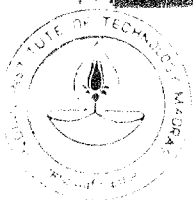


INDIAN INSTITUTE  
OF  
TECHNOLOGY  
MADRAS



ANNUAL REPORT

1963-64

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INDIAN INSTITUTE OF TECHNOLOGY  
MADRAS

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# FIFTH ANNUAL REPORT

1963-64

## GENERAL

### 1. HIGHLIGHTS OF THE YEAR

The year 1963-64 under report marks an important milestone in the development and progress of the Institute since it was founded in 1959 as an Institute of national importance. It is the year in which the first batch of students in the different branches of Engineering and Science graduated out of the Institute. The First Convocation of the Institute for the award of the B.Tech. and M.Sc. Degrees will be held in July 1964 under the distinguished presidentship of Dr. Sarvepalli Radhakrishnan (Visitor of the Institute), President of the Republic of India.

The year under report is also significant in the opening of 3-year degree courses of study in Engineering and Technology for students who had passed the B.Sc. Degree examination, leading to the B.Tech. Degree, the 2-year Degree courses of study for Engineering and Technology leading to the M.Tech. Degree and the introduction of Chemistry as one of the subjects for the M.Sc. Degree course.

Facilities were given for the first time to the academic and technical staff members of the Institute to undergo post-graduate courses on part-time basis.

The other significant events of the year are the following : (a) the opening of the Vanavani Primary School within the campus on the 8th of July 1963, by Dr. A. L. Mudaliar ; (b) the meeting of the Directors of the Indian Institutes of Technology at Madras on the 9th of July 1963 to streamline the procedure for the Joint Entrance Examination ; (c) the inauguration of the Ladies' Club within the campus by Lady A. L. Mudaliar ; (d) the holding of the All-India Inter-Collegiate

Debate on the 30th of November 1963 ; and (e) the participation of the Institute in and playing hosts to the members of the seminar on " Collaboration between Industries and Institutions in the field of Technical Education " sponsored jointly by the Institute of Applied Manpower Research, New Delhi and the All-India Council for Technical Education, from the 10th to the 12th of June 1964.

Two functions came off during the year to bid farewell to Mr. Gerhard Fischer, Consul of the Federal Republic of Germany and Dr. Kraus, Adviser to the Government of India for the Indian Institute of Technology, both of whom have left India to take up other assignments. Reference was made to their signal services to the Institute.

## 2. (a) THE BOARD OF GOVERNORS

The Board of Governors of the Institute met three times during the year. The following members constitute the Board :

### *Chairman*

Dr. A. L. Mudaliar, Vice-Chancellor, University of Madras.

### *Members*

1. Prof. B. Sengupto, Director, I.I.T., Madras.
2. Shri Mir Akbar Ali Khan, Member of Parliament, Andhra Pradesh.
3. Shri K. Sreenivasan, Director of South India Textile Research Association, Coimbatore.
4. Shri I. M. Magdum, Director of Technical Education, Government of Mysore.
5. Shri S. Rajaraman, Director of Technical Education, Government of Kerala.
6. Shri P. M. Reddy, General Manager, Hindustan Aeronautics Ltd., Bangalore.
7. Dr. Y. Nayudamma, Director, Central Leather Research Institute, Madras.

8. Shri A. Abdul Rahim, M.L.A., Correspondent, T.K.M. Engineering College, Quilon.
9. Dr. Rajah Muthiah Chettiar, Madras.
10. Prof. R. G. Narayanamurthi, I.I.T., Madras (till 31-12-1963).
11. Prof. P. Venkata Rao, I.I.T., Madras (till 31-12-1963).
12. Prof. E. G. Ramachandran, I.I.T., Madras (from 1-1-1964).
13. Prof. M. V. C. Sastri, I.I.T., Madras (from 1-1-1964).
14. Shri R. Natarajan, I.A.S., (Registrar), *Secretary*.

(b) THE SENATE

The Senate met five times in the year. The following members constitute the Senate :

Prof. B. Sengupto, Director	..	<i>Chairman</i> ( <i>Ex officio</i> )
Shri R. Natarajan, I.A.S., Registrar	..	<i>Secretary</i> ( <i>Ex officio</i> )

*Members*

1. Prof. R. G. Narayana- murthi	..	Head of the Dept of Mech. Engg.
2. Dr. P. Venkata Rao	..	Head of the Dept. of Elect. Engg.
3. Dr. E. G. Ramachandran	..	Head of the Dept. of Metallurgy.
4. Dr. M. V. C. Sastri	..	Head of the Dept. of Chemistry.
5. Prof. S. Sampath	..	Professor of Elect. Engg. and Senior Warden.
6. Dr. P. C. Varghese	..	Head of the Dept. of Civil Engg.
7. Prof. R. Krishnamurti	..	Head of the Dept. of Humanities.
8. Dr. S. Ramaseshan	..	Head of the Dept. of Physics.
9. Dr. S. K. Srinivasan	..	Head of the Dept. of Maths. (till 1-5-1964).

- |     |                      |    |  |
|-----|----------------------|----|--|
| 10. | Dr. S. D. Nigam      | .. | Head of the Dept. of Maths. (from 2-5-1964). |
| 11. | Dr. D. Venkateswarlu | .. | Head of the Dept. of Chem. Engg.             |
| 12. | Dr. S. R. Valluri    | .. | Head of the Dept. of App. Mech.              |
| 13. | Prof. R. K. Gupta    | .. | Professor, Dept. of Humanities.              |
| 14. | Dr. I. R. Rao        | .. | Professor of Mech. Engg. (till 30-6-1964).   |
| 15. | Dr. W. Koch          | .. | Professor of Physics.                        |
| 16. | Dr. W. Scheer        | .. | Professor of Engg. Drawing.                  |
| 17. | Dr. N. Klein         | .. | Professor of German.                         |
| 18. | Dr. K. W. Haug       | .. | Professor of App. Mech.                      |
| 19. | Dr. G. Rouve         | .. | Professor of Civil Engg.                     |
| 20. | Dr. G. Stahl         | .. | Professor of Mech. Engg.                     |
| 21. | Dr. S. Seinecke      | .. | Associate Professor of Elect. Engg.          |
| 22. | Dr. H. Heitland      | .. | Professor of Mech. Engg.                     |
| 23. | Dr. C. Ramasastry    | .. | Senior Warden.                               |

*External Experts*

- |             |    |   |
|-------------|----|---|
| Humanities  | .. | Prof. T. Balakrishnan Nayar,<br>Principal,<br>Tagore Arts College,<br>Pondicherry.                      |
| Science     | .. | Dr. P. L. Bhatnagar,<br>Head of the Dept. of Mathematics,<br>Indian Institute of Science,<br>Bangalore. |
| Engineering | .. | Dr. G. S. Laddha,<br>Director,<br>Alagappa Chettiar College of Tech-<br>nology,<br>Madras.              |

### 3. NEW COURSES

A new 3-year B.Tech. Degree course for students who had passed the B.Sc. Degree examination was started, with a strength of ninety, during the year under review in line with the recom-



recommendations of the post-graduate Committee set up by the Government of India to meet the need to turn out more engineers in quicker time in the emergency created by the Chinese menace on our frontiers.

