUN-KD & Associates Limited and the Associate Director of Ascent Dynamic Consultants Co Ltd.

CS is currently the Chairman of Asia Pacific Regional Board of Institution of Engineering and Technology, Past Chairman of IET Hong Kong and Past Chairman of CAI Division of HKIE. He also sits in various boards and panels on both charitable, industrial and academic bodies in Hong Kong and overseas. In addition, he is curently the part time lecturer for an M.Sc. Course Module of Railway Engineering and Systems in Chinese University of Hong Kong.

结构图

CLOSE
小区网络
小区公用区域
住户
PC
Mobile
Router
Firewall
Backbone Switch
Web SVR
Web SVR
V2oIP SVR
Management SVR
小区服务器组
Streaming SVR
Network Camera
小区内卫生保健解决方案
FTTH/EPON
10/100 Ethernet
虹膜识别单元门口机
自动门
管理室/保安室机
公共设施IP电话
停车管理
管理费/远程读表
无人邮递
HomNet PDP
Analog/Digital Cable
DTV Portal STB
Magnetic Sensor
Door Camera
Switching HUB
智能控制终端
WLAN AP (802.11a/b/g)
Magic Mirror
智能控制笔记本
Remote meter reader
Electricity
water
gas
HomNet wireless phone
Digital door lock
Living room light
Electric curtains
Health bathtub
TV phone/ Speaker phone
Blocking Filter
Information home appliances
SAC
Ventilation
Boiler
家庭型体检仪
Controller
Gas detector
Emergency solutions (table, necklace, bracelet)
Gas stopper
Motion detector
Fire detector
Well-being sensor

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附件 1
Annex 1

報名表
Enrolment Form

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持續進修課程
Program of Development and continuous study

姓名 Name	聯絡電話 Contact Phone no.	聯絡電郵 E-Mail Address	服務公司 Service Organization	職業 Profession

填妥表格後，請傳真 (853)2883-7701 或電郵info@aeemm.org.mo至本會，若有疑問可致電(853)2883-8511 傅小姐
Please complete and return this form by fax (853)2883-7701 or email info@aeemm.org.mo. Should you have any query please enquiry: Miss Fu by phone no. (853)2883-8511