Universiti Teknologi MARA (UiTM) has widen up its excellences by developing a new Private Financial Investment (PFI) campus in a 200 acre land in Bandar Seri Alam as the second campus of UiTM Branch of Johor. UiTM-PG had operated in May 2014 and the number of registered students from different faculties has exceeded 3000. The faculties included are Business Management, Mechanical Engineering, Electrical Engineering, Civil Engineering and of course, our faculty, Chemical Engineering. Currently, the faculty has 15 lecturers, 2 administration staffs and 370 registered students from all semesters. This faculty offers relevant courses of 3 years study which suits the demand of chemical engineering field in the market. For more updates, please visit us at pasirgudang.uitm.edu.my/v1/
HAZOP Study & Revalidation

by Siti Khatijah Jamaludin

HAZOP is a systematic Process Hazard Analysis (PHA) technique, done to identify potential hazard and operating problems in an industrial plant. It is a qualitative technique based on ‘guide words’ to help provoke thoughts about the way deviations from intended operating conditions can lead to hazardous situations or operating problems.

HAZOP studies are carried out using a brainstorming approach by a team, led by a qualified person experienced in HAZOP studies. In most chemical plants, HAZOP studies are frequently conducted and is led by the Process Engineering Manager. Normally, the ‘guide-words’ used to propel HAZOP study are ‘no’, ‘less’, ‘more’, ‘reverse’, among others. These guide-words are applied to variables such as flow, temperature, pressure and liquid level. Deviation of these variables from a normal operation is considered and consequences of these deviations on the process are then assessed.

In much rigorous HAZOP studies, deviations of process that may cause instrumentation failure, contamination, ignition, service failure and environmental problems are also addressed. In addition, deviations due to chemical hazards, equipment integrity, abnormal operations, poor maintenance, pipe leakage, vessel rupture and human factors are also discussed. The overall result is a reduction in both hazards and potential operational problems.

HAZOP revalidation is a necessary process and is often conducted in most industrial plants. Incidents, regulatory change, operational learning, new knowledge and management change could also lead to the need of revalidation. HAZOP revalidation emphasizes on where initial design and operation has been shown to be incorrect or no longer suitable for the current operation. As such, HAZOP revalidation relies much more on the operating knowledge of the team. To ensure that there is knowledge of the actual operation, HAZOP revalidation team must include direct operational experience of the area under consideration, and process knowledge of the reasons behind any design and operational changes.

Listed below are the author’s opinions on HAZOP, based on personal experience:

- HAZOP study is an excellent platform to learn about the operation of a plant. Besides safety hazards, HAZOP study is very effective for identifying plant operability problems, threats to the environment, product quality, plant throughput and for highlighting critical maintenance requirements.
- An effective HAZOP team should consist of a highly knowledgeable leader, and team members with experience in the plant operation and highly familiar with the nodes being studied. An effective HAZOP team will result in a quality HAZOP study.
- Knowledge on fluid flow, pumps, valves, pipelines and operation of major and auxiliary equipment is essential to all HAZOP team members. In addition, effect of process variables such as pressure, temperature and flow rate on the plant operation must be thoroughly understood.
- HAZOP study team members should have the ability to imagine what will happen if no control measure taken. In other words, HAZOP team members should be highly equipped with great deductive skill.
- Ability to correctly interpret the Process and Instrumentation Diagram (P&ID) is a necessity to each HAZOP team member. Lack of this skill could cause the team member to lose the discussion, hence becomes an ineffective team member.
- Sometimes by doing HAZOP study, a hazard that has never thought to happen is detected.
- HAZOP study is time consuming and can be laborious.
- It is difficult to assess the quality of a given HAZOP study in any objective and auditable way.
17 Sep 2014 – To meet the syllabus requirement of the course Introduction to Chemical Engineering (CHE121), the faculty committee held a programme called Open Day: Green Project at FKK’s Fluid Mechanics Laboratory, UiTM-PG. A total of 98 Part 1 participated in the project aimed as a platform to present, exhibit ideas and identify problems together. Participants were able to reduce and prevent the environmental problems occurring nowadays with the suggested solution provided. On top of that, this project also trains students to be more competitive.

Participant presented their prototype and posters from the details mentioned to the panels. In a group of 6 to 7 and mentored by 5 selected lecturers, Green Project indirectly, fostered students interest to the student to be involved in the area of research while increasing their capabilities of communicating and working in a team.