In view of the introduction of this course, admission of the students who had passed the B.Sc. Degree examination to the 5-year B.Tech. Degree course was discontinued from the beginning of the academic year.

In addition to the M.Sc. Degree Courses started in Mathematics and Physics, M.Tech. Degree courses were introduced in Civil, Chemical, Electrical and Mechanical Engineering Branches, as also the M.Sc. Degree course in Chemistry.

The Senate decided in August 1963 that members of the academic staff who held the B.A. (Hons.) or B.Sc. (Hons.) Degree (after a study of 3 years in the Honours Course after the Intermediate course in Arts & Science) and were desirous of registering themselves for the Ph.D. Degree should, before registration for the Ph.D., take the M.Sc. Degree by completing satisfactorily the second year of the M.Sc. Degree Course in the concerned Branch and pass the examinations in the subjects prescribed for the M.Sc. Course, compartmentally, if need be.

#### 4. ADMISSIONS

210 students were admitted to the 5-year B.Tech. Degree Course. Admission to this course was, as usual, on the basis of the results of a common Joint Entrance Examination and to the other courses, on the basis of interviews and weighted average of the performances of students at the previous examinations and their extra-curricular activities.

Details showing the number of students who appeared for the examination held in May 1964 and the number interviewed are given in *Appendix I*.

*Foreign Scholars*: During the year under report, two students of Thailand were admitted, at the request of the Government of India, under the TCM Plan, to the 3-year B.Tech. Degree course. Both of them have since left the Institute.

## 5. SCHOLARSHIPS AND PRIZES

(a) *Scholarships*

Scholarships were awarded, in line with our Statutes, to 25% of the students admitted to the undergraduate courses and Master's Degree courses in Science, seven per cent of which was based on merit, and eighteen, on merit-cum-means. Besides, ten per cent of the students admitted to these courses were awarded free studentships. All the 37 students who joined the M.Tech. Degree Course and all the four students who joined the Ph.D. Degree course were awarded scholarships during the year. The scholarships awarded by the Institute in other courses during the year are as follows :

<i>Course</i>	<i>Merit</i>	<i>Merit-cum-Means</i>	<i>Free studentship</i>
5-year B.Tech.	55	131	18
3-year B.Tech.	6	17	9
M.Sc.	1	3	2

The expenditure incurred by the Institute on the award of scholarships was Rs. 2,51,665.

The Atomic Energy Commission, Bombay, which awards two scholarships every year to the third year students of the 5-year B.Tech. Degree course in Metallurgy, interviewed the students and granted two fresh scholarships besides renewing the previous awards. Financial aid through loans also came from the Government of India, State Governments and philanthropic agencies. Needy students had also the benefit of financial assistance from the Students' Aid Fund. Particulars of scholarships and loans and the number of students benefitted by them are listed in *Appendix II*.

(b) *Prizes*

Merit prizes were awarded by the Institute to students for academic distinction in the different branches of study. The First Prize was of the value of Rs. 50. while the Second Prize was of the value of Rs. 25. The list of prize winners is given in *Appendix III-A*.

The Governor of Madras has endowed Rs. 500 to the Institute during the year. The annual interest from this endowment is to be utilised to award a silver medal of the value of Rs. 25 called "The Governor's Medal" to the best all-round proficient student qualifying for the B.Tech. Degree. The conditions of award of this medal are enumerated in *Appendix III-B*.

## 6. FINANCE

The income and expenditure for the year ended and the Balance Sheet as on 31st March 1964 are detailed in *Appendix IV*.

## 7. ACADEMIC SESSION

Owing to the acceleration of courses due to the national emergency, the classes for the fourth and final year students of the 5-year B.Tech Degree Course commenced on the 3rd of June 1963 and concluded on the 27th of January 1964. The students of the fourth year class who completed their courses in January 1964 commenced their final year course on the 9th of March 1964. Classes for the other students commenced on the 1st of July 1963 and ended on the 30th of April 1964. The session for the 3-year B.Tech. Degree and the post-graduate Degree Courses started on the 6th of August 1963 and ended on the 25th of May 1964.

## 8. EXAMINATIONS

The final examinations for the fourth and final year classes of the five-year Degree course were conducted during January-February 1964. It is gratifying to record that all the ninety-two students who took the final year examinations came out successful, with fifty-seven of them obtaining the first class and the rest being placed in the second class.

The results were gratifying for other classes as well — the pass percentages were as high as 98% in the I year, 97% in the II year, 91% in the III year and 97% in the IV year of the five-year B.Tech. Degree course.

The percentage of passes in the 3-year B.Tech., M.Sc. and M.Tech. Degree courses was also good.

Break-up details regarding the various examinations are given in *Appendix V*.

## 9. RESEARCH

To help the advancement in research work in the Institute two desk-type Telefunken make Analog Computers were acquired, set up and commissioned in the Control Engineering Laboratory.

The research work carried on by the academic staff of the Institute has been appreciated by various scholastic bodies as is evident by the large number of research publications in journals in the U.K., U.S.A. and other countries.

The Institute was honoured when Prof. S. Sampath of the Electrical Engineering Department received in December 1963 the I.T.E. Annual Award for his research work entitled "The Evaluation of Amplification Factors in Multigrid Tubes by an Electrolytic Tank Method" which was adjudged the best paper published in the journal of that institution (1962).

With the completion of the departmental buildings and installation of fresh equipment, the tempo of research work in the different departments will increase in the coming years.

The research work carried out by the various Departments of the Institute and the publication of the results of the research are detailed in the respective Departmental reports.

## 10. STAFF

Prof. B. Sengupto and Shri R. Natarajan, I.A.S. continued to be the Director and Registrar, respectively.

The names of the other members of the teaching and administrative staff who joined the Institute during the year and those who left are set out in *Appendix VI*.

Dr. D. V. Reddy of the Applied Mechanics Department has proceeded on leave to join the University of Illinois as

Assistant Professor of Civil Engineering. Dr. M. Satyanarayana of the Chemical Engineering Department has joined the University of California as a post-Doctoral Fellow.

#### 11. DISTINGUISHED VISITORS

Among the distinguished visitors to the Institute during the year were His Excellency Mr. Walter Scheel, Minister for Economic Co-operation, Federal Republic of Germany ; His Excellency Mr. Hans Lenz, West German Minister for Science and Research ; and Dr. K. L. Shrimali, Union Education Minister. The list of other distinguished visitors is given in *Appendix VII*.

#### 12. CONSTRUCTION PROGRAMME

The year under report was marked by vigorous construction activity. The Science and Humanities, Mechanical Sciences and Electrical Sciences Blocks were completed and occupied by the Departments concerned. The construction of 166 additional staff quarters is in full swing in the second phase of construction and the quarters will be completed by September 1964. Two reservoirs with a capacity of 1,50,000 and 50,000 gallons and a pump house for the supply of fresh water have been put up. Work on the laboratory for Metrology and cold working of metals is under way. Construction work on the secondary school, which is to be located within the I.I.T. campus has commenced. Construction work on the Stadium and the Staff Club, with facilities for indoor and outdoor games, is also progressing well.

