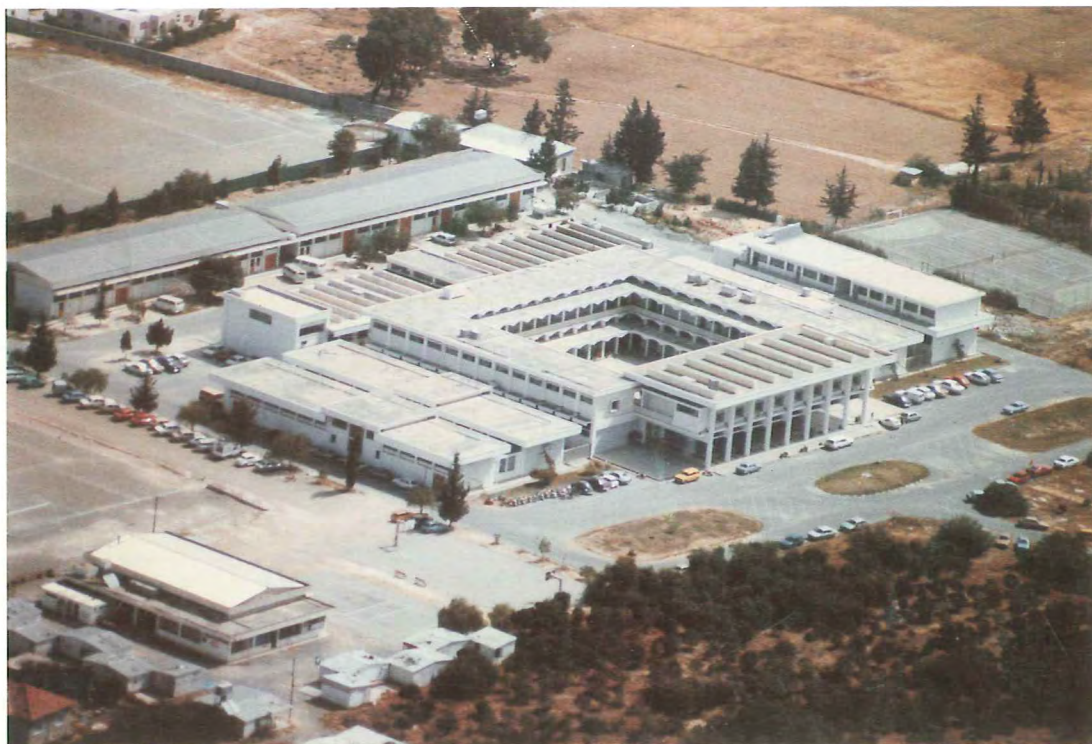


Ministry of Labour and
Social Insurance



THE FIRST TWENTY YEARS

1968 — 1988

Twentieth Anniversary Publication
of the
HIGHER TECHNICAL INSTITUTE
CYPRUS

INTRODUCTION

The Higher Technical Institute commenced operation in the summer of 1968 as a joint project of the Government of Cyprus through the Ministry of Labour and Social Insurance and of the United Nations Development Programme through UNESCO and ILO. A five year plan of operations was drawn up and this was wound up on schedule in 1973 when the Institute became the sole responsibility of Government.

The Institute was established to serve the needs of industry in middle level technical personnel and it soon defined the standard of its graduates as that of the internationally accepted standard of technician engineer. For the purpose the full time diploma courses were designed as three year courses thus affording ample time to convert non-technically minded young persons from secondary schools to high level technicians with sufficient training for speedy adaptation to the growing technological needs of industry.

The language of instruction was from the outset the English language and in fact the Institute has always enrolled overseas students in its courses. More important the Institute was truly intercommunal having numerous students and members of staff from the Turkish Cypriot Community as well as from the Greek Cypriot Community. This in spite of the intercommunal strife that began in 1964 and continued right upto 1974 when the two Communities in Cyprus were forcefully separated by invading forces from Turkey. This unique intercommunal cooperation was proof of the fact that education transcends ethnic and other barriers especially when it concerns young people.

Over the years the work at the Institute evolved around basic engineering fields on a broad basis in the belief that needs of narrow specialisations were difficult to predict. This policy is now paying additional dividends in an age when universally the advantages of broadly based initial training are recognised and much sought for.

Further, the Institute has always had its mind on the need for continuing education. A need which is increasingly appreciated by everyone and which in corporate strategy should be seen as a sine qua non for competitiveness. The Institute has regularly provided opportunities to its older graduates, as well as others, to update themselves in the face of advancing technology.

In addition to its training effort the Institute has also offered numerous services to industry in the form of research, specialised testing and consultancy within its capabilities in these areas.

The sections that follow highlight in more detail the structure of the system which served the Institute for the first 20 years, its association with industry, its achievements in the areas of training, both initial and continuing, its research and its consultancy service. Finally a few thoughts are expressed about the future.

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A Shiammas, Instructors Certificate

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I Antoniou, Diploma HTI
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S Spyrou BSc AMIEE FIHospE

Laboratory Assistants:

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P Hadjimichael, Diploma HTI, IEng MIElecIE

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Chr Marcou, City & Guilds Certificate
Ch Paikkos, City & Guilds Certificate

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Accounting Officer:

A Papadopoulos

Clerical Officer:

E Selipa

Welfare Officer:

A Eracleous

Librarian:

E Adamou

Clerks:

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G Constantinou
P Demosthenous
A Epaminonda
P Hadjittofi
M Iasonos
P Kokkinolambou
M Liverdou
E Papa
D Papayianni
M Stasopoulou

Private Secretary/Stenographer:

S Phinikaridou

Storekeeper:

G Pekris

Messengers:

Chr Solomonides
A Tziapouras

Telephonist:

L Kousoulidou

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THE EDUCATIONAL SYSTEM

C Loizou BSc CEng MIEE

Introduction

At the establishment of the Higher Technical Institute the curriculum was specified on a compulsory core of subjects for each of the three years of study. This overloaded the students and deprived them any free time for library and other uses and at the same time disallowed selection of subjects and limited specialization.

Progressively, through the regular major syllabus and curriculum revisions, the system allowed the students very limited free time for information retrieval and individual tutorials but remained a solid and directed system.

During the last major review of the system some liberal free time is provided to students as well as limited optional electives.

The Main Features of the Revised System

In designing the new educational system the objectives and policies of training followed over the past years were safeguarded, but at the same time, were revised to improve the system and solve most of the weaknesses of the old system.

The courses were designed to ensure the same levels and breadth of coverage as before thus ensuring the same occupational rights for the graduates and it is expected that the quality of training will be enhanced.

The main advantages of the new system are:-

- (a) avoidance of students' overloading
- (b) provision of some free time for students
- (c) provision of some options for students
- (d) increase of students' initiative and enthusiasm
- (e) increase of course flexibility
- (f) standartisation.

The above are achieved through the following main changes in the system:-

- (i) each programme of studies and its related curriculum is structured on a unit basis and consists of groups of compulsory subjects, compulsory elective subjects and optional subjects.
- (ii) the structure of each programme of studies and its related curriculum, is based on a system of pre-requisites, of co-requisites and of independent subjects.
- (iii) each subject is quantified by the use of semester equivalent units of internationally recognised strength. A minimum number of 105 units is required for graduation. Any additional units will appear on the transcript as optional subjects.