The winners received RM345.00 and the marks were awarded as their assessment marks for the course.

Invention, Innovation & Design Won Places

by Mohd Ferdaus Md Nor

13 Dec 2014 – Our faculty began operation and carved its journey and name in participating in a variety of competitions held within this year. Lecturers and students participated in International Invention, Innovation and Design (IIIID), Global Innovation Challenges (GIC), National Chemical Engineering Symposium (NACES), Penang Invention, Innovation and Design (PIID) and the newest, Research Invention, Innovation and Design (RIID).

The first victory as Gold Medallists was a combination of Chemical Engineering and Mechanical Engineering faculties’ students. With the project title of Self-smart Electric Generator (SSEG) – A New Renewable Energy by Using Waste Water and Turbine for Domestic Electrical Appliances Usage showed that UiTM-PG is ready for any upcoming competitions. By having Muhammad Abdullah as the mentor for IIIID, Segamat, this project won another Gold medal in RIID, Melaka.

In the same competition in Melaka, researches entitled Purified Monoclonal Antibody as A New Agent in Treating Breast and Colon Cancer, and Eggshell Wastes as A New Agent in Water Purifying System has won silver, each by Muhammad and colleagues (Azmi Roslan, Ahmad Ramli Rashidi and Omar Syah Jehan Elham). Based on the research of monoclonal antibody which can fight cancer cells, the project has won the Best Commercial Value Award.

In other competitions like GIC, held in Universiti Teknologi Malaysia (UTM), UiTM-PG Group 4 has won fourth position after teams Universiti Sains Malaysia (USM) Group 2 and Group 3, and Universiti Malaysia Pahang (UMP). With this winning, PIID held in UiTM Pulau Pinang, has given the faculty the ability to set up another level by winning a Silver with the project title Suitability of Biochar Produced from Biomass Waste as Soil Amendment from our faculty lecturers, Nur Shahidah Ab Aziz, Omar Syah Jehan Elham, Ahmad Ramli Rashidi and Azmi Roslan. The winners of all participations received medals, trophies, cash and certificates from the organizers.
NACES 2014 Triggers A New Start

by Arbanah Muhammad

30 Nov 2014 – The Chemical Engineering Student Society of Universities in Malaysia with the collaboration of Chemical Engineering departments of all respected universities and the Institution of Chemical Engineers (IChemE) of Malaysia has held an annual event called National Chemical Engineering Symposium (NACES) 2014 at Universiti Teknologi Petronas (UTP), here in Perak. With the theme of Sustainable Energy: Green Technology for Better Tomorrow, this 3 day symposium aims to enhance the integration of all Chemical Engineering undergraduates in Malaysia and expose them to the realm of the chemical engineering professions, in addition to serve as a platform to apply their knowledge about their future career as a Chemical Engineer, specifically.

A number of 11 candidates of our faculty, mentored by the Advisor of Chemical Engineering Students Society (ChESS), Azmi bin Roslan participated in this symposium in 6 categories (Technical Case Study, Technical Essay Writing, Technical Power Point Presentation, Chemical Engineering Challenge, Process Plant Design and Technical Video Presentation) where 2 of them won second and third place. The second prize winner, Nurhaniza binti Md Kamis and the third prize winner, Farid bin Amiruddin (both in the photo) brought back trophies and cash after winning the Technical Case Study category.

There were also co-mentors involved for each categories such as Arbanah binti Muhammad, Muhammad Imran bin Ismail, Omar Syah Jehan bin Elham and Ahmad Ramli bin Rashidi. This participation triggers a new start for our faculty to Improve more before entering NACES 2015 at Curtin University in Sarawak.

staff’s activities

We Go RAYA

by Arbanah Muhammad

15 Aug 2014 – The representative of Kelab Pensyarah UiTM, Siti Hajar Anaziah together with the help of the staffs had successfully organized the faculty’s first Hari Raya Aidilfitri celebration. The event was held at the Administration Office, Level 3, Faculty of Chemical Engineering (FKK).

This annual celebration was regarded as a merry celebration because it marks a Muslim’s triumph and success on discipline and self-resistance during the whole month of Ramadhan. It also aims to foster the relationship between the new staffs and the present staffs of FKK UiTM Pulau Pinang and UiTM Shah Alam who were transferred here, temporarily.

Homemade raya dishes and variety a of kuih raya made headlines on that day with touches of some western delicacies. The guests were not only our staffs but our guests included the servicing lecturers of FKK.