#### 13. HOSTELS

Two more hostels, Godavari and Tapti, were commissioned during the year. The Saraswati Hostel has also been completed. The Ganga and Jamuna hostels have been taken up for execution and will be ready for occupation by the end of 1964.

#### 14. LIBRARY

During the year under report, 4,777 books and 693 periodicals were procured for the Library. The annual expenditure on library was Rs. 1,73,751. The library is being kept open from

7-30 a.m. to 9-00 p.m., so that the staff and students can utilise the library to the maximum extent. Further details regarding the library are given in the report under Library.

#### 15. EQUIPMENT

Most of the major equipment required for our Laboratories and Workshops is being supplied by the Federal Republic of Germany. The value of the equipment received in the year under report totalled to Rs. 46,44,392. During the year an Analog Computer was received from the U.S.A. as gift and will be commissioned in the Electrical Engineering Department. The rectifiers and rheostats for magnet research work and skelenar melting furnace were received from Germany for the Department of Metallurgy. The Chemical Engineering Department received from Germany Nestler Boiler (45 hp) Hydraulic Injection Moulding Machine. Other items of equipment received during the year are mentioned in the Departmental reports.

#### 16. STUDENTS PLACEMENT

Offers of employment to students came in from various industries during the year under report. The Hindustan Steels at Bhilai sent their officers to the Institute for recruitment of promising young engineers. Fourteen students of the third and fourth years of the five-year B.Tech. Degree course availed themselves of the stipends awarded by Hindustan Steels for undergoing in-plant training at various plants during the summer recess in preparation for eventual absorption by the Hindustan Steels.

#### 17. INDUSTRIAL VISITS

Visits to local industrial establishments like The Indian Oxygen Co. Ltd., The East Asiatic Company Ltd. and The Ennore Fertilizers were arranged to enable the students to study production processes in relation to their academic training at the Institute.

#### 18. SHORT SERVICE COMMISSIONS

Officers of the Army Headquarters visited the Institute to interview students of the pre-final and final year classes for Com-

missions in the Army in view of the emergency due to the Chinese aggression on our northern borders. The response of the students has been impressive. The results of the interview are awaited.

#### 19. INSTITUTE GYMKHANA

During the year under report, the Institute Gymkhana continued to take signal interest in extra-curricular activities of students, both athletic and cultural. In the literary field, the year was one of outstanding success. The Institute bagged both the first and second prizes of the All-India Inter-Collegiate Debate in English and annexed the "Saturday Evening Club" and the Engineering College Trophies as well. The Institute made an impressive debut in the English debates and group discussions at the Eighth Inter-University Youth Festival held in Delhi.

In sports, the Institute won the Sportex Inter-Collegiate Trophy for Table Tennis and also annexed the Singles and Doubles Trophies at the Bertram Memorial Tournament conducted by the Loyola College, Madras.

The Institute had the honour of conducting the first Inter-Collegiate Sports Meet under the Presidentship of Dr. Gerhard Fischer, the German Consul in Madras.

The names of the members of the different Committees of the Gymkhana and prize winners for literary and cultural activities during the year are detailed elsewhere.

#### 20. N.C.C.

Detailed report on the NCC is included elsewhere. However, the selection of Cadets Jaikumar and Subramaniam to attend the Mountaineering Course at Manali in the Punjab and the celebration of the NCC Day with the Director-General of the NCC, Maj.-Gen. Virendra Singh, as the Chief Guest, deserve special mention here.

#### 21. CANTEEN

In fulfilment of a long-felt need of the staff, a co-operative staff canteen started functioning on the New Year Day. Prof. R. Krishnamurti and Shri O. A. Govindarajan were nominated the President and Secretary for the year.

## 22. I.I.T. CO-OPERATIVE STORES

The I.I.T. Co-operative Stores, in the second year of its useful activity, continued to receive good support from the staff and students alike. A detailed report of its activities is given elsewhere.

## 23. CONDOLENCES

The year was not without elements of tragedy. The Institute condoled the demise of President Kennedy of the United States in November 1963 and our beloved Prime Minister Jawaharlal Nehru in May 1964. It is with poignant pride that we recall that it was in the year 1956 when the late Nehru was in Germany, that the West German Government offered to establish this Indian Institute of Technology which has since completed five years of excellent service in the cause of technology.

## 24. CONCLUSION

The Institute can look back upon the year 1963-64 with great satisfaction that it has grown in stature not only in the successful completion of the courses by the first batch of students, but also in the matter of advanced research work in the several departments.

The Institute records with pleasure the encouragement given to it by the distinguished visitors of the Institute who have spoken in encouraging terms of the good work done by the Institute. Shri Bishnuram Medhi when he was the Governor of Madras visited the Institute and was so pleased with the work of the Institute that he endowed a prize in the Institute called "The Governor's Prize".

At the end of the year under report, the Institute looks forward to the coming year with confidence to achieve still better results and further developments in its march to serve the country as an Institute of national importance.



# REPORTS FROM THE DEPARTMENTS

## DEPARTMENT OF APPLIED MECHANICS

### 1. ACADEMIC STAFF :

Professor	..	..	..	1
Assistant Professors	..	..	..	3
Lecturers	..	..	..	7
Associate Lecturer	..	..	..	1
Senior Technical Assistant	..	..	..	1

### 2. TEACHING FACILITIES :

(a) *Undergraduate* : Applied Mechanics, Strength of Materials, Statics, Kinematics, Fluid Mechanics and Vibration are taught to the 2nd year, 3rd year, 4th year and 5th year classes of the B. Tech. Degree course.

(b) *Post-graduate* : Elasticity, Fluid Mechanics, Dynamics of Machinery and Vibrations are offered to Post-graduate M. Tech. Degree course.

(c) *Doctorate* : Facilities are available for theoretical work preparatory to the Ph.D.

### 3. LABORATORY/WORKSHOP FACILITIES :

Mechanisms and Vibrations laboratory has been shifted from the old building to the Mechanical Sciences Block. Several mechanisms and Vibration models have been fabricated in the Workshop. The Undergraduate Fluid Mechanics laboratory has started functioning.

### 4. SEMINARS :

All the staff members participated in Departmental Seminars and each one of them spoke on his research work.

## DEPARTMENT OF CHEMICAL ENGINEERING

## 1. ACADEMIC STAFF :

Professor	..	..	..	1
Assistant Professors	..	..	..	2
Lecturers	..	..	..	8
Associate Lecturers	..	..	..	2
Senior Technical Assistants	..	..	..	7

## 2. TEACHING FACILITIES :

The Department of Chemical Engineering offered instructional facilities leading to the Bachelor's and Master's degrees in Chemical Engineering and research facilities leading to the Ph.D. Degree. Gas and Oil Technology, Heavy Chemicals and Fertilisers and Synthetic Products Technology are offered as electives in B. Tech. and M. Tech. Courses in Chemical Engineering.

## 3. LABORATORIES/WORKSHOPS FACILITIES :

Laboratories for Technical Analysis, Chemical Technology, Project works for M.Tech. students, Instruments and Process Engineering have been set up and are functioning in the Departmental Wing of Mechanical Sciences Block of the Institute.