Considering an existing 30 hour per week compulsory programme, the new system reduced the time for compulsory core subjects of the curriculum, by 3 hours for first year students, 6 hours for second year students and 8 hours for third year students. However, it provides for compulsory electives in such a way that all students would attend further subjects, each group by 2 hours thus resulting in a total compulsory weekly programme of 29 hours for first year students, 26 hours for second year students and 24 hours for third years students. The limited free time can be used either as free time for weak students to do remedial work or for other students to take added optional subjects.

- (iv) The new system streamlines workshop practice, tutorial work and specialised subjects thus removing superfluous work and making the system more efficient. This results in limited additional free time for students and also in limited staff savings.
- (v) The new system enables the implementation of a 4 days/week, one semester, industrial training programme during the final year of studies in accordance with the Industrial Training Authority's recommendations.



Director awarding the IEEIE Annual Prize for the Best performance in Electrical Installations to Mr Christos Pieros, in the presence of Mr Savvas Savvides IEEIE local representative.

INDUSTRIAL TRAINING

Ch Chrysafiades BSc CEng MIEE

Introduction

Educational Institutions, employers and governments around the world recognise that linking the academic work of students with practical work reinforces learning, helps graduates to become productive members of society and contributes to the development of human resources of all nations. Programs relating education and work are being developed at all levels as one of the ways to reduce unemployment, underemployment and manpower shortages.

HTI Training Requirements

The Higher Technical Institute is one of the Institutions using work experience programs designed to provide tertiary technical education to Cypriots and other nationals in various fields of Technology, in order to prepare them for direct participation in the development of the national economy as Technician Engineers.

The Industrial Training consists of three parts, carried out in approved industries:

- (a) 6 weeks training during the summer between the first and second year of studies
- (b) 6 weeks training during the summer between the second and third year of studies
- (c) 60 days training during the third year of studies.

Third Year Training Objectives

The main objective of the HTI third year Industrial Training Scheme is to enable students to become competent Technician Engineers by the time they graduate.

Training Schemes To-date

In search of a better industrial training scheme alternative schemes were tried.

a) Departmentalisation of Industrial Training

The duties of organising and supervising the training schemes up to 1976 were assigned to an Industrial Training Supervisor. However, as a result of the doubling of the intake of students which started in the academic year 1976/77 the responsibility of placing and supervising no longer concerned about 90 students in each year but about 180, 60 in each specialisation.

One of the major difficulties of the Industrial Training Supervisor was to secure the required increased number of places with firms.

The Academic Council, on May 1 1979, after considering the problem very carefully, reached the conclusion that the planning and supervision of industrial training should be delegated to each of the three specialisation departments (Civil, Electrical and Mechanical), instead of the so far centralised mode of operation.

On the 18th May 1979 the Board of Governors considered and approved the new mode of operating the administration of the modified Industrial Training Scheme, involving its departmentalisation i.e. the designation of an Industrial Training Officer per Department plus an overall Industrial Training Coordinator.

Each Departmental Industrial Training Officer is responsible to liaise with industry for job placements.

The Industrial Training Coordinator is responsible to:

- ensure that correct standards and practices are followed by all departments
- ensure uniformity in all departments
- keep a central registry of records and reports from industry.

b) Industrial Training in Cooperation with the Industrial Training Authority (ITA) on a part-time basis (2-2 1/2 days per week)

The Industrial Training has been organised in a sandwich form on a weekly basis with 2 or 2 1/2 days in industry and 3 days of academic work at the Institute.

This system has been mainly criticised that 2 days a week in industry was too short a period for effective training. Also, as a result of the doubling of students it proved to be a difficult task to secure enough training placements especially with the Government Sector mainly due to budgetary limitations. As a result the Academic Council discussed for the first time the possibility of asking the Ministry of Labour to request the Industrial Training Authority to involve itself with the industrial training of HTI students.



The Operating Theatre Equipment Laboratory for the training of Maintenance and Repair technicians of medical equipment.

The Industrial Training Authority at its meeting on the 30 August 1983 approved the proposals put forward by HTI. Therefore, the industrial training of 3rd year HTI students, as from the academic year 1983/84 is sponsored by the ITA.

The main features of the new scheme are:

- Training will be carried out in accordance with systematic training specifications
- Each student will be in industry for 2 days per week for about 60 days and will be involved by rotation in 3 or 4 different occupation areas as follows:

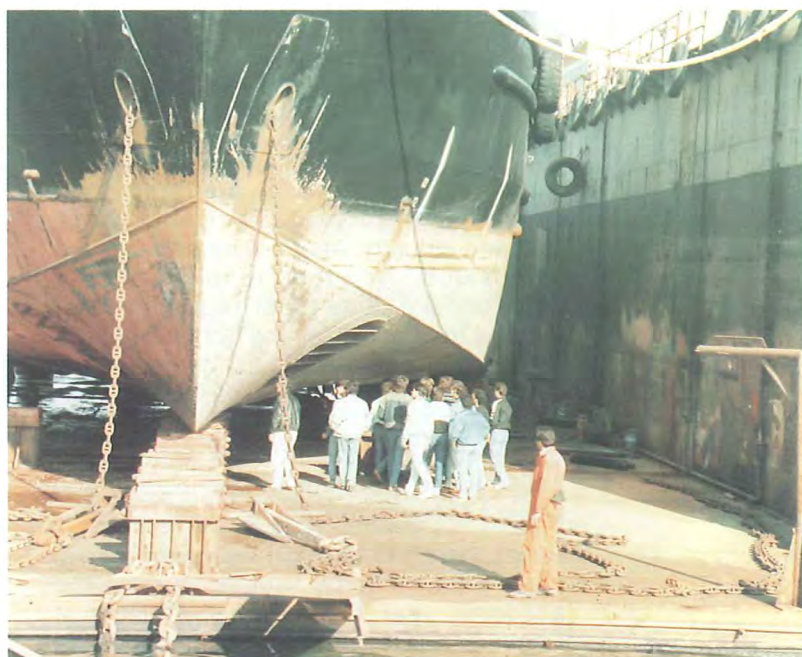
Commercial
Design
Construction
Maintenance etc

- Each student will receive a pay of £3.00 per working day from the employer and the ITA will reimburse the employer for this amount plus £2.00 per day per trainee assigned to the employer in the form of assistance towards the employer's inconvenience and overheads.

During the academic year 1983/84, with the cooperation of the ITA, there has been an improvement in the system of Industrial Training for the HTI 3rd year students.

However, there have been some problems as well (overseas students, placement in Government Depts etc.). These problems were noted early and efforts were made to solve them.

However, the major problem was that the 2 day per week training was accepted by the ITA on a temporary basis. Revised proposals were then put forward by HTI for a full-time training (4 days per week) and the Academic Council at its meeting in February 1984 approved a pilot Industrial Training Scheme for the Electrical Engineering Department as from the academic year 1984/85.



Industrial visit of marine engineering students to Famalife Drydock, Limassol.

c) Industrial Training in Cooperation with the ITA on a full-time basis (4 days per week)

The pilot Industrial Training Scheme based on a full-time basis (4 days per week) was put in operation in the academic year 1984/85, for the Electrical Engineering Department only.

