

PEO ACHIEVEMENT RESULTS

The survey was conducted to seek the alumni responses regarding the achievement of the School in providing the necessary preparation for the graduates' careers in the first few years in their working environment. This would give a direct outcome measurement on the Programme Objectives. The existing PEO from SAR 2013 was used to undertake survey from both the alumni and the employers. The relevancy of the PEOs is tabulated in the table 1 below.

Table 1: The relevancy of the existing PEOs

No.	Programme Objectives (PEO)	Indicator for the relevancy of the existing PEOs	
		Alumni	Employer
1.	Employable graduates with the knowledge and competency in chemical engineering.	3.67	3.50
2.	Graduates having good leadership and soft skills with the right attitudes and ethics	3.86	4.11
3.	Innovative graduates with problem solving skills for sustainability.	3.78	3.89
4.	Graduates who possess interest in research and lifelong learning, as well as continuously striving for the forefront of technology.	3.79	3.67

Programme Objective 1: Employable graduates with the knowledge and competency in chemical engineering

The indicators to measure the success of USM in preparing graduates for better employability, competency and knowledge were evaluated. It is found that that 83.3% of the graduates are employed in the chemical engineering related industries. This survey proves that the designed programme has successfully groomed them for better employability and have high competency in Chemical Engineering knowledge with scorings between 3.73–3.93 which are higher than the target of 3.5 (Table 2).

Table 2: The Average Attainments of the Alumni Response to PEO 1

No.	PEO 1: Performance Indicator	Score*
1.	Minimum score of 3.5 for (Q1) on the Employability of Graduates from SCE USM in the survey.	3.71 (Achieved)
2.	Minimum score of 3.5 for (Q2) on the Competency in Chemical Engineering in the survey.	3.84(Achieved)
3.	Minimum score of 3.5 for (Q3) on the Fundamental knowledge in Chemical Engineering in the survey	3.99(Achieved)
4.	70% of graduates employed in chemical engineering/related areas	79 %(Achieved)

*1 Very Weak, 2 Weak, 3 Moderate, 4 Good, 5 Very Good

Programme Objective 2: Graduates having good leadership and soft skills with the right attitudes and ethics.

There are 4 indicators designed to address this Programme Objective 2 which include the training provided on soft skills, team works, ethics as well as societal responsibility. The scorings based on these indicators are within 4.06-4.14, which are higher than the minimum target of 3.5 (Table 3). In general, the graduates agreed that the spirit of team work which was groomed during their undergraduate study do help them become team player in their workplace now. The score for team work is 4.10 followed by 4.14 for their attitudes as engineers who fully exercise their ethical practice in their engineering careers. Although the soft skill score of 4.06 is higher than the minimum target, nonetheless, still has room for improvement. It is an essential skill, which must be possessed by the graduates during their career lives. We are glad to find out that the graduates are aware of their responsibility to the society (score of 4.05), which they attributed to the success of the Programme Objective 2.

Table 3: The Average Attainment of the Alumni Achievement of PEO 2

No.	PEO 2: Performance Indicator	Score*
1.	Minimum score of 3.5 for (Q4) on the Leadership, Communication and other Soft Skills	4.06 (Achieved)
2.	Minimum score of 3.5 for (Q5) on the Working in a Group	4.10 (Achieved)
3.	Minimum score of 3.5 for (Q6) on the Ethics as an Individual/Engineer	4.14 (Achieved)
4.	Minimum score of 3.5 for (Q7) on the Responsibility to the Society	4.05 (Achieved)

*1 Very Weak, 2 Weak, 3 Moderate, 4 Good, 5 Very Good

Programme Objective 3: Innovative graduates with problem solving skills for sustainability.

USM is always upholding the sustainability elements in their design of curriculum. Survey was carried out on the success of the programme in introducing the awareness of sustainability and environmental issue among the graduates. The results are encouraging as the score for awareness of sustainability hitting 4.00, whereas awareness on the environmental issues scores 4.11. Both scores show that it is beyond the targeted 3.50 (Table 4). The training provided on problem solving skill is also part of the survey indicators under Programme Objective 3. The graduates moderately agreed that the programme is able to cultivate their creativity and innovative problem solution skill.

Table 4: The Average Attainment of the Alumni Achievement of PEO 3

No.	PEO 3: Performance Indicator	Score*
1.	Minimum score of 3.5 for (Q8) on the Creativity to Solve Problem in the survey.	3.96 (Achieved)
2.	Minimum score of 3.5 for (Q9) on the Innovative Design in the survey.	3.73 (Achieved)
3.	Minimum score of 3.5 for (Q10) on the Awareness on Sustainability in the survey.	4.00 (Achieved)
4.	Minimum score of 3.5 for (Q11) on the Attitude towards Environment in the survey	4.11 (Achieved)

*1 Very Weak, 2 Weak, 3 Moderate, 4 Good, 5 Very Good

Programme Objective 4: Graduates who possess interest in research and lifelong learning, as well as continuously striving for the forefront of technology.

Under Programme Objective 4, graduates were asked on their information searching skills, lifelong learning and capability of carrying out research and development. As a research university, we set the target of 5% of alumni continue their higher learning locally or abroad. It is noticed that, a total of 13 alumni (21.67%) enrolled as postgraduate students indicated that USM had been successful in cultivating their interest in research and development. The graduates almost unanimously agreed (with score of 4.07) that during their undergraduate, they were briefed on the skill of information searching. A total score of 4.03 for lifelong learning shows that the graduates are independent in developing their future career path (Table 5).

Table 5: The Average Attainment of the Alumni Achievement of PEO 4

No.	PEO 4: Performance Indicator	Score*
1.	Minimum score of 3.5 for (Q12) on the Information Searching Skill in the survey.	4.14 (Achieved)
2.	Minimum score of 3.5 for (Q13) on the Lifelong Learning in the survey.	4.03 (Achieved)
3.	Minimum score of 3.5 for (Q14) on the Research and Development in the survey.	3.95 (Achieved)
4.	Minimum 5% of alumni continue higher degree education	14.8% (Achieved)

*1 Very Weak, 2 Weak, 3 Moderate, 4 Good, 5 Very Good