

**TECHNICAL EDUCATION SYSTEM:
ACCREDITATION PROCESS
AND
IMPROVEMENTS**

By
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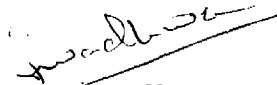
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CERTIFICATE

This is to certify that the thesis entitled “**Technical Education System: Accreditation Process And Improvements**” being submitted by **Anil Kumar** to the Indian Institute of Technology Delhi for the award of the degree of **Doctor of Philosophy**, is a bonafide record of original research work carried out by him. He has worked under our guidance and supervision and has fulfilled the requirement for the submission of this thesis, which has reached the requisite standard.

The results contained in this thesis have not been submitted, in part or full, to any other University or Institute for the award of any degree or diploma.



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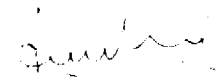
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ABSTRACT

India has one of the largest systems of Technical Education System (TES) with several processes and hence it offers significant motivation and research challenges. Technical Education is instrumental in making significant contributions to economic development of any country. In the present industrial context, organizations need technically skilled manpower and to fulfill the demand of technical manpower, the number of technical institutions is continuously increasing at a faster rate. Thus there is a growing challenge to have improved control over these institutes to maintain quality standards. Accreditation process aims to help towards continual quality improvements of technical institutions. Accreditation serves two purposes: (a) to assure the quality of the institution or program and (b) to assist in the improvement of the institution or program.

The motivation of this thesis is to explore the possibilities to improve the accreditation process. For this reason, two directions have been considered useful. One direction deals with understanding the processes and improving these processes to the benefit of technical education system. The second area of focus is to improve the decision making process of accreditation based on expert inputs, so that the quality of decision-making can be improved. To measure this, macro and micro level of studies are considered. In the macro level, comparative studies on different criteria and their usefulness towards accreditation is analyzed using the collected data.. In the micro level, new decision-making techniques like Analytical Hierarchy Process (AHP), Fuzzy Multi Criteria Decision System (FMCDS) and Data Envelopment Analysis (DEA) are used and comparative performance is measured.

This study looks into some aspects of accreditation in technical education. There is a need to enrich the studies on accreditation process based on both quantitative and qualitative parameters. From a research contributions perspective, this research is important in nature. The research focuses on the real accreditation process and its improvement possibilities. The expert based process evaluation and improvement through the application of multi criteria techniques are used to address identified research gaps.

This thesis encompasses four important research issues. First, based on studies on current practices in Indian education scenario, accreditation system and shortcomings are discussed. Second, critical evaluation, modification and improvement of expert based evaluation of the selected diploma, degree and PG programs are carried out. Third, application of multi criteria decision methodology techniques for improvements in the accreditation process is demonstrated. The fourth contribution is to the technical institutions efficiency measurement to guide decision makers towards a better alternative. The present study is important, as it will make the job of the planners and decision makers more effective and efficient by studying existing approaches and proposed decision methodologies to offer potentially enriched models.

Finally, an important objective is to develop and propose an integrated framework for decision-making in the accreditation process and improvements in the technical education system. This involves those quality criteria and processes based on reengineering that would help meet the requirements of important groups like technical institutions, education system facilitators, accreditation process experts, students, and end users etc in order to synchronize the interest of all. The aim is to demonstrate more effective models that may be easier to understand and implement.

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