The main features of this scheme are:

- The 3rd year students will be taking their course at HTI on a full-time basis during the 5th semester (September-January). Thus all subjects will be completed by the end of the 5th semester with the exemption of about 3 subjects which will be taken throughout the academic year
- the 6th Semester (February-June) will be devoted mainly to Industrial Training, 4 days per week in addition to Project Work, Industrial Administration, Educational Methodology and Electrical Services
- the training will be carried out in accordance with specific training specifications.

The above scheme has been successfully implemented by the Electrical Engineering Department during the academic year 1984/85 but not without some problems i.e. concentration of subject matter and examinations of two semesters in one, project work etc.

Therefore, an ad-hoc Committee was formed on the recommendation of the Administrative Team to undertake an evaluation of the effectiveness of the new structure of the 3rd year training for the Electrical Engineering Department.

A questionnaire was prepared and circulated to 3rd year electrical students, staff and industry. After a wide and detailed discussion on the results of the questionnaire (June 1986) it was found that the new industrial Training Scheme offered substantial advantages as compared to other schemes used in the past.

However, the academic work appeared to cause some problems of overloading and project consultation.

It was therefore decided to implement the new pilot scheme again during the academic year 1986/87 in the Electrical Engineering Department considering at the

same time what arrangements could be made to reduce the problems associated with academic work.

During the academic year 1986/87, with the adoption of suitable remedial measures, the system has been implemented successfully by the Electrical Engineering Department.

Another successful trial of the above scheme was implemented by the Electrical Engineering Department during the academic year 1987/88. During the same academic year 1987/88 3rd year Computer Science students followed the 4 days per week industrial training scheme.

The advantages and disadvantages of the semester-based system were weighed and assessed again. The administrative problems of the training and also the problems associated with the academic work were solved satisfactorily.

Therefore, the Administrative Team of HTI decided to adopt the semester-based system of training for all HTI Departments (Civil, Electrical, Mechanical and Computer Science) as from the academic year 1988/89.

From now on, all Departments will be doing their training during the 6th semester. However, and only for the academic year 1988/89, the Computer Science students will be doing their training during the 5th semester.

Conclusions

The active participation and involvement of ITA in the industrial training scheme of HTI students has improved significantly the quality of training.

The main features of the scheme currently in operation are:

- (a) The academic work of the 3rd year students is mainly covered in the 5th semester, with the exception of two or three subjects which are covered in the 6th semester.
- (b) The 6th semester is devoted mainly to industrial training (4 days/week)

The 6th semester thus becomes a powerful interface between education and employment. Hence HTI students are inculcated with a sense of professionalism much quicker than it has hitherto been possible.

INTERNATIONAL TRAINING

P. Vassiliou BSc MSc CEng MICE

Introduction to IAESTE

IAESTE (International Association for the Exchange of Students for Technical Experience) is a non-political, independent non-governmental organisation maintaining a consultative relationship with the following agencies of the United Nations: The United Nations Economic and Social Council (ECOSOC), the United Nations Educational Scientific and Cultural Organisation (UNESCO), the United Nations Industrial Development Organisation (UNIDO) and the International Labour Office (ILO).

The aims of the Association are

- to provide students at institutions of higher education with technical experience abroad relative to their studies in the broadest sense;
- to promote international understanding and goodwill amongst the students of all nations.

International Organisation

The Association is composed of National Committees representing academic, industrial and students' spheres of interest, which are responsible for the organisation of the exchange in their own countries. Membership is given after the establishment of a national committee in accordance with the statutes of IAESTE, together with a responsible permanent secretariat. New countries are accepted as Associate Members without voting rights. After a period of successful activity over the last 3 years, Associate Members may be promoted to full Members.

Delegates of National Committees of all member countries make up the General Conference as the only policy-making body of IAESTE, which meets every second year. The General Conference elects a General Secretary who is in charge of all international affairs of the Association. The General Secretary and three elected members from the Advisory Committee, which makes recommendations for consideration by the General Conference. The office of the General Secretary constitutes the headquarters of the Association. The working language of the Association is English:

Principles of the Exchange

Each member country collects offers from industrial and other organisations for receiving students from abroad for a temporary training period in close connection with the students' fields, as a supplement to the students' University or College education. The offering companies or organisations are expected to pay students a wage sufficient to enable them to cover their cost of living during the actual training periods.

These offers are exchanged with other member countries on a reciprocal basis, normally during the Annual Conference in January (General Conference or Exchange Conference).

Through their affiliated Universities and colleges, member countries select qualified students from the applicants for a training period abroad in order to fill the offers received from other members.

Receiving countries arrange for necessary permits, lodging, and - in many cases - for social and cultural programmes during or after the training period. Sending countries insure the students against accidents and illness. Students pay their own transportation expenses, sometimes taking benefit of travel facilities arranged through sending countries.

Participants in the Exchange Scheme and Training Periods

IAESTE exchange participation is open to bona fide students following courses at Universities, Institutes of Technology and similar higher Institutions. Many countries also exchange students taking full-time courses at Colleges or Technical Schools below university level.

Cyprus, as a full Member of IAESTE, exchanges offers with many other Member countries, among them USA, Yugoslavia, England, Canada, Poland, etc. The IAESTE-Cyprus secretariat, which is based at the Higher Technical Institute, makes about 20 offers for training in Cyprus and receives about 30. It is expected that the local offers will be increased in the near future, because the interest from participating firms is gradually increasing.



CONTINUING EDUCATION

Dr T Drakos MSc PhD CEng FIEE FIMechE

The old cliché "we live and learn" and the still older Greek saying «γηράσκω αεί διδασκόμενος» have acquired a new meaning but are very much valid today at the Higher Technical Institute. In the belief that continuous updating of personnel in industry is a dire necessity rather than a hoped for need the Higher Technical Institute has embarked on a programme of short courses for industry and this was intensified in the last few years of HTI's 20 year life.

The parties which naturally contribute to the success of continuing education are Government, representing the national interest, Employers for whom continuous updating of personnel is corporate strategy, and course providers who have a responsibility to provide a lead. It is gratifying to realise that all these parties have shown a remarkable keenness in this work when the challenge of fast technological change has been so obvious in the more recent years.

In the case of HTI the party referred to above as course providers must include in addition to HTI the Industrial Training Authority who sponsor this work and the Professional Associations, in particular the local centres of the Institution of Electrical Engineers (IEE), the Institution of Civil Engineers (ICE) and the Institution of Mechanical Engineers (IMechE), who have taken the responsibility of course organisation and who in effect act as "honest brokers" in order to facilitate the implementation of this programme with minimum formality.

As a result the HTI in association with the parties mentioned above has conducted short courses in the period Nov 85 - Sept 88 involving 652 participants from industry. The courses were concerned with new and advanced technology and in this way the HTI made a resounding impact as a centre of considerable and fruitful activity in continuing education.



Short updating course on Microelectronics technologies organised by the IEE Cyprus Branch in collaboration with HTI and the Industrial Training Authority and given by the Microcomputer Unit, London.

TRACING THE GRADUATES

S Voskarides BSc AMIEE

The Higher Technical Institute (HTI) was established as a joint project of the United Nations Development Programme and the Government of Cyprus.

The Institute started operating in the academic year 1968-69 with the main object to train Technician Engineers to meet the needs of the country's developing industry.

The first specialisations offered were in Civil, Electrical and Mechanical Engineering.

