Stream - Intelligent Building & Automation
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Background

- Objectives
  - Provide education in
    - Building Control Systems & Energy Management
    - Automation Systems, including
      - Building
      - Home
      - Industrial
      - Transportation
  - Promote Open System Approach in
    - Control Network
    - Overall Systems Integration
  - Create new jobs in the Control & Automation markets
Background

• Reference to Industry Standards

– National Instruments
  • LabVIEW, CVI, Measurement Studio
    – **Destination:** LabVIEW Developer
      
      *Integration to standards: Fieldbus, Modbus, VXI, GPIB, DDE, OPC, XML, JAVA, HTTP; Telnet; “you name it”*

– Echelon Corporation
  • LonWorks (Design, Installation, Test & Commissioning), LonMark product, LNS Integration
    – **Destination:** Reference to program run by National Joint Apprenticeship and Training Committee (NJATC) offered to Electrical Contractors and Electricians.
      
      *Recognized & Integration to standards: ANSI/EIA 709.1, AAR, ANSI, ASHRAE, IEEE, IFSF, SEMI, C-Bus, OSGI, UPnP, Internet Connectivity*
Background

– BiCSi
  • Structured Cabling Installation, Structured Cabling Distribution Design
    – Destination:
      » Registered Structured Cabling Installer
      » Registered Communications Distribution Designer
      » Registered Residential Cabling Installer

– Other Popular Building Control Systems
  • Johnson Controls Metasys
  • Honeywell EBI
  • Invensys Σ

  Sub-systems include: BMS, FMS, HVAC, Lighting, Fire, Security, Access, Energy Monitoring
Job Markets

• Building Control Industry (Existing & new market)
  – Vendor & Contractor:
    • ATAL, Honeywell, Johnson Controls, Siemens, t.a.c, Clipsal, ComTech, Agents Transecon(Axiom), Schindler, Avaya, Panduit, Anixter, Chung Hing, whoever needs to install, test & commission a control network system.
  – Developer:
    • Swire Properties, Sun Hung Kai, Deson, other real estates developer who need to monitor, maintain and optimize the daily operation and cost.
  – Consultant (potential)
    • WSP, Meinhardt, other consultant firms ..
Job Markets

• Home Automation Industry (New market)
  – Vendor & Contractor & Developer:
    • As in Building Control Industry, plus
      – PCCW, Samsung, other Application Service Providers..

• Industrial Automation Industry (China market)
  – Philips, CL&P, Motorola, ASM, Whoever needs to implement SCADA system, ATE system, and other process control systems..

**Remarks: According to recent survey, 60% of graduates are willing to work in China

• Transportation Industry
  – KCR, MTR, whoever needs the monitoring & control system on trains, rolling stock, control room..
Intended Stream Curriculum

• One of the Stream of HD in EE

• Year One Modules (Common)
  – English & Communication; Putonghua; Engineering Mathematics; Computer Literacy; Instrumentation & Measurement; Safety & Professional Practices; Mechanical Theory; Electrical Theory; Project 1
  – Practical Training

• Year Two Modules
  – Common Modules: IT For Engineer; Communications & Supervisory Skills
Intended Stream Curriculum

• Year Two Modules (Cont’)
  – Stream Specific Modules (Proposed)
    • Control Networks
    • Automation Programming Techniques
    • Embedded System
  – Practical Training (Stream Specific)

Year Two Program Structure

Common Modules + 6 optional modules (any) + Practical Training
Intended Stream Curriculum

• Year Three Modules
  – Common Module: Engineers in Society
  – Stream Specific Modules (Proposed)
    • Distributed Systems in Building
    • Building Automation & Energy Management System
    • Automated Network Technology & Applications
  – Major Project (Stream Specific)

Year Three Program Structure
Common Module + 4 optional modules (any, while at least 4 IBA modules in year 2&3) + Major Project
Intended Stream Curriculum

• Industrial Experience
  – Gain from Attachments
  – Gain from sponsored/cooperative projects
  – Gain from technical visits

• Industry Recognized Qualification
  – National Instruments - LabVIEW Developer
  – Echelon - LonWorks Technology Attainment
  – BiCSi - Installer