Enhanced Learning & Employability of Engineering students

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Current Situation

› Gap between knowledge acquired at university & requirements of employers
› Lack of structured approach for integrated upskilling of junior engineers by employers
› Long status as a junior engineer
› Lower remuneration
› Lack of exposure to important engineering aspects
› Lack of confidence and frustration
› Compromised employability
Generic Improvement Concept

› Thorough knowledge of relevant first principals
› Familiarity (at least) with wide range of equipment and control concepts
› Adoption of customised set of relevant practical engineering (mini) skills
› Practising those skills under an adequately sourced and mentored work experience program
› Having adequate “coach”/mentor
Enhanced Learning at University

Learning Program:

1. Module 1 (“In House” learning)

2. Module 2 (specially sourced and mentored work experience)

Teachers - outsourced engineering practicing experts
Enhanced Learning at University - Contents

Module 1:
› Revisiting relevant first key principals
› Revisiting/learning design equipment and control concepts
› Adopting a set of relevant practical engineering skills

Module 2
› Practising of skills and knowledge adopted in Module 1 in selected real business engineering environment under a mentored program
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Module 1

a. **Revisiting relevant first principals and other theoretical concepts:**
   - Refrigeration Cycle and its components
   - Concept of latent heat
   - Concept of cooling
   - Coefficient of Performance
   - Dependence between Pressure and Volume and variable boiling points
   - Ventilation
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Module 1

b. Revisiting/learning variety of HVAC equipment and control, and energy management concepts:

› Chillers, Cooling Towers, Hot Water heaters
› Pumps and fans
› Air Handling Units
› Variable speed drives
› Various HVAC Design concepts
› BMS
› Energy management and Energy Audits
Module 1

c. Learning a set of selected engineering skills:

› Modelling of heat load
› Calculation of air and water flows
› Selection of HVAC equipment
› Execution of energy audit
› Processing energy data
› Interrogation of BMS
› Engineering, Financial and Environmental calculations of energy savings
› Reporting
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Module 2

**Structured work experience:**

› Mentor agrees on scope of works
› Mentor finds work place
› Mentor follows progress of student
› Set of engineering skills from Module 1–c practiced
› At the end of the work experience the report is submitted to the mentor
› Final interview and assessment
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Points of difference to other existing learning programs offered by universities:

› Focus on real consulting market and its requirements
› Recognised key areas of competency and expertise
› Customised learning for each participant
› Adoption of multiple practical engineering mini skills
› Practising of those skills in real business environment under specific mentoring
› Increased confidence
› Increased employability
Q & A