Equipment for students' experiments in fluid flow, heat transfer, mass transfer and mechanical operations is fabricated in the Departmental Workshop itself.

## 4. EDUCATIONAL TOURS :

IV B. Tech. Chemical Engineering students accompanied by staff members visited the following factories :—

1. M/s. East Asiatic Company.
2. M/s. Indian Oxygen Co. Ltd.
3. M/s. K. C. P. Ltd.
4. M/s. Ennore Fertilisers.

## 5. SEMINARS :

Prof. H. E. Hoelscher, UNESCO Professor at A. C. College of Technology, Madras, inaugurated the Chemical Engineering Seminar on 18th August 1963.

The students of M. Tech. class presented papers of Chemical Engineering interest at weekly seminars. In addition, the following lectures were delivered under the auspices of Chemical Engineering Seminar.

1. *Salt Industry in India* by Shri M. M. Gurunath, Industrial Consultant (Marine Chemicals), Govt. of India.
2. *Chemical Engineering Research in Sree Rama Institute* by Dr. R. Satpathy, Sree Rama Institute of Industrial Research, New Delhi.
3. *Bromine Atom Concentration Profiles in  $H_2Br_2$  Flame* by Dr. T. Gopichand, I. I. T., Madras.
4. *Nitric Acid Manufacture* by Shri D. S. Sastry, High Explosives Factory, Poona.
5. *Potentialities of Chemical Engineering Education* by Dr. K. Chandrasekharan, A. C. College of Technology, Madras.
6. *Higher Scientific and Technical Education in Russia* by Prof. N. V. Subba Rao, Osmania University, Hyderabad.
7. *Heavy Chemical Industries in Third Five Year Plan* by Shri P. K. Seshan, Technical Adviser (Alkalis), Govt. of India.
8. *Residence Time Distribution Functions for Scaleup and Research Topics at John Hopkins University* by Prof. H. E. Hoelscher, UNESCO Professor, A. C. College of Technology, Madras.
9. *Heat Transfer in Gas — Solid Suspensions* by Dr. P. S. Murti, I. I. T., Bombay.

10. *Salt and Marine Chemicals* by Dr. R. L. Dutta, Central Salt Research Institute, Bhavanagar.
11. *Rotating Liquids in Conical Vessels* by Prof. M. N. Rao, I. I. T., Kharagpur.
12. *Experiments in Chemical Engineering Thermodynamics* by Prof. Gopal Tripathi, Banaras Hindu University, Varanasi.
13. *Thin Structure of Cell Walls of Wood* by Prof. S. D. Antanovsky, Visiting Professor, I. I. T., Bombay.
14. *Model Science* by Dr. S. D. Nigam.
15. *Friction and Theory of Lubrication* by Prof. N. R. Kuloor, Indian Institute of Science, Bangalore.
16. *Some Aspects of Fluidisation* by Prof. M. N. Rao, I. I. T., Kharagpur.
17. *Chemical Engineering Research and Education* by Dr. P. S. Mene, I. I. T., Kharagpur.

#### 6. MAJOR EQUIPMENT PROCURED :

1. Nestler Boiler — 45 H.P.
2. Pressure Recorders.
3. Air Compressors.
4. Viscometers.
5. Grinding Mills.
6. Hydraulic Injection Moulding Machine.
7. Plastic Welding set.
8. Haake Konsistometer.
9. Hydraulic Power Press.
10. Air Jet Sieve.
11. Double Membrane and Gear Pumps.
12. Three Roller Mill.
13. Dry Mixer.
14. Optical Stress Bench.
15. Sedimentation Balance.
16. Tensile Testing Machine with accessories.
17. Pendulum Inspecting Testing Machine.
18. Electrode Boiler.

19. Grindability Tester.
20. Air Jet Mill.
21. Proportioning Pumps.
22. Plastic Extruder.
23. Double Pipe Heat Exchanger.

#### 7. RESEARCH WORK :

Research work is being carried out in the Department on the following topics :

1. Compaction of solids.
2. Fluid energy grinding.
3. Heat and mass transfer studies in fluidized beds.
4. Kinetic studies on hydrogenation of fatty acids.
5. Liquid-liquid equilibria and the influence of the various properties on the equilibria.
6. Washing of nitro bodies — Scheme sponsored by High Explosives Factory, Poona.
7. Studies in drying of silver nitrate — Scheme sponsored by Hindusthan Photochemicals, Ooty.

#### 8. LIST OF PUBLICATIONS :

The following papers have been communicated for publication :

1. Hydro-desulphurisation of Heavy Fuel Oils.
2. Compaction of solid powders.
3. Critical mass velocities in fluidised beds.
4. Fluid particle and particle interaction studies.

### DEPARTMENT OF CIVIL ENGINEERING

#### 1. ACADEMIC STAFF :

Professors	..	..	..	2
Assistant Professors	..	..	..	2
Lecturers	..	..	..	9
Associate Lecturers	..	..	..	5
Senior Technical Assistant	..	..	..	1
Junior Technical Assistants	..	..	..	4

## 2. TEACHING FACILITIES :

Courses in Civil Engineering were offered for B. Tech. classes. Post-graduate Degree courses were started in the following branches in the academic year under report : (a) Structural Engineering, (b) Hydraulic Engineering, (c) Soil Mechanics and Foundation Engineering.

## 3. LABORATORY/WORKSHOP FACILITIES :

The Department has the following laboratories for undergraduate instruction : Survey, Public Health, Highways, Materials and Geology. In addition, laboratories for post-graduate and undergraduate instruction are being provided for Hydraulics, Structures and Soil Mechanics.

## 4. SEMINARS (COLLOQUIA), SPECIAL LECTURES ATTENDED BY THE STAFF MEMBERS :

The following special lectures were delivered during 1963-64 :

- (a) Prof. A. M. Hass, Professor of Technology, University of Delft, Netherlands, on *Form Resisting Structures*.
- (b) Dr. K. C. Chacko, on *Problems in Surveying and his Research Works*.

Seminar by final year and post-graduate students.

## 5. MAJOR EQUIPMENT PROCURED :

The items of equipment added to the various laboratories are indicated below :

*Concrete Laboratory* : Sieve shaker, Heat of hydration apparatus, Flow table for concrete. Thermo hydrograph, Vibrators, Cathetometers.

*Structures Laboratory* : Loading frame of 30 Tons capacity and prestressing bed of 30 Tons capacity (locally manufactured), Calculating machine. Hydraulic jacks, Magnetic bases.

*Soil Mechanics Laboratory* : Proving rings of 5000 kg. capacity, Hydrometers, Linear shrinkage moulds, Iowar bearing valve apparatus, Vans shear — laboratory type.

*Hydraulic Laboratory* : Flumes and water tank are under construction.

