

Reports on Activities

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| Title of the Event: | IEM Chemical Engineering Design Competition 2013/4 - Workshop 1 on Process Simulation |
| Date & Time of the Event: | 16 Nov 2013 (Saturday), 8.30 am – 6.00 pm. |
| Organizer: | Chemical Engineering Technical Division (CETD), I.E.M. |
| Report Writer: | Engr. Dr. Chong Chien Hwa |
| Date of Submission: | 28 th February 2014 |

In conjunction with the IEM Chemical Engineering Design Competition 2013/4, a one-day workshop on process simulation was organised by the Chemical Engineering Technical Division (CETD) at Taylor's University Lakeside Campus on 16 Nov 2013. The workshop was conducted by Mr Hans Tan from Invensys, a company that sponsors the Design Competition 2013/4, and provides free academic license for process simulation software for the competition participants. A total of 27 students and 7 lecturers from 21 participating teams of the competition attended the one-day workshop. The workshop participants get a free academic license of the commercial process simulation software - PRO/II, to be used during the workshop, as well as for the design competition.

PRO/II is a professional simulation tools built on SimSci's technology that offers wide range of simulation solutions for process design. During the workshop, participants learnt how to make use of PRO/II software for steady-state process simulation. The speaker introduced a seven steps procedure for new users in setting up a simulation model. As shown in Fig. 1, the seven step procedure includes building a flowsheet, checking units of measure, defining components, selecting thermodynamic model, supplying stream data, providing process conditions and running & viewing results. Apart from showing the general simulation and flowsheeting techniques, the speaker also demonstrated the use of some commonly-encountered unit operations in chemical processes, e.g. distillation, flashes, heat exchangers, reactors, etc. Another important element that the speaker presented is how to obtain robust and accurate results based on industry-standard thermodynamic methods and physical property data, apart from training the participants with hands-on problem solving skills.

Biofuels production was used as illustrative example during the simulation workshop, to align with the theme of Design Competition 2013/2014, i.e. "Design of a Palm-based Biomass Plant- Production & Utilisation". Most of the questions asked during the workshop were how to build bio-fuel component in PRO/II since it is the main theme of the Design Competition 2013/2014. Mr Hans Tan advised the participants to use two methods, which are Thermodynamic Data Manager and User Defined Components using UNIFAC structure.

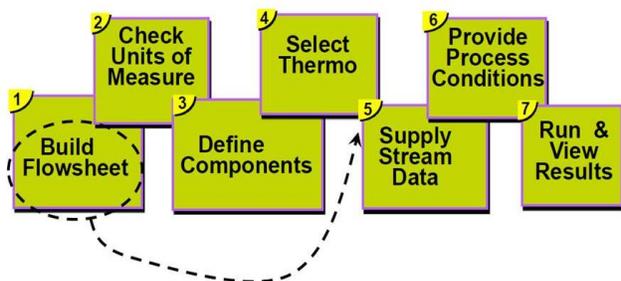


Fig. 1 Building simulation model in seven steps



Fig. 2 Dr. Chong presented a certificate to Mr Hans Tan at the end of the training.

The workshop ended at 6.30 pm, with souvenir presentation to Invensys. CETD acknowledge Invensys for their sponsorship on the IEM Chemical Engineering Design Competition 2013/4 and in conducting this simulation workshop.

Reported by,
Engr. Dr. Chong Chien Hwa
Chemical Engineering Technical Division (CETD)



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 (MICheE) 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.