

ED-412 Engineering Education

ASSIGN(1) - Total Quality Management

ASSIGN(2) - The Rationales to Prepare the
Global Engineering Program
by Across Border Co-operation.

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ED-412 - Evaluating Engineering Education

ASSIGNMENT [1] + [2]

I. Introduction

We live in a New World that is in the midst of rapid globalization. Globalization generates new demands, structures and system requiring new skill and knowledge. The developing countries can not afford to be left behind when we all belong to the global village. I realized Engineering Education (EE) has been focused by essentially Information and Communications training (ICT) centers. EE providers shall open new accessibility and quality programming for non-traditional students, optimizing the use of on-line, email, and internet facilities to elevate EE in Myanmar to international standard. These shall have established strong links between and among themselves and with industry group /chambers of industry at national, regional and international levels.

There is precise definition as to what constitutes the EE, but it is understood to include all formal and non-formal courses designed to develop associate engineers, technologists or technicians, operators (skilled and semi-skilled) office workers small entrepreneurs, and the like. These courses are provided by various public and private educational and training institutions, industry, Non-Government Organizations (NGO's)

churches, Community-Based Organizations (CBO) and other such organizations. We think the Government is the main provider of EE.

As we understand, technological university / vocational school is an excellent venue for education in values and skills particularly as regards excellence and professionalism in one's work. EE providers must provide quality Engineering Education and training with emphasis on values education to the educators, the industrial workplace and the less privileged youth. EE providers in developing countries will lead and act as catalyst in the implementation of modern technologies using the widest array of appropriate ICT technology strongly linked to industry and employers.

If the speed of change outside EE system (providers) is faster than that inside EE institutions then EE system dies. The EE providers must recognize the need to introduce competency-based system of training delivery as well as the new concepts introduced - globalisation, market-driven economy, etc. EE system and industry should not operate in isolation and should be linked to sector and policy analysis. EE providers will draw industries closer to the EE sector by expanding industrial attachment programs as well as conducting courses at industrial premises. EE system should have organic links with the major industry chambers and associations.

II Engineering Education - An Overview

In the developing countries, EE institutions have proliferated in both the public and private sectors with little or no coordination with one another, offering course and varying quality and operating in isolation from industry. In recent years, however, the developing countries have taken significant initiatives to reform their EE systems, partly in response to ~~reform~~ the pressure brought about by the trade globalization. In recognizing learning acquired from different delivery systems, and in widening career choices through the examination system and trade skills certification. Forging stronger linkages with industry through the institute management committees is a major thrust, particularly in Malaysia. These developments augur well for the future of EE.

III. Scope of Evaluation to the total Quality Management (Objectives)

In view of the above. We proposed that any evaluation of EE system should focus on:

- i. the delivery system, i.e., the schools, (TCs) Technical Colleges or Polytechnic Institutes, Technological University - their institutional capacity to produce the desired quality and quantity of graduates.
- ii. the output, i.e., the graduates themselves - how they performed in the world of work, or in the institutions of higher learning for those who opted for further study.
- iii. The "user" of the output, i.e., The employers - how they perceived the contribution of the graduates to their operations; and
- iv. The institutional company policy environment - how the people have enhanced the management capabilities of the implementing agencies and influenced EE policies and programs.

IV . Scope:

To respond to the above objectives the evaluation should focus on the following:

i. Internal Efficiency

- (a) Curricular Offerings and Curriculum Content.
- (b) Enrollment Capacity vs Social Demand
- (c) Instructional Methods and Materials- efficiency in delivery.
- (d) Average Class Size and Student Teacher Ratio.
- (e) Attendance, Drop-Out and Completion Rates.
- (f) Pass Rate and Learning Achievements
- (g) Overall Internal Efficiency of EE Programs

ii. External Efficiency

- (a) Job Search Duration, and Reason for Hiring.
- (b) Profile of Entry and Present Jobs.
- (c) Need for Training Prior to Regular Assignment
- (d) Average Initial and Present Monthly Salary.
- (e) Usefulness of Education and Training to their Jobs.
- (f) Job Mobility and Prospects for Advancement
- (g) Demand vs Supply: The Mismatch

iii. Management System and Cost Efficiency

(a) Management

(b) Unit cost per Graduate by Course.

(c) Teaching Staff.

(d) Physical Facilities.

(e) Industry Linkage.

(f) Employers' Assessment of Public and Private EE System.

V. Status of Development of System:

(Some Observations)

Interventions are being initiated for improving the quality, increasing the efficiency, expanding the capacity, and ensuring the relevance of systems to produce highly trained technicians and skilled craftsmen in sufficient numbers to support development needs. Promoting access and equity in educational opportunities among regions and people in a country has been a secondary objective. The interventions also include decentralization of school administration (to strengthen, flexibility and adaptability) incentives for private sector participation, school industry linkages, cost recovery and financial sustainability, increasing utilization

rates and cost effectiveness, increasing female participation, and developing/strengthening management information and benefit monitoring and evaluation systems.

In several developing countries, the starting point of primary activities - the identification of courses and the design of curricula - remains to be weak. Many of the courses are taught not because of industry needs but because of social demand - the need to provide alternative educational opportunities to the disadvantaged. The corresponding curricula are often designed with the assistance of consultants and donor-agency experts, but with little or no local industry participation. The process of continuing review of course offerings has not been institutionalized, so most of them are outdated. It is only recently that new training technologies have been considered, such as the CBT and contextual learning. Community and industry participation in school management remains at a minimum. The choice of course by students are most of the time, ill advised, simply because the teachers and/or counselors themselves are not in touch with the labour market and industry. A number of courses offered by EE institutions in the developing countries do not have good employment prospects and thus

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aggravate the demand-supply mismatch. The effectiveness and efficiency of the teaching-learning process is inadequate (to different degrees depending on the status of development of EE in a given country) because of a number of factors, including the outdated curriculum, practical skills, quality of pre-entry course attended by students and the absence of continuing staff development and support services (such as guidance and counseling, international materials development/supply). Value education is absent in EE courses in most of the developing countries. It is quite evident that almost all strategic activities of delivery system, primary or support, are either not carried out at all or experience problems in the way they are carried out.

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