## DEPARTMENT OF ELECTRICAL ENGINEERING

### 1. ACADEMIC STAFF :

Professors	..	..	..	2
Associate Professor	..	..	..	1
Assistant Professors	..	..	..	5
Lecturers	..	..	..	13
Associate Lecturers	..	..	..	5
Senior Technical Assistants	..	..	..	4
Junior Technical Assistants	..	..	..	4

### 2. TEACHING FACILITIES :

The Department provided instruction leading to the following first degrees in Electrical Engineering with either Heavy Current option or Light Current option : (i) 5-year B. Tech. Degree course, (ii) 3-year B. Tech. Degree course. The first batch of students for the 5-year Degree course have successfully completed their studies and received the B.Tech. Degrees. The first batch of students for the 3-year Degree course were admitted into the Institute during 1963-64.

A 2-year M. Tech. Degree course with the following subjects of specialization has been started during the year under report :

- (a) Power systems.
- (b) Applied Electronics & Servo Mechanisms.
- (c) Advanced Electronics.

Twelve students have been admitted to the M. Tech. Degree course in the first batch.

Two Departmental candidates have been registered for the Ph.D. Degree in Electrical Engineering.

### 3. LABORATORY AND WORKSHOP FACILITIES :

The Machines Laboratory facilities have been extended and new machines installed. New laboratories in the Fundamentals and Measurements Section, Communication and High Frequency Technology Section and Power Engineering Section have been established.

Two desk type Telefunken make Analogue Computers have been commissioned and set up in the Control Engineering Laboratory.

A Departmental Workshop serving as a common facility for the four sections of the Department has been commissioned.

### 4. EDUCATIONAL VISITS :

Short visits to the following places of technical importance were arranged for the IV and V year classes of the 5-year B. Tech. Degree course :

1. Korattur Sub-station (V year).
2. Automatic Telephone Exchange, Madras (V year).
3. Industrial Estate, Guindy (IV year).
4. Works of English Electric Co. (V year).

In addition, the IV B. Tech. Degree class students undertook a 10-day educational tour to Bangalore and Mettur.

### 5. SEMINARS, SPECIAL LECTURES, ETC. :

Prof. S. Sampath attended the Tenth Annual General Meeting and Seventh Technical Convention of the Institution of Telecommunication Engineers held at New Delhi on 22nd, 23rd and 24th December, 1963. He received the I. T. E. Annual Award for the best paper published in the Journal of the Institution during the year 1962 (*The Evaluation of Amplification Factors in Multigrid Tubes by an Electrolytic Tank Method* of I. T. E., Vol. 8, January 1962, pp. 30-35).

Dr. K. S. Raman was deputed to visit the Indian Institute of Technology, Kanpur during April 1964 to get acquainted with



their Digital Computer facilities and assist in a training (orientation) programme organized by the I. I. T., Kanpur.

#### 6. MAJOR EQUIPMENT PROCURED :

The following are some of the major items of equipment procured during the year 1963-64 under the Indo-German Agreement :

1. Light Beam Recording Oscillographs with multi-channel operation.
2. Precision D.C. Potentiometer d.c. bridge test Desk with accessories.
3. Desk Analogue Computers RAT 700 — 2 Nos.
4. Specialized electric instruments like Tube Oscilloscopes, Distortion Measuring Devices, High Frequency Counters.

#### 7. RESEARCH WORK DONE :

Progress in the development of special purpose transformer Analogue Computers for use in servo-systems has been made under the C.S.I.R. Research Scheme taken up by Prof. P. Venkata Rao and Shri B. Ramaswami.

#### 8. LIST OF PUBLICATIONS BY THE STAFF MEMBERS :

1. *A Review of Some Design Procedures for Receiving Tube Electron Tubes* by Prof. S. Sampath and Shri K. Venkataramani, I. T. E., Vol. 9, No. 4, July 1963, pp. 316-327.
2. *Transformer Analogue Servo-Analyser cum Synthesizer* by Prof. P. Venkata Rao and Shri B. Ramaswami, I. E. E. E. International Convention, 1964, New York.

#### 9. ACTIVITIES OF THE ELECTRICAL ENGINEERING CHAPTER OF THE ASSOCIATION OF SCIENTISTS AND TECHNOLOGISTS :

The activities of the Chapter began with the Inaugural function on the 8th August, 1963. Prof. Myril B. Reed, Guest Professor, College of Engineering, Guindy, delivered the Inau-

gural Address. Prof. B. Sengupto, Director, I. I. T., Madras, presided. Prof. Reed gave an interesting talk on 'Digital Computers' and supplemented his talk with a Film show on the same topic.

The following is the list of lectures and other functions arranged under the auspices of the Chapter :

<i>No.</i>	<i>Date</i>	<i>Speaker</i>	<i>Subject</i>
1.	18- 7-1963	Shri K. S. P. Kumar, Research Fellow, Purdue University, U.S.A.	"Optimal Control System."
2.	8- 8-1963	-do-	"Nonlinear Control Systems."
3.	20- 8-1963	Dr. R. Sreedhar, Associate Professor, Purdue University.	"Optimal Control Systems."
4.	22- 8-1963	By M/s. Crompton Engineering Co., Madras.	"In Burma" — colour film on Transmission Line Erection.
5.	3-10-1963 4-10-1963 (Forenoon) 4-10-1963 (Afternoon) 5-10-1963	Prof. Muller Hillebrand, Director, High Voltage Research Institute, Uppsala, Sweden.	A series of four lectures on "Light- ning Phenomena."
6.	11-12-1963 12-12-1963	Prof. H. D. Huskey, Visiting Professor, I. I. T., Kanpur.	"Computing Ma- chines."
7.	16-12-1963	Dr. S. Seinecke, German Guest Professor, I. I. T., Madras.	"Some Special As- pects of Vestigial Side Band" — Transmission in Television.

- |     |                          |  |   |
|-----|--------------------------|--|---|
| 8.  | 18-12-1963<br>19-12-1963 | Prof. S. I. Molokovsky,<br>Visiting Professor,<br>I. I. T., Bombay.  | ' Electron Beams.'  |
| 9.  | 20- 3-1964               | Dr. P. V. Indiresan,<br>Associate Professor,<br>University of Roorkee.   | " Prediction and<br>Smoothing of In-<br>terrupted Speech."  |
| 10. | 23- 3-1964               | -do-   | " A Single Fre-<br>quency Electroni-<br>cally Steerable Su-<br>perdirective, Two<br>Element, Receiving<br>Antenna." |
| 11. | 9- 4-1964                | Shri P. Sankaran,<br>Lecturer, I. I. T.,<br>Madras. (Under<br>the joint auspices<br>of the Madras<br>Mathematics Club<br>and the Chapter.) | "Linear Graph<br>Theory and Appli-<br>cation to Electrical<br>Network Analysis."                                    |

## DEPARTMENT OF MECHANICAL ENGINEERING

### 1. ACADEMIC STAFF :

Professors	..	..	..	4
Assistant Professor	..	..	..	1
Lecturers	..	..	..	12
Associate Lecturers	..	..	..	2
Senior Technical Assistants	..	..	..	5

### 2. INSTRUCTIONAL FACILITIES :

The Department of Mechanical Engineering offered instructional facilities leading to the Bachelor's Degree in Mechanical Engineering and other branches for all the years of the 5-year B. Tech. stream and the first year of the 3-year B. Tech. stream. The first batch of the 5-year B. Tech. Mechanical Engineers

completed their prescribed course by the beginning of 1964. Production Engineering and Design Electives were offered in the final year of their curriculum.

