

QUALITY EDUCATION IN ENGINEERING ACADEMIC PROGRAMME

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'Quality education' is very important, where, in the context of engineering academic programme, it fulfils demand and market requirements. The Quality education is not only creating a graduate ready for job, but it also reflects embedded knowledge, skills, attitudes and values of the graduates in supporting lifelong learning and development of future nation. In addition, the programme should be accredited by a specific national or professional body. For example in Malaysia, Bachelor Engineering Programme is accredited by the EAC (Engineering Accreditation Council), under BEM (Board of Engineers Malaysia). The EAC is the signatory for Washington Accord; while as the Bachelor Technology and Diploma Engineering/ Technology are accredited under the ETAC (Engineering Technology Accreditation Council) or MBOT (Malaysian Board of Technologist). The ETAC itself is the signatory of Sydney Accord (Bachelor Programme) and Dublin Accord (Diploma Programme). In fulfilling the market demand and accreditation body, it is vitally important to smartly design the curriculum to fulfil the needs strengthened with interwoven courses to cover knowledge, generic skills, technical skills, vocational skills, and soft skills (personal and interpersonal skills). Current requirements of the 21st century skills, industrial based learning, Education 5.0, IR 4.0 and future engineering programme are best embedded to ensure that engineering graduates are fully ready for the job at the end of the three or four years program with the right attitude for the betterment of nation. One of the objectives of the paper is to highlight different worldwide requirements of professional bodies for Engineering Education programme. Amongst the key areas discussed in the 21st Century needs are contents, skills, humanity, and Sustainable Development Goal SDG 4 (Quality Education). These are in support of lifelong learning in the context of Engineering Education programme. Awareness, alignment and implementation of programme outcomes, designing the curriculum and activities to get the most impact by matching the teaching-learning style of educators and learners (delivery approaches), different instruments and assessment tools for engineering and technology programmes are also some of the key areas presented in the paper. The presentation is based on different IHLs experience, reviewed case studies and also experiences of Faculty of Mechanical Engineering, Universiti Teknologi MARA. The paper also shares a proposed loop of instructional teaching-learning ecosystem for Engineering Education Programme. It is expected that the proposed eco-system becomes a starting discussion platform for all engineering education champions, managers and implementors to revisit any needs for engineering education programme reform, internal curriculum alignment and the needs for learners and educators to have right and positive attitude. In addition, the awareness and support of industrial partners will be further increased in contributing for high quality education specifically for engineering academic programme. Equally important, all educators and learners as adults in tertiary education are to develop curiosity, imagination, resilience and self-regulation for future well-being of nation specifically those related to engineering education community.