To meet the needs of the developing maritime industry the HTI, in collaboration with the appropriate government departments, designed and offers since 1976 a Diploma course for Marine Engineer Officers.

In 1985 a new Technician level Diploma course in Computer Science was introduced to meet the ever increasing demand in this field.

Regular courses are of three year duration. The Institute also offered five-year evening Diploma courses in Civil (1971-76), Electrical (1977-82) and Mechanical Engineering (1983-88).

This year the Institute celebrates its 20th anniversary. On this occasion an effort was made to trace the career and educational development of all its graduates.

The main considerations of this study were:

1. Secondary education background
2. Number of graduates who pursued further studies.
3. Areas of employment.

The method followed

Since it was impossible to come in touch with all the graduates one by one, only two or three selected persons from each class were approached who gave information about their classmates.

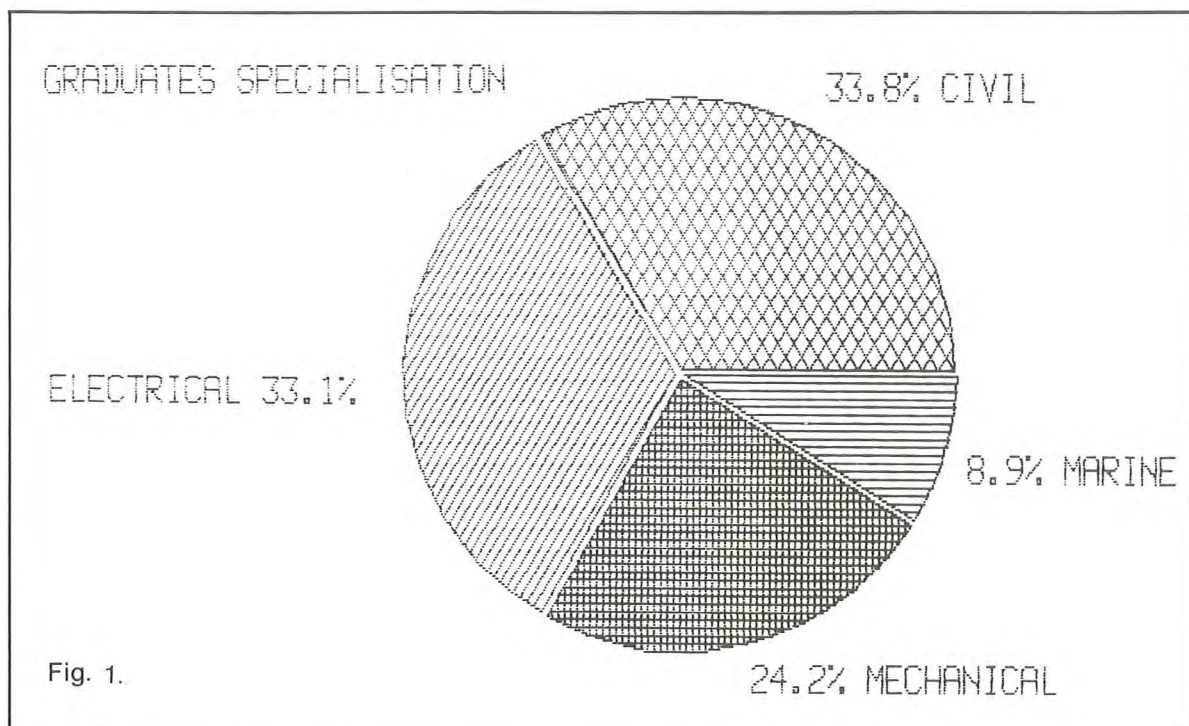
The information collected refers to all graduates (and not to a sample of them) and it is based on the memory and the personal knowledge of the persons contacted.

Since the results and conclusions of this survey were not based on an official exercise the findings bind only the author and not the Higher Technical Institute as a body.

Graduates output by specialisation

The Higher Technical Institute trained upto now a total of about 2000 Technician Engineers.

The pie chart of figure 1 shows the percentage of the graduates of each specialisation (excluding Computer Science since first output was in 1988 and no employment or other information exists yet).



Secondary education background

Figure 2 shows the relationship between the number of graduates who came to HTI from Gymnasiums and from Technical Schools.

It is obvious that until 1978 the numbers of graduates who came to HTI originating from Gymnasiums and Technical Schools were more or less the same.

But since 1979 the vast majority of HTI graduates (nearly 90%) have originated from Gymnasiums. This means that since 1976 the number of HTI entrants originating from Technical Schools has drastically been reduced to 10%, although special concessions were granted to Technical School graduates for 25% of vacancies available.

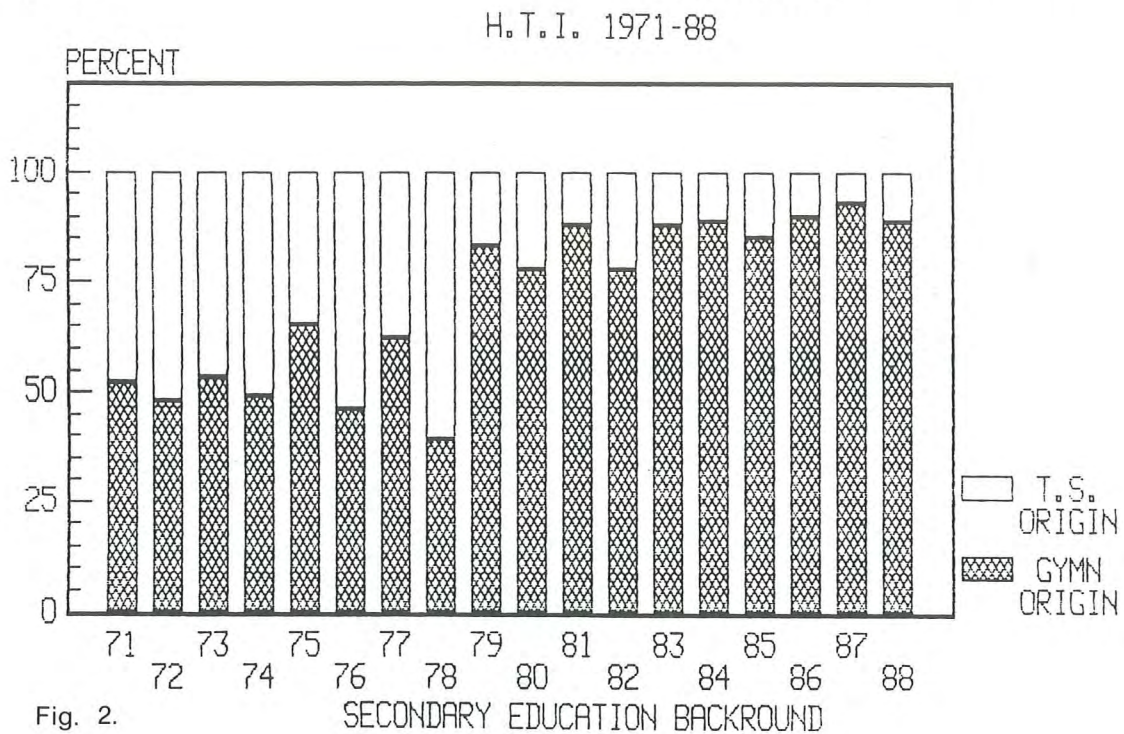
Graduates who pursued further studies abroad

Figure 3 shows the percentage of graduates from 1971 until 1985 who pursued further studies abroad.