During this year a 2-year Master's Degree course in Mechanical Engineering majoring in Machine Design was instituted. Four students and three Departmental members have been enrolled in the first batch.

One Departmental member has been registered for the Ph.D. Degree in Mechanical Engineering.

### 3. LABORATORY FACILITIES :

Installation and commissioning of the equipment for the laboratories — ICE, Steam, Thermodynamics and Machine Tools were in progress during this year. Construction was also in progress with regard to the Turbo Machines, Hydraulic Machines, Hot Working, Metrology and Instruments laboratories. Instruction in General Machines, Metrology, Materials Handling and Machine Tools laboratories has, in the meantime, been organized in other laboratories.

Equipment from Germany continued to be received progressively for most of the laboratories during the year under reference.

### 4. EDUCATIONAL VISITS :

Visits to major industrial units in Madras were organized for the benefit of the fourth and fifth year B. Tech. (Mech.) students to appreciate production processes in relation to their theoretical background.

The co-operation of major industrial undertakings in Madras in organizing the final year B. Tech. (Mech.) — Production Engineering, Elective — Project Work was very successful.

### 5. SEMINARS :

Seminars were organized for the staff and post-graduate students regularly. The staff also attended seminars and special

lectures relating to their fields organized by the other departments.

#### 6. RESEARCH ACTIVITIES :

Research activities of the Department covered the following fields :

High temperature phenomenon and its technical application.  
Fundamental studies of technical combustion processes under high altitude and high flow velocities.

Direct energy conversion.

Relaxation and recombination processes.

Ignition characteristics of fuels as obtained from adiabatic compression machine and shock tube.

High speed indexing mechanisms.

Flow characteristics of axial flow fan with blades designed for Vortex flows.

Turbulent mixing in constant pressure combustion chambers.

Scavenging of two stroke engines.

High altitude output and supercharging of IC engines.

Fuel injection in SI-engines and combustion chambers.

Investigations of multifuel engines.

### WORKSHOPS

#### 1. SENIOR STAFF :

German Staff	..	..	..	5
(one deputed to the Department of Metallurgy)				
Foremen	..	..	..	6
Supervisors	..	..	..	3

#### 2. INSTRUCTIONAL FACILITIES :

Instructional facilities were offered for the B.Tech. and M.Sc. streams in the following Shops :

Carpentry/Patternmaking, Fitting, Smithy, Welding, Electrical, Foundry/Moulding, Machines.

### 3. PRODUCTION/FABRICATION/MAINTENANCE :

(1) Seventy-two work orders have been executed for the various Departments, the more important ones being :

Orifice meter, Flow control valves, Venturi meter, Gas burners, Seismograph model.

(2) Ten major production and fabrication works for the Engineering/Construction unit of the Institute were undertaken, the more important items being :

Window Grills, Workbenches—Carpentry, Fitter's Tables, Auditorium Desks, Open Racks, Switch Board Stands.

(3) Inspection, maintenance and overhaul of Institute vehicles were undertaken by the Auto-shop as also painting of various items like hostel furniture.

### 4. EQUIPMENT :

Installation and commissioning of the equipment received from Germany have been completed.

## DEPARTMENT OF METALLURGY

### 1. ACADEMIC STAFF :

Professor	..	..	..	1
Assistant Professor	..	..	..	1
Lecturers	..	..	..	3
Pool Officer	..	..	..	1

### 2. TEACHING FACILITIES :

#### (a) Undergraduate classes :

Instruction was provided by the staff of the Department for students in various branches of engineering during various years of their course in metallurgical subjects. They are indicated below :

- (i) II year students of 5-year course (all branches):  
Engineering Materials (Metals).

- (ii) III year students of 5-year course (all branches except Metallurgy and Civil Engineering):  
Engineering Metallurgy.
- (iii) III year students of 5-year course (Metallurgy only):  
Metallurgical Analysis.
- (iv) IV year students of 5-year course (Metallurgy only):  
Refractories, Furnace Technology and Pyrometry.  
Electrometallurgy and Corrosion.  
Metallurgical Thermodynamics-I.  
Physical Metallurgy-I.  
Ferrous Production Metallurgy-I.  
Non-Ferrous Production Metallurgy-I.  
Mechanical Metallurgy-I.  
Joining of Metals.  
Project Work and Works Visits.
- (v) V year students of the 5-year course (Metallurgy only):  
Foundry Metallurgy.  
Powder Metallurgy.  
Metallurgical Plant Design.  
Advanced Metallurgical Techniques.  
Electives.  
Physical Metallurgy-II.  
Ferrous Production Metallurgy-II.  
Non-ferrous Extraction Metallurgy-II.  
Mechanical Metallurgy-II.  
Instrumentation.
- (vi) I year students of 3-year course (all branches):  
Engineering Materials (Metals).

(b) *Post-graduate classes :*

Instruction in Materials Science and Technology for the M.Tech. students (all branches) in the subjects assigned to this Department was given.

(c) *Doctorate course :*

One candidate was registered for his doctorate work.

### 3. LABORATORIES/WORKSHOP FACILITIES :

During the year under report, the Departmental buildings were gradually taken over by the Department as and when the civil construction was completed. The service facilities have also become available progressively although even by the end of the year under review, not all the requirements of water and power have become available.

Progressive installation of equipment received from West Germany is also under way.

### 4. EDUCATIONAL TOURS :

Apart from minor half-day visits to local industrial establishments, a special training programme for the final year students with Tata Iron and Steel Company, Hindustan Steel and National Metallurgical Laboratory was arranged during the year under review. The special features of this training programme were the detailed introductory lectures every morning on the particular practical operations to be observed and studied by the group of students during the rest of the afternoon and the special seminar type of discussion after the practical study of operations. The training programme was of a month's duration and embraced practically all aspects of the manufacture of iron and steel and their wrought products.

### 5. SEMINARS (COLLOQUIA), SPECIAL LECTURES :

Three special lectures were delivered by Prof. V. T. Cherepin, UNESCO Professor attached to the Department of Metallurgy, I. I. T., Bombay. This was attended by all the staff and student members of the Department. One of the staff members of the Department, Prof. E. G. Ramachandran, was invited to preside over one of the technical sessions of the Annual meeting of the Indian Institute of Metals held in Bombay.



## 6. MAJOR EQUIPMENT PROCURED :

In addition to the equipment received from Germany, the following important items of indigenous equipment were procured :

- (a) Two numbers of equipment to provide requisite quantities of pre-cooled water for the X-ray diffraction apparatus and X-ray radiographic apparatus.
- (b) Rectifiers and rheostats for magnet research work.
- (c) Developing cabinet for radiography.
- (d) Electronic equipment for internal friction studies.
- (e) Skelenar melting furnace.

