

## FUTURE DEMANDS AND REQUIREMENTS OF MECHANICAL ENGINEERING GRADUAND

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I read with interest the proposed semester based curriculum of the Undergraduate Degree Course. I strongly believe this system addresses a critical issue faced by previous graduates like myself in the past, ie. "selective cramming approach towards examination". This has created one dimensional thinking with students resorting to books and theoretical approach to every problem in work life. From my interaction in the industry, there were a few demands placed on the graduates which were poorly addressed by the Universities (let me categorise them into "soft skills" and "hard skills"):

### Soft Skills

These are skills which we find quite lacking in our local graduates in general. Most private organizations place great emphasis on soft skills as it firmly believes in the value of leadership to the organization (let me emphasize on "Leadership" and not "Management"). Some specific skills to note that needs addressing by Universities are;

- a.1 Communication skills
- a.2 Lateral thinking
- a.3 Dynamics of Team work and Team building
- a.4 "Wholistic" approach to problem solving

Let me admit at this juncture that foreign graduates from Western Universities are better equipped to handle these skills than our local graduates. It is not their ability or cleverness but how the entire approach to studies at these Universities have molded them.

The semester based approach to the curriculum can have no affect on the students unless it is designed specifically to provoke and develop the above soft skills. It can become another exercise in cramming but the difference is that it is modular. The practical work given must be designed to horn and sharpen these soft skills in order to make a more rounded Engineer in the organization.

### Hard Skills

These are the technical skills required to make a good Engineer. The taught curricula in the present Universities address these skills adequately. There is however one area which needs to be addressed , ie. Practical application of these skills". In our interaction with the Universities especially on any collaborative work, we find most Lecturers and their students are very focussed on technology and cannot easily grasp or comprehend the practical necessity of the technology. This has been one stumbling block in the interaction between private sector and the Universities and coupled with the bureaucracy that prevails in the

Universities has impeded greatly this interaction. Let me deviate slightly and address a mania I see prevailing in the students, ie. "memorising engineering formula" mentality. The brightness of the students are gauged by the number of formulas they can memorise. Let me indicate right now that this is not our gauge of brilliance in work life. We want students who understand the principles behind these formulas and where to find them when necessary. I therefore believe in Open-book examination and strongly believe in its introduction in the curricula.

The use of Information Technology and the Internet has become increasingly crucial in this current knowledge-based economy. This needs to be sufficiently addressed in the curricular.

Let me conclude by pointing out one important factor in this whole change That the University wants to undertake. Whilst I congratulate the efforts taken in the right direction, the correct leadership in this process of change must be given by the authorities concerned. The University must re-look at its bureaucracy and reward structure in order to increase effective interaction between Universities and the Private Sector, the change in curricula must be done by considering the soft skills that needs to be developed, the Lecturers must be able to break away from their previous mold and lead the change in the right direction. I firmly believe this change should be an effective hand-shake between four parties (Authorities – Lecturers – Students – Commercial Sector).

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