Note: It was not possible to establish when these graduates went abroad for further studies (i.e. how many years after graduating from HTI) but it is known that several graduates are utilised in industry as technician engineers for some time before proceeding for higher studies.

It is obvious that until 1978 25-35% of the graduates continued their studies abroad.

The only exception are the graduates of 1973 and 1974. Almost half of them continued their studies abroad probably because of the unsteady situation in Cyprus after the Turkish invasion of 1974.



Miss Christalla Pavlidou receiving the President's Prize to the student with the Best Overall Performance.



H.T.I. 1971-85

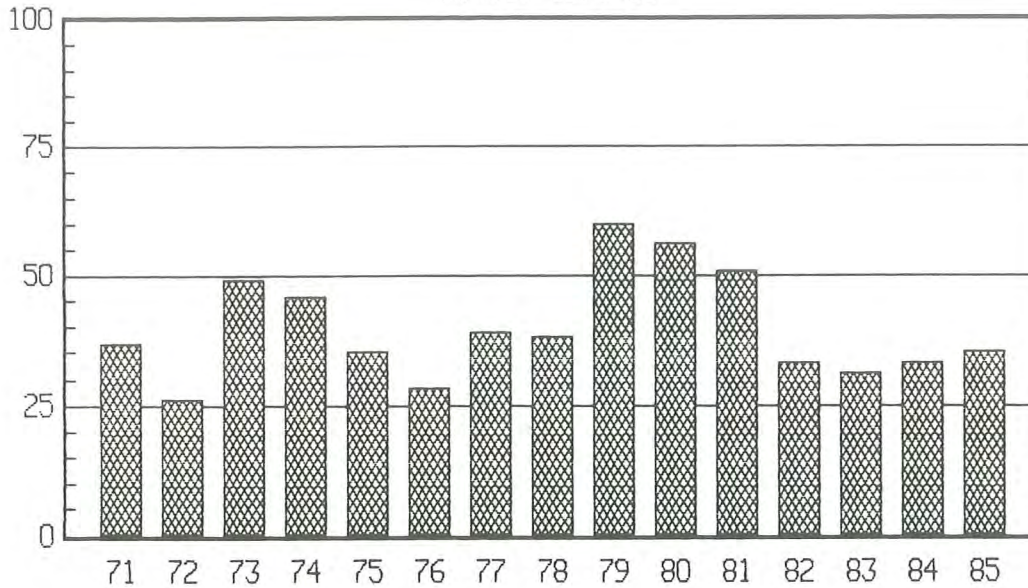


Fig. 3. FURTHER STUDIES

More than half of the graduates of years 1979, 1980 and 1981 pursued further studies abroad most probably due to the high percentage of Gymnasium originated graduates since 1979 (90%).

Since 1982 the number of graduates who went abroad to pursue further studies reduced to 30-35%. Possible reasons for this reduction are the rise of fees to study abroad and the increasing problem of unemployment for university graduates.

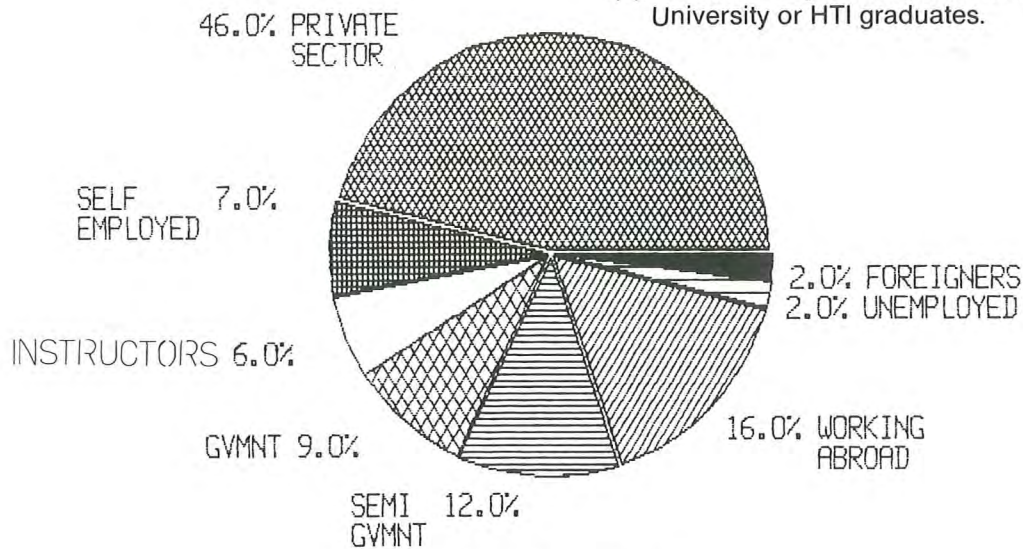
Utilisation of graduates

The pie charts below show the areas of employment of the HTI graduates from 1971 until 1985.

The results are given collectively for all graduates in figure 4 and analytically for each specialisation in figures 5-8.

Note: For the graduates who continued their studies abroad the information collected does not include the following:

- (a) For how long they were employed as HTI graduates before leaving for further studies.
- (b) Whether they are at present employed as University or HTI graduates.



H.T.I. 1971-85

Fig. 4: Areas of present employment of all HTI graduates from 1971 until 1985

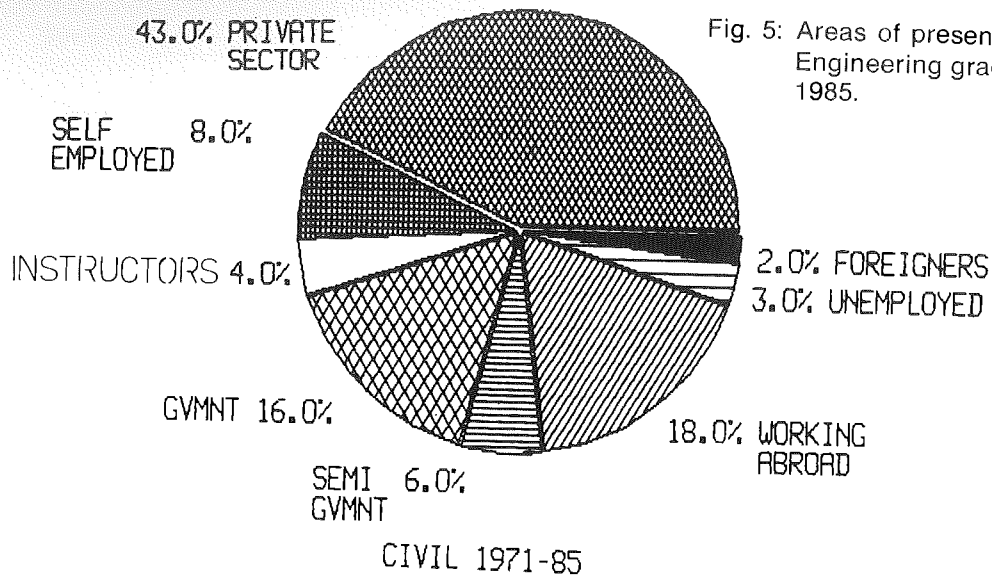


Fig. 5: Areas of present employment of Civil Engineering graduates from 1971 until 1985.

