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THE DEVELOPMENT OF THE FACULTY OF ENGINEERING, UNIVERSITY OF  
DAR ES SALAAM

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1. Students

The Faculty of Engineering, University of Dar es Salaam is now in the second year of its existence.

Although some of the buildings have not yet been completed, the Faculty has already moved into the new premises. The training workshops where all students spend nearly 50% of their time during the first year of the undergraduate course are in full swing since 1973, the first laboratories will be ready for operation early 1975.

The admission of students to the four years undergraduate course and the distribution to the departments are represented on the table below.

Department	1st Year	2nd Year
Civil Engineering		29
Mechanical Engineering	88**	20
Electrical Engineering		9
Total	88	58

\*\*The first year is common for all departments.

In July 1975 the Faculty will admit 120 students the distribution of which to the departments after the first year will be: Civil Engineering 60, Mechanical Engineering 40, Electrical Engineering 20. Thus the Faculty will have reached its full admission capacity one year earlier than originally planned.

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2. Staffing

Apart from some vacancies in the Department of Electrical Engineering seriously impeding proper education, the general staffing situation is satisfactory.

Staff	Academic	Non-Academic	Total
Nationals	18	28	46
Expatriates	27	11	38
Total	45	39	84

Compared with other engineering faculties in Africa the number of nationals on the academic level is encouraging although most of them are still on study leave for further training. When fully established, the student/staff ratio will be about 8:1.

3. Course Programme

The merger of theory and practice throughout the whole course is one of the main features of this Faculty. Workshop training of engineering students during the first year of undergraduate courses and the subsequent training periods in industry organized and supervised by the Faculty itself, have already proved that the practical approach is indispensable and must be a permanent component of engineering education.

Even in lectures and tutorials the choice of subjects to be taught and the methods of conveying knowledge to students must be governed by the aspect of applied engineering, for theory receives its practical value mainly by the possibilities of its application.

This principle of theory-practice materializes in the undergraduate course structure as follows:

	1st Year				2nd Year				3rd Year				4th Year				
TERM :	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
	Lectures Tutorials Workshop Practice Project				Lectures Tutorials Laboratories Project				Lectures Tutorials Laboratories Optionals Project				Lect. Tuto. Labs. Opts. Project				Practice in Industry Final Examinations
	Common Course				Different Courses in the Departments Civil Engineering, Mechanical Engineering, Electrical Engineering												

Although curricula and syllabi\* had to be changed several times within the last two years in order to adjust the programme to the needs of industry, everything is still open for further adjustments and supplements which might be necessary in the course of time because of new information and experience.

To adapt post-graduate education of Tanzanian staff to the needs of the country, the Faculty has established a research oriented post-graduate programme which is to be commenced in 1975 subject to the availability of supervisors and laboratory equipment. A course-oriented post-graduate programme will not be offered before 1977 when the first graduates are available.

In all post-graduate research the Faculty will stress the necessity to link research and education in general as much as possible.

\* For details on Curricula and Syllabi see Prospectus 1974/75, Faculty of Engineering, University of Dar es Salaam.

#### 4. Strategy for Research and Consultancy

Although teaching is of major importance it is only a part of the function of a University. The Faculty of Engineering will provide other important services for the industrialization of Tanzania such as testing and research facilities and professional engineering advice.

There are already some guidelines in discussion for a research concept.

To meet the needs of Tanzania the priorities of technological research projects to be carried out will be considered under the viewpoint of how much the results will contribute to the socio-economical development. This policy requires a close co-operation between the Faculty and the government on one hand and industry on the other hand so as to identify appropriate research projects.

The identification and performance of research will be the major task of the departments.

As the "Office for Relations with Industry" continuously maintains the contact with Industry it will be a very helpful institution for the necessary linking of industrial production and university research. Hence ORI in co-operation with other institutions will assist the departments to identify research projects.

The specialization of science and engineering on certain fields and their departmental division of scientific activities, however, require interdisciplinary and inter-institutional co-operation for problem oriented research.

The membership of the Dean of the Faculty of Engineering to the "Industrial Research Committee", which is a sub-committee of the Tanzania National Scientific Research Council, is another means of establishing permanent contacts and obtaining

information with regard to general research policy. This institution co-ordinates all research activities in Tanzania in order to avoid parallel research performed on the same problem by different research institutions.

All this shows that applied research on the field of technology is rather a complex matter covering numerous activities such as planning, construction and design, calculating, prototype manufacturing, testing which eventually leads to implementation in industry.

Research and consulting activities to be carried out by the Faculty are, however, limited by the technological know-how of the staff and the laboratory equipment at the Faculty's disposal. The increase of both qualified staff and research facilities in the laboratories is one of the prominent tasks the Faculty will have to attend to in the years to come.

The laboratories have already started to offer services on different fields such as material testing for building industry and metal working industry, soil testing and others. In addition there are first steps made with regard to consulting activities. The permanent involvement of the Faculty in activities related to the industrial sector will help to improve engineering education and to promote industrialization in Tanzania.

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