Reports on Activities

Title of the Event:	IEM Chemical Engineering Design Competition 2013/4 - Workshop 2 on Safety & Sustainability in Plant Design: Energy Recovery System
Date & Time of the Event:	11 Jan 2013 (Saturday), 9.00 am – 6.00 pm.
Organizer:	Chemical Engineering Technical Division (CETD), I.E.M.
Report Writer:	Engr. Dr. Chong Chien Hwa
Date of Submission:	10th July 2014

In conjunction with the IEM Chemical Engineering Design Competition 2013/2014, a 2nd workshop was conducted on 11 Jan 2014 from 9am to 6pm at MONASH University, Sunway Campus, Malaysia. The facilitators are Ir. Razmahwata Mohamad Razalli, Prof. Ir. Dr. Dominic Foo Chwan Yee & Assoc. Prof. Engr. Dr. Denny Ng Kok Sum, they presented the topics on Safety in Plant Design and Sustainability in Plant Design, Energy Recovery System.

First session,

Ir Razmahwata started the workshop by introducing qualitative and quantitative risk assessment in industry followed by safety in plant design. He introduced two ways to approach the challenges related to safety viz. inherent and engineered. Few case studies such as changing method of dynamite production from batch to continuous, storing gas in liquid form and a video of Bhopal incident were presented during the workshop. In terms of the engineered approach, participants are recommended to design and maintain equipment properly; for instance, provides devices to ensure design conditions not exceeded and materials do not deteriorate. After tea break, he started a new topic related to Process Hazard Analysis (PHA). PHA is also categorised into two parts, quantified Risk Assessment (QRA) (quantitative) and HAZOP (qualitative). He shared his experience in conducting HAZOP with the participants and presented methodology from selection of study node to recommendations.

Second session,

Prof. Dominic Foo continue the workshop after the lunch session by showing typical site issues including save water, reduce emissions, reduce operating cost, improve efficiency, improve utility system performance and etc. Amongst the issues presented, Prof. Dominic and Assoc. Prof. Denny showed the participants ways to address these issues. They presented two topics related to utility targeting and a pinch design method in plant design. Terminology such as hot streams, cold streams, supply temperature and target temperature were introduced. Then, case studies from two stream heat recovery to complex engineering problems were discussed in detail in the workshop. After the tea break, an algebraic targeting method was highlighted in the workshop to overcome the limitation of composite curves as it provides accurate and rapid outcomes.

The workshop is ended at 6pm.

Reported by,
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Biodata

Dr Chong Chien Hwa is the Associate Dean (Learning & Quality), School of Engineering, Taylor's University. He is a committee member of CETD IEM, a Chartered Engineer with the UK Engineering Council, Corporate Member of the Institution of Chemical Engineers (MIChemE) and Corporate Member of the Institution of Engineering and Technology (MIET). He is also the chairman for the IEM Chemical Engineering Design Competition 2013/4.