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Research activities of BUET and its relation to Industry

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Abstract

SINCE its emergence as a technical university, BUET ,is activity devoted to research in the field of science and engineering. Various research work in different fields of electrical, mechanical, chemical, civil, planning and architecture as well as basic sciences like physics, chemistry and mathematics are carried out. In this paper attempts have been made to broadly analyse the various theme of these investigations to find out the goal of these works. It has been concluded that majority of the investigations in the engineering disciplines are of academic interest rather than directly related to local problems in industry and intrastructive. Finally, suggestions have been made to make university-Industry interactive research more meaningful and collaborative investigations more productive.

Introduction

This university (BUET) educates young men and women in engineering and these graduates run the wheels of the industries and manage various technical projects in the fields of energy, agriculture, planning, etc. As the highest seat of learning in technical field this university has a responsibility for investigating various technical and engineering problems of the nation. For this purpose close liaison with industries is to be expected. This purpose can be served by a strong graduate programme and collaborative research activities of various institute of the university. BUET has 4 faculties in engineering and 1 faculty in architecture and 3 institutes. There are 15 departments in these faculties. The university has an ongoing graduate programme offering masters and doctorate degrees. So for it has produced about 600 masters and 3 doctorates. The mechanical engineering department, physics department and electrical and electronic engineering department has produced one Ph. D. each. The graduate research activities of various departments have been reviewed in this brief note to identify their relevance to local problems. It is observed (Table-1) that many of the cheses deal with fundamental, theoretical aspects of science and engineering. Relatively less work has been done on the various technical problems faced by local industries and government. This is of course not true for all the departments.

Classification of post graduate research

Information regarding the various M.Sc level research titles have been collected from DAERS office and various departments. The question of relevance to local problems of industry and the nature of the investigations carried out were discussed with some of the faculty of concerned departments. Additionally, the authors have taken the liberty of applying their own value judgements in classifying the research undertaken on the basis of the thesis titles as they appear on the official publications of DAERS (viz Research Abstracts). The present exercise should be regarded as only a preliminary, endeavour to sense the trend of research topics chosen in various departments. Further detailed investigations with wide ranging discussion with appropriate faculty members would be needed to arrive at more definite conclusions.

However, from the initial discussion and investigations for this brief note it appears that for most of the M.Sc. engineering thesis work undertaken, it has not yet been possible to identify enough research problems related to local industry or infrastructure. There are, of course exceptions. It appears that in the URP department all the problems were related to local areas. This of course, is expected because of the very nature of their graduate progammes. However, total absence of theoretical studies of pure academic interest can also be subject to criticism in a university whose purpose (albeit, ideally) is o expand the frontier o knowledge.

External constraints

One common difficulty which has been mentioned by some of the concerned researchers of engineering departments is with the lack of appreciation of research by local industry and our local technical personnel in charge of infrastructural projects. Many of the projects undertaken being foreign assisted, the general tendency has been to depend on expatriate (experts) for solving technical problems. However, there has been a recent change in attitude among them and a good beginning has been made in some department in identifying local technical problems in active, cooperation with the technical people in the practical field. This augers well for the future direction of M.Sc research in this university.

Internal constraints

The fact remains, however, that faculty members, to some extent, will pursue with the research interest of their own which they had developed during their Ph.D work.

Suggestions

Linkage Programmes with Foreign University

Linkage, with foreign universities is an essential component of establishing post graduate research of high standing in a university in a developing country. Such linkage programme may also result in collaborative research where high level intellectual inputs may be available from sister universities located in an industrialized country. It is possible that local industry may also benefit through interaction with visiting research faculty from abroad. Happily the Fourth Five Year Plan of the GOB Planning Commission has recognized this and has encouraged such programmes.

Industry - Institution Relations

Industry, as a major beneficiary of the product of technical education has always had an important stake in the education process. In Bangladesh close working together of industry and academics is essential. Some of the steps that may be taken to achieve this symbiosis is enumerated below:

Co-operative undergraduate and post-graduate programme. Specialists from industry should be invited to deliver a few lectures in each course. This contact between the teachers and persons from industry will make the course more fruitful and lively. Co-operative programme like Practice School, Sand which Course should be encouraged.

Appointing of visiting faculty members from industry. The system of Adjunct Professor, where senior practicing engineers participate in academic activities, should be encouraged both by the institutions and industries. This should also be reciprocated by academic personnel spending specific periods in industry. Both categories of people should be given adequate facilities and incentives.

Use of visiting committees for interaction.

Setting up of industrial consultancy centres in technical institutions and faculty consulting for industry both at senior and junior levels. Institution should have a separate R and D wing funded by funds independent of graduate research programme, to work on industrial research projects.

BUET Vice-chancellor office

In-house research, design and development facilities in industrial establishments. Persons from Institutions should be associated with in-house research projects undertaken by the industries.

Import of technology is becoming more and more costly. Keeping this in view, both industry and Institutions should emphasize high technology areas and collaborate to improve upon the existing processes and products and develop new ones not only to avoid import of technology but with an eye on capturing the export market.

At postgraduate level, more industry-oriented courses should be established where the students are assigned live problems from their project work under the joint guidance of a teacher and a specialists from the concerned industry Research fellowships should b awarded by the industries to th institutions for long term projects t mutural interest.

Conclusions

In this paper attempts have bee made to find the goal of the researcl performed at gradate level in thi university. It may be concluded tha majority of these research are of the oretical in nature with the exceptior of URP and WRE departments research. Categorical scrutiny of university research puts emphasis on more university-industry interactive research.