## 7. RESEARCH WORK DONE :

Although facilities for experimental work were naturally limited, a considerable amount of study and preparation of relevant literature surveys as a preliminary to taking up research work were carried out. The elective work of the final year students also required preparation of literature surveys and/or preparation of special apparatus and this work was also carried out under the guidance of the staff members. Mention can be made of preliminary studies of age hardening, kinetics of metallurgical transformations particularly of the austenitic martensite reaction, preparation of thin films of metals for study of their mechanical and physical properties, evaluation of stacking faults in cold worked brass and evaluation of average cross-section of pores in powder compacts.

## 8. LIST OF PUBLICATIONS :

1. *Evidence for the Propagation of Crystal Defects from a Substrate onto an Epitaxial Overgrowth*, by Shri K. Srinivasa Raghavan, Conference on Single Crystal Films, Blue Bell, Pa, 1963.
2. *Electrolytically Deposited Monocrystalline Foils of Gold*, by Shri K. Srinivasa Raghavan, U.S.A.E.C. Research Reports, 1963.

3. *Rontgenographische Ermittlung von Verformungsstapereffekten und deren Einfluss auf die Verfestigung von austenitischen Eisen-Chrommangan Stählen*, by Shri R. Vasudevan, 'Archiv für das Eisenhüttenwesen', 34, 1963, Heft II.

## DEPARTMENT OF HUMANITIES

### 1. ACADEMIC STAFF :

Honorary Professor (English)	..	..	1
Professor (German)	..	..	1
Professor (Industrial Management)	..	..	1
Assistant Professor (Economics)	..	..	1
Assistant Professor (History & Culture)	..	..	1
Lecturer (Psychology)	..	..	1
Tutor (Economics)	..	..	1
Senior Technical Assistants (English)	..	..	2
Junior Technical Assistant (History & Culture)	..	..	1

### 2. PART-TIME LECTURERS :

- (i) Dr. B. C. Muthayya, Lecturer in Psychology, University of Madras, Madras-5.
- (ii) Shri S. Sankaranarayanan, Head Accountant, Ashok Leyland Ltd., Ennore, Madras.
- (iii) Shri M. Gopal Rao, Regional Director, National Productivity Council, Egmore, Madras-8.
- (iv) Shri C. D. Devapragasam, Assistant Works Manager, Tube Products of India, Avadi, Madras-54.

### 3. TEACHING :

English	I & II B. Tech.
German	II B. Tech.
History & Culture	III B. Tech.
Economics	IV B. Tech.
Industrial Economics, Planning, General & Industrial Psychology, Book-keeping and Cost Account- ing and Industrial Management	V B. Tech.

## 4. SEMINAR/COLLOQUIA/SPECIAL LECTURES :

(1) *Prof. R. K. Gupta, Professor, Industrial Management :*

- (i) Two cases—one on organization structure of a film studio and the other on re-organization of a medium-sized multi-plant engineering firm.
- (ii) Lectured on Accounting Controls to a group of executives from government and industry at the University of Roorkee, Roorkee in June, 1964.
- (iii) Participated in a Top Management Seminar organized by the Madras Productivity Council in February 1964.

(2) *Dr. M. S. Vairanapillai, Assistant Professor, History and Culture :*

- (i) Attended the Seminar in Modern Social History of India under the auspices of the University Grants Commission in Kodaikanal.
- (ii) Contributed a chapter on "Professor Henry Fawcett and Indian Nationalism" to the volume, *Studies in Social History*, published by St. Paul's Press Training School, Allahabad.

(3) *Shri T. V. Kuppuswamy :*

Prepared a Tamil translation of "Advanced History of India" by Ray Chaudri, Majumdar and others published by the Bureau of Tamil Publications, Government of Madras.

## DEPARTMENT OF CHEMISTRY

## 1. ACADEMIC STAFF :

Professor	..	..	..	1
Assistant Professor	..	..	..	1
Lecturers	..	..	..	4
Associate Lecturers	..	..	..	5
Senior Technical Assistants		..	..	3
Junior Technical Assistants		..	..	4

## 2. TEACHING FACILITIES :

### A. Undergraduate classes :

- (i) I year of the 3-year and 5-year B.Tech. Degree Courses : Elementary lecture course in Inorganic, Organic, Physical & General Chemistry with tutorial classes in the subjects.
- (ii) I year of the 3-year B.Tech. Degree Course : Metallurgy Branch : Advanced Physical Chemistry lectures in the second term.
- (iii) III year of the 5-year B.Tech. Degree Course :
  - (a) Metallurgy Branch : Advanced Inorganic and Physical Chemistry lectures.
  - (b) Chemical Engineering : Advanced Inorganic and Organic Chemistry lectures.
- (iv) IV year of the 5-year B.Tech. Degree Course : Chemical Engineering : Advanced Physical Chemistry lectures.

### B. Post-graduate classes :

- (a) M.Sc. Physics Branch : I year : A background course in Physical, Inorganic and Organic Chemistry.
- (b) M.Sc. Chemistry Branch : I year : Lectures on Physical, Inorganic and Organic Chemistry based on the Principles of Thermodynamics, Chemical Kinetics, Valency and Chemical Bonding.
- (c) M.Tech. Chemical Engineering : I year : Lectures on selected topics in Chemistry.

### C. Doctorate Courses :

Special lectures on Inorganic, Organic and Physical Chemistry.

### 3. LABORATORY FACILITIES :

#### A. Undergraduate Courses :

- (i) I year of the 3-year and 5-year B.Tech. Degree Courses : Elementary exercises in volumetric and qualitative analysis.
- (ii) I year of the 3-year B.Tech. Degree Course : Metallurgy Branch : Experiments in Physical Chemistry during the second term covering the fields of Reaction Kinetics, Electrochemistry, Phase Rule etc.
- (iii) III year of the 5-year B.Tech. Degree Course :
  - (a) Metallurgy Branch : Exercises in volumetric analysis and experiments in Physical Chemistry covering the fields of Electrochemistry, Reaction Kinetics, Phase Rule, Colloids etc.
  - (b) Chemical Engineering Branch : Exercises in Inorganic Volumetric Analysis and exercises in Preparative Organic Chemistry and Functional Group Analysis.
- (iv) IV year of the 5-year B.Tech. Degree Course : Chemical Engineering : Experiments in Physical Chemistry as for the 3rd year Metallurgy Branch students.

#### B. Post-graduate Degree Courses :

- (a) M.Sc. (Physics) I year : Exercises in Inorganic, Volumetric and Qualitative Analysis and exercises in Preparative Organic Chemistry and Functional Group Analysis.
- (b) M.Sc. (Chemistry) I year : Experiments in Inorganic, Organic and Physical Chemistry.

#### C. Research :

Research work in the fields of Physical, Inorganic and Organic Chemistry has been initiated.

## 4. SEMINARS/COLLOQUIA/SPECIAL LECTURES :

The following meetings were held under the auspices of the Chemistry Seminar during the year 1963-64.