Fig. 6: Areas of present employment of Electrical Engineering graduates from 1971 until 1985.

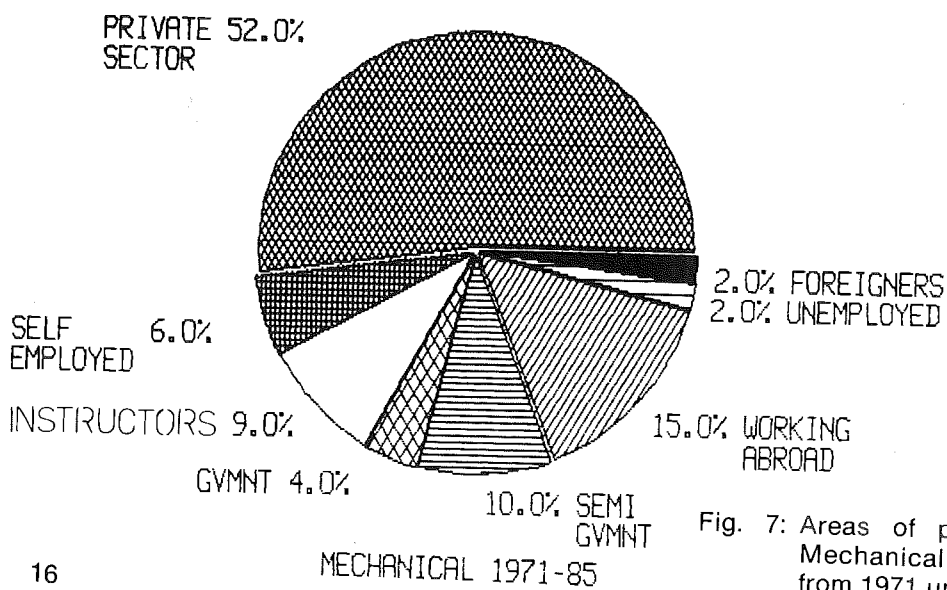
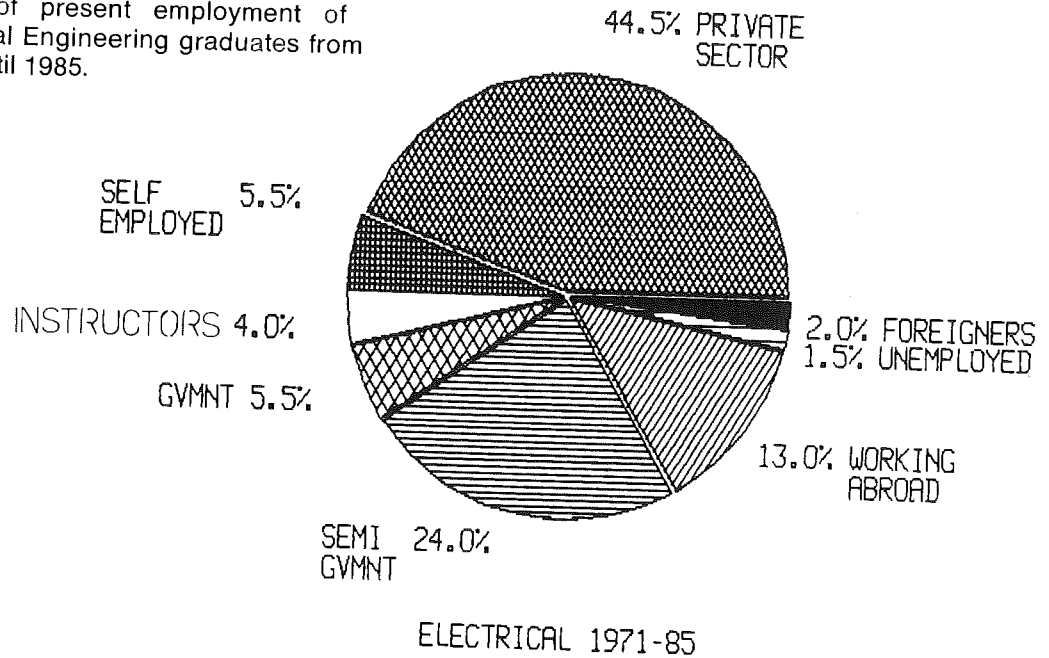
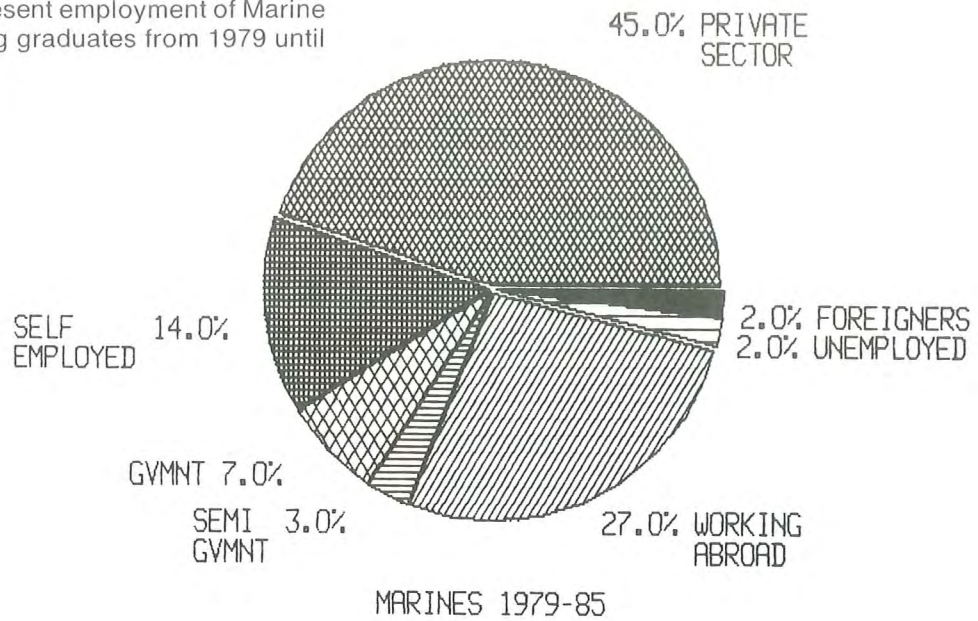


Fig. 7: Areas of present employment of Mechanical Engineering graduates from 1971 until 1985.

Fig. 8: Areas of present employment of Marine Engineering graduates from 1979 until 1985.



Present courses

The original three HTI diploma specialisations of Civil, Electrical and Mechanical Engineering have been increased to include Marine Engineering and Computer Science. Moreover, the number of student intake has been doubled for the Civil, Electrical and Mechanical Engineering courses. This results in a yearly diploma graduation output of around 200 students.

Further, HTI's international role has been boosted with the existence within the Institute's structure of the WHO sponsored

Regional Training Centre on Maintenance and Repair of Medical and Hospital Equipment. RTC's student output from various specialisations up to July 1988 was 319 originating from 35 countries around the World. The Centre's status has been enhanced by its designation as a WHO Collaborating Centre in its field, the only one of its type in the world at present. It has since undertaken a number of consultancy studies at home and abroad on behalf of WHO and the Commonwealth.



