

**A CRITICAL EVALUATION
OF THE
CURRENT MIDDLE LEVEL ENGINEERING
TECHNOLOGICAL EDUCATION IN SRI LANKA**

REFERENCE ONLY

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ABSTRACT

The education provided for one to gather knowledge and skills in order to perform applied and industrial science is termed as technical education.

Technical education in Sri Lanka related to engineering fields dates back to latter part of the 19th century. The evolution of technical education so far has resulted in a large number of education providers both in the public and private sectors. Technical education is basically provided at four levels, which could be identified as degree, diploma, certificate and craft levels. The vastness of the subject and the constraints in the resources, required this study to be limited to the 'Middle Level Engineering Technological Education', which encompasses the diploma and certificate levels. Attention is focused here on the major programmes providing broad based education, namely Diploma in Technology (DipOU) by the Open University of Sri Lanka, Higher National Diploma in Engineering (HNDE) by Sri Lanka Institute of Advanced Technical Education (SLIATE), National Diploma in Engineering Sciences (NDES) by National Apprentice and Industrial Authority (NAITA), National Certificate in Technology (NCT) by Department of Technical Education and Training (DTET) and National Diploma in Technology (NDT) by the University of Moratuwa.

The aim of the study 'Critical analysis and evaluation of current middle level engineering technological education' is achieved by exploring into ten different aspects:

- I. Different avenues available for Middle Level Engineering Technological Education,
- II. Procedures of entry and allocation of study fields
- III. Structure and the component of a programme (teaching, learning, training and evaluation)

- IV. Preferred medium of instruction
- V. Aspirations, aims and satisfaction of students
- VI. The relevance of the programme to the needs of the industry and the competence of the products of these programmes
- VII. Modes and frequencies of feedback
- VIII. Available and preferred career paths
- IX. Available and preferred higher education paths and
- X. The need for technical teacher training.

The study is mainly based on the data collected from the samples of four populations, which are closely linked to each other. They are the present students, past students, academics and the employers. The subjective and statistical analysis performed on the collected data, made possible the following major conclusions among the others.

- There are two well-established avenues for the school leavers to enter the MLETE directly; Entering diploma level programme with GCE (A/L) and certificate level programme with GCE (O/L) qualifications.

The procedure adopted for selecting the students to the study programmes as well as to the study fields of the two major diploma programmes NDT and NDES were indicated to be unsatisfactory by a fair portion of the students and the past students. It is also inferred at a 5% level of significance that up to 48% of NDT and up to 22% of NDES student populations respectively were dissatisfied with the selection procedure to the course. The two major suggestions to improve this situation are:

- a) Use of GCE (A/L) aggregate for selection as applied in the UGC admission
- b) Conducting a test to evaluate aptitudes and skills

- In both NDES and HNDE programmes, the majority of academics find the course content to be adequate while in the NDT programme all three samples are of the view that course contents are inadequate and there is a high demand to update the NDT curricula.

- The percentage of 'student' and 'academic' samples which expressed 'satisfactory' levels is less than 50% for the five aspects of teaching: teaching methods, clarity and understandability of lectures, teacher-student relationship, handling of experiments and availability of quality lecturers.

The major suggestions to improve this situation includes filling the cadre vacancies with teachers having proper qualifications as well as field experience, introduction of teacher training and updating the knowledge on modern technology, encouraging academics to frequently use the audio, video and other modern teaching aids, provision of better working environment for the staff and students with better management and usage of simplified administrative procedures.

- It is proved that at 5% level of confidence, only less than 30% student population and less than 12% past student population prefer a combination of English and Sinhala/Tamil or Sinhala/Tamil only to English only.
- Analysis at 5% level of significance showed at least 51% of the student population use these programmes as a stepping-stone. Only 38% of the student population joining these programmes expected to continue at this level throughout. In the past student population this percentage increased to 43%.
- Employers view with respect to the performance at the job by Middle Level work force clearly indicates a high level of satisfaction (over 60%) of the products of diploma level courses.

- Most established paths of feedback are through the past students and through personal links established with industry.
- 'Chartered engineer' is the most well known career path as stated by 83% of NDES and 80% NDT students. Most preferred career path indicated by the majority (59.6%) is 'Chartered engineer' followed by 14.7% opting for private sector middle level career and 8% opting for government technological services
- The most known higher education path showed a distinctive pattern. While NDT and NDES students agree on 'Engineering Council (London) examinations (EC examinations) as the most known path, for the DipOU students & NCT students it is the 'Open University examinations'. The most preferred path is EC examinations except for the DipOU students who indicated preference for Open University examinations.
- The analysis also showed that both 'teacher training' and 'academics taking part in full time short term industry projects' were considered as very important by the sample academics.