<i>No.</i>	<i>Date</i>	<i>Speaker</i>	<i>Subject</i>
1.	5-7-1963	Dr. C. S. Swamy	" Studies in the absorption of gases on solids "
2.	31-1-1964	Dr. (Mrs.) J. Lalitha	" Kinetics of Vinyl Polymerization using ceric ions in aqueous solutions "
3.	14-2-1964	Miss Ellen Haug	" The study of decomposition of Aluminium alkoxides "
4.	6-3-1964	Shri S. R. Rajagopalan	" Studies on Electrodeposition of ' black nickel ' "
5.	9-3-1964	Shri K. Narayanan	" Mechanism of catalytic dehydration "
6.	16-3-1964	Shri J. R. Jain	" Mechanism of catalytic redistribution of hydrogen in unsaturated cyclic hydrocarbons "
7.	23-3-1964	Shri R. K. Udupa	" Ionic crystals and lattice energy "
8.	30-3-1964	Shri J. Rajaram	" Mechanism of some simple Oxidation-reduction reactions "

*Secretary* : Shri C. S. Venkatachalam.

Lectures delivered under the auspices of the Chemistry Colloquium.

<i>Date</i>	<i>Name of the Lecturer</i>	<i>Topic</i>
9-9-1963	Dr. M. N. Prakash Reddy, formerly Head of the Dept. of Chemistry, St. Joseph's College, Trichy.	"Energy transfer in Photo-Chemical Reactions".
10-2-1964	Dr. B. S. Thyagarajan, Reader in Organic Chemistry, University of Madras.	"Studies in claiser re-arrangement".
4-3-1964	Prof. Schmeiser, Pro-Rector and Professor of Inorganic Chemistry, Technische Hochschule Aachen, West Germany.	"New Developments in Halogen Chemistry".

*Secretaries* : Shri J. Rajaram and Shri R. Ramaswamy.

*Special Lectures* : A series of special lectures by Dr. L. M. Yeddanapalli, Professor of Chemistry, Loyola College, on 'Quantum Mechanical Concept of Valency & Chemical Bonding'.

#### 5. MAJOR EQUIPMENT PROCURED :

- (1) Stanton Thermorecording balance.
- (2) Semi-automatic balance.
- (3) Fractionator for the Liquid Nitrogen Plant.
- (4) Direct reading conductivity bridge.
- (5) Precision Ohm-meter.
- (6) Wet test meter.
- (7) Urry Automatic Toepler pump.
- (8) Control instruments.
- (9) Manual Polarograph.

## 6. RESEARCH WORK :

Research work has been initiated in Physical, Inorganic and Organic Chemistry. The following specific problems have been tackled :—

### *Physical Chemistry :*

- (i) Physico Chemical study of interfaces and interfacial processes.
- (ii) Mechanism of halogenation of olefinic and aromatic compounds.
- (iii) Mechanism of oxidation of hydrazine and hydroxylamine and their derivatives.

### *Inorganic Chemistry :*

- (i) Determination of thio-urea with chloramine-T.
- (ii) Study of the phase diagram : Cadmium nitrate-thio urea-water.

### *Organic Chemistry :*

- (i) Mechanism of dehydration of alcohols on oxide catalysts.
- (ii) Study of catalytic alkylation.
- (iii) Study of the mechanism of catalytic hydrogenation.
- (iv) Pyrolytic decomposition of aluminium alkoxides.

## 7. LIST OF PUBLICATIONS :

- (1) The Decomposition of Ethyl Alcohol on Chromia : Part II—Effect of Products and other surface Inhibiting Agents on the course of the Reaction, by Shri S. N. Pandao, Dr. J. C. Kuriacose and Dr. M. V. C. Sastri, *Indian Journal of Technology*, 1, 102 (1963).
- (2) The system lithium sulphate-zinc sulphate-water at 30°C, by Dr. G. Aravamudan, *Canadian Journal of Chemistry*, 41, 203-4 (1963).
- (3) The Determination of Thiomalic Acid, by Dr. G. Aravamudan and Shri C. Rama Rao, *Talanta*, 10, 231-33 (1963).



- (4) Simultaneous Adsorption of Hydrogen and Carbon Monoxide on Zinc Oxide, by Shri T. S. Nagarjunan, Dr. M. V. C. Sastri and Dr. J. C. Kuriacose, *J. Catalysis*, 2, 223 (1963).
- (5) Decomposition of Alcohols on Chromia—Part I, by Shri M. C. Upreti, Dr. J. C. Kuriacose and Dr. M. V. C. Sastri; *Bulletin of the Polish Academy of Sciences (Chemistry Series)* 11, 651 (1963).
- (6) Decomposition of Alcohols on Chromia—Part II, by Shri M. C. Upreti, Dr. J. C. Kuriacose and Dr. M. V. C. Sastri, *ibid.*, 11, 704 (1963).
- (7) Catalytic Cracking of the Monophenol from Raw Commercial Cashewnut shell Liquid, by Dr. J. C. Kuriacose and Shri L. M. Yeddanapalli, *Chemical Age of India*, 14, 576 (1963).
- (8) The determination of Thiourea using Chloramine-T, by Dr. G. Aravamudan and Shri V. R. Satyanarayana Rao, *Talanta*, 11, 58-60 (1964).
- (9) The system lithium perchlorate—ammonium perchlorate—Water at 30°C, by Dr. G. Aravamudan, *Indian Journal of Chemistry*, 2 (6), 242 (1964).

#### 8. PAPERS SUBMITTED TO SCIENTIFIC CONFERENCES :

1. To the "International Congress on Catalysis" Amsterdam—1964 :

"Polyfunctional Behaviour of Chromia Catalysts in the Decomposition of Alcohols", by Dr. J. C. Kuriacose and Dr. M. V. C. Sastri.

2. To the "Indian Science Congress (51st Session)—1964 :

"Mixed Adsorption as a Mechanistic Tool in Heterogeneous Catalysis", by Dr. M. V. C. Sastri and Dr. J. C. Kuriacose.

## DEPARTMENT OF MATHEMATICS

## 1. ACADEMIC STAFF :

Professor	..	..	..	1
Assistant Professors	..	..	..	2
Lecturers	..	..	..	2
Associate Lecturers	..	..	..	3

## 2. TEACHING :

The Department provided instruction for all the five years of the B.Tech. Course in all branches of Engineering and also for the three year B.Tech Course.

At the Post-graduate level, the Department continued to offer instruction to the students of the M.Sc. Degree Course in Mathematics and Physics branches in addition to providing facilities for teaching Mathematics to the students of the M.Tech. Degree Course in Civil, Electrical, Mechanical and Chemical Engineering Branches.

## 3. SEMINARS/SPECIAL LECTURES :

<i>No.</i>	<i>Date</i>	<i>Speaker</i>	<i>Topic</i>
1.	16-9-1963	Dr. S. K. Srinivasan	"Ramakrishnan's theory of fundamental particles."
2.	2-1-1964	„	"Random equations of their applications to Lattice Dynamics."
3.	1-6-1964	„	"Random Processes associated with Random points on a line."
4.	18-5-1964	Dr. S. D. Nigam	"Flow at small Reynold's number."
5.	11-5-1964	Dr. K. J. Srivastava	"End-point Control problems for system with retardation."

- |    |           |   |   |
|----|-----------|---|---|
| 6. | 13-6-1964 | Dr. S. D. Nigam   | "Boundary layer theory."                        |
| 7. | 18-6-1964 | Dr. L. V. K