The 20th Anniversary Graduation Ceremony addressed by the Director, Dr Themis Drakos.

HTI AS A RESEARCH CENTRE

Dr H Stavrides BSc MSc PhD

The Institute in its first twenty years has encouraged and promoted applied research.

However research received special attention over the last six to seven years, the funds being mainly governmental, but with substantial contributions from the local industry as well.

The most important areas of research that have been carried out in each specialization are outlined below.

1. Civil Engineering and Architecture

In the field of Civil Engineering research has been carried out on the material properties of the local building materials, the influence on the concrete properties of the various admixtures that have reached the Cyprus market over the last ten to fifteen years and other related topics.

Other areas of research include:

(a) The structural Behaviour of Reinforced Concrete Beams.

This was a project that was designed to investigate mainly the behaviour of reinforced concrete beams in shear. The structural behaviour of such beams in bending is an extension of the experimental programme to be undertaken in the near future.

(b) Steel Fibre Reinforced Concrete (SFRC)

This was a recent project sponsored entirely by the Cyprus Ports Authority and it dealt with the material properties

of SFRC, a material which is new to Cyprus. The aim of the research programme was to establish the behaviour of SFRC made with local materials and hence assess its suitability for use in heavy duty port pavements. The findings of this research programme will be used in the design and construction of a heavy duty pavement, at the Port of Limassol of an area of the order of 5,000 m².

In the field of Architecture, a joint project between the departments of Civil and Mechanical Engineering was undertaken. This involved the design of a prototype Solar House in Nicosia. The house was designed to satisfy its heating needs primarily by passive methods assisted by a small number of flat-plate solar collectors connected directly to the heat-emitter in the form of piping embedded into the floor screed.

2. Electrical Engineering

In the field of Electrical Engineering various projects have been undertaken some of which are the following:

(a) The Development of Educational Software for the use of the students and staff of HTI

This project was undertaken in order to develop programs on the IBM Personal computer which is in use at the Institute.



Shear Failure of a Reinforced Concrete Beam. Investigation into the shear behaviour of beams.

(b) The Efficient Utilization of Electric Machine Drives in Cyprus Industry

This project dealt with the possible conservation of energy for the electric motors in the Cyprus industry.

(c) Application of Programmable Controllers

The targets of this project were to program the controller with one programming language (Ladder language) and the application of the controller in sequence control involving priority decisions.

(d) Photovoltaic Solar System for Domestic Use

This project involved the development and application of computer programs on FORTRAN IV relating to solar radiation data and performance of solar systems.

(e) Automated Computer-Assisted Antenna Testing

This project dealt with the construction and testing of various types of transmitters/receivers field strength units and the investigation on antenna positioning techniques. Moreover it involved the development of the necessary software utilizing an IBM/compatible PC in conjunction with a DACS control card to process and present results.

3. Mechanical Engineering Department

In the field of Mechanical Engineering one of the first projects undertaken was on the Applications of Heat Energy extracted from Grape Marc. This project was funded by industry and it involved the design and construction of the plant.

Solar Energy

More recently work was carried out on solar energy, a form of energy that we have in abundance in Cyprus. Research on solar energy dealt with the following:

(a) An Experimental Solar Space Heating System.

This project involved the design and installation at HTI of such a system. This system utilized low temperature solar energy the purpose being to establish whether this form of energy could be efficiently utilized for space heating in Cyprus.



Recycling of Grey Water, a PhD research project, prototype treatment plant, installed in a house for trials.

(b) Passive Solar Heating

This project involved the modification of an external wall of a classroom facing south to act as a solar radiation collector transferring the radiation into the room for heating purposes.

Applied research is important not only to the Institute, but to Cyprus industry as well. The benefits to be accrued are significant and diverse. Having this in mind, the policy of the Institute is to continue promoting research, always using as main criteria the needs of the local industry as a whole. Thus any finding will become useful not only from the academic point of view, but meaningful, with as large a degree of practical significance as possible.

The Rose Water Distillation Plant, an HTI-Agros Co-Op collaborative effort operational since 1985. In the background the Evaporator vessel, feeding into two heat exchangers (distillers) with the collecting tank at the bottom.



TESTING AND CONSULTANCY

The HTI has provided testing and consultancy services for both the private and public sectors right from the time it was set up. The consultancy services offered by the HTI were by way of specialised equipment and the expertise of its academic staff.

The consultancy assignments undertaken by the HTI are on a fee paying basis and by government policy do not come into direct competition with the services offered by the private sector.

The HTI is also in close cooperation with the Cyprus Organisation for Standards. A specialised calibration laboratory has been set up through this cooperation at the HTI in order to carry out tests on electrical and mechanical instruments and equipment.

The testing and consultancy services offered by the HTI are of double benefit. One is the fact that industry has at its disposal the specialized equipment available at the HTI and the specialized expertise of its staff and the other is the fact that it keeps the staff of the HTI in touch with industry and industrial developments, of the utmost importance for a really effective training of students.

The scope of the testing and consultancy services of each department of the HTI is as follows:

Civil Engineering Department

- Testing of reinforcement
- Testing of concrete cubes
- Loading tests on reinforced concrete building floor slabs
- Testing of soils

D. Lazarides DLC MSc CEng MICE MIHT

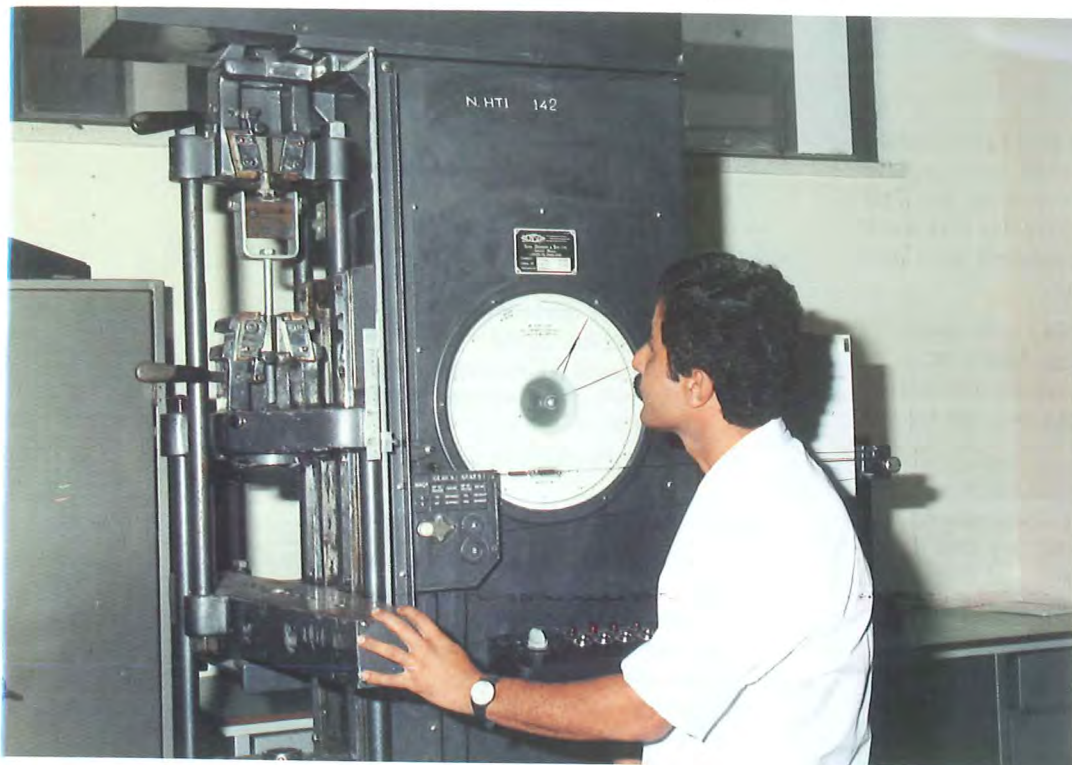
- Testing of building materials
- Testing of building products and components
- Repairs of concrete structures using the guniting technique on silos and other structures
- Heavy-duty pavements using steel fibre reinforced concrete
- Performance of external finishes
- Design of water and wastewater treatment units
- Control of industrial toxic chemicals

Electrical Engineering Department

- Testing and certification of water heating elements
- Calibration and testing of instruments for government departments and private industries
- Testing of electrical characteristics of plastic conduits
- Testing of cable glands
- Testing of electrical characteristics of cables
- Setting up specialized testing and electronics laboratories
- Testing of batteries
- Calibration of ohmmeters, meggers, LCR bridges, voltmeters, ammeters, wattmeters, counters etc.
- Load tests for single phase and three phase transformers and motors
- Measurement of resistance, capacitance, inductance, period, frequency etc.
- Industrial control systems (modifications, technical information, data system assessment, market information)



Checking the dimensional accuracy of manufacture of imported glass bottles.



Testing of D-Irons for the Electricity Authority of Cyprus.

- Technical specifications of electrical/ electronic equipment
- Trouble shooting microprocessor based systems
- Electrical energy management and conservation
- Application of programmable controllers

Mechanical Engineering Department

- Execution of standard tests on locally manufactured products to ensure compliance with Cyprus Standards and other specifications
- Calibration tests of measuring instruments such as pressure gauges, thermometers etc.
- Heat treatment and precision machining of various machine components
- Performance characteristics of submersible pumps
- Noise and vibration measurements to testify compliance with international noise criteria
- Design studies on experimental houses using solar energy for space heating and cooling and domestic hot water generation
- Design of rose-water distillation plants

- Formulation of quality control procedures
- Quality of performance of manufacture
- Metrology and calibration of measuring instruments
- Energy engineering (performance of solar collectors, solar systems design)
- Testing of quality control of leather and leather products

Computer Studies Department

- New technology applications
- Analysis and design of computer systems
- Communication systems
- Design, programming, coding and testing of software
- Interfacing between software and hardware

Regional Training Centre

- Examination of welded joints using industrial X-ray techniques
- Test and calibration of automatic ventilators
- Installation, testing, repairing and calibrating various types of X-ray units.
- Electro-medical equipment (technical information and maintenance techniques)

COMPUTERS: THE NEW TECHNOLOGY AT HTI

Dr Ch Schizas BSc MBA PhD CEng MIEE MIEEE FABAC

HTI began its operation as the first government Institute offering Higher Technical Education. Twenty years on HTI has achieved not only an increase in number of students but also in specializations.

The era of computers and computer technology could not go unobserved by the dynamic growth of HTI. HTI is experiencing now changes in three directions because computers dictate so.

First of all HTI had to introduce a specialization in computer studies whose product would be the equivalent of the technician engineer in computer studies.

Until 1988 HTI's graduates were all of engineering background. Last summer HTI offered its first graduates with the Diploma in Computer studies to industry. These graduates now hold positions as programmers, entry level analysts and software support engineers in such organizations as Banks, industrial firms, software houses and hardware suppliers.

Secondly, HTI had to train its engineering students in programming and using computers in the field of their profession. Nowadays everybody has to become familiar with computers and find out how they can apply computer technology in their field, see their potential and capabilities in making their jobs more efficient and them more effective. Engineers use computers in design and drawing, solution of equations, reproduction of data etc. New subjects have been added in the curriculum of the engineering students and other subjects have been revised in order to accomodate as best as possible the computer technology.

Thirdly HTI as an organization handling large amounts of data and needing information for

its everyday operation could not remain neutral in adopting computers for information processing and interchange. Wordprocessors have been introduced in administration and in each department for document production and processing. Entrance examination processing, registration procedures and student record processing have been computerized. The computerization of the Library and further enhancements on the administration system are projects under development.

In addition, computerization projects are also carried out for other institutions such as the Nicosia and Paphos Blood Banks which were computerized by an HTI team, and the Olympic Games of small countries for which a package of computer programs is under development for providing on-line facility to the press and public before and during the games which will take place in Cyprus in May 1989.

The main computer facilities of the Institute which are used for the training of the students comprise the following:

Two state of the art mini computers capable of handling up to sixty users simultaneously doing all kinds of work such as program development, office information processing, communication with other computers through modems. In addition there is a local area network with twenty microcomputers for teaching purposes, program development and staff usage.

It is hoped that HTI will meet the demands of the second industrial revolution and it will play a most active role in preparing new specialists for the requirements of the information age.

The new Computer
Science Building



HTI's EXTRA-CURRICULAR ACTIVITIES



HTI's follow-on contribution to the Strovolos Acropolis Park, the work being overlooked by former Director Dr George Christodoulides.



Clearing and cleaning a small forest as part of the Environment Day Activities



Visit to Phicardou Village on UNESCO Day.



Blood Donation by Students and Staff is now a regular activity



HTI Handball team (Men) Cyprus Cup Champions for 1987.

Men's Handball team Pancyprian Cup finalists in 1984.



THE FUTURE

Dr T Drakos MSc PhD CEng FIEE FIMechE

In consideration of what has been happening at the Higher Technical Institute, and in the world, in the past years and especially in the light of the rapid changes that characterise our era one cannot look at the future without a sense of awe. Yet one must of necessity see change as occurring discreetly and gradually albeit at a fast pace for when moving in the dark it is better to do it in steps rather than in leaps.

Following this philosophy the Higher Technical Institute has on completion of its first 20 years of life embarked on a major review of its training system. This review has been substantial enough in order to accommodate new ideas in technology as well as in society and the changes reflect both on the Syllabus as well as on the academic system, the latter becoming increasingly liberalised. The changes however are not radical but are commensurate with what are believed to be the industrial aspirations of Cyprus. Beyond this statement one cannot elaborate further and avoid safely the pitfalls of uncertainty. We know that tomorrow's systems will be complex and increasingly knowledge based. Yet we cannot foretell what kinds of products the next generation will be using and with such an abstract concept it is highly problematic for academics to decide how to prepare the engineer of tomorrow. Still the safest course is one which initially involves sound broad based training with specialisation following later when the specific need arises and specialisation becomes meaningful. This is the philosophy adopted at the HTI which prepares its students for life firmly believing Seneca's "Non scholae sed vitae discimus" and looking to the future with the hope and confidence only evidenced in the young through education.

Printed by SOGEK, Nicosia, Tel. 482361
Phototypesetting by: PHOTOGRAMMA Ltd Tel. 433832

Editorial Committee: **A. Mallouppas**
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Photographs: **J. Angeli**

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for the opinions expressed unless it is stated
that an article officially represents the
H.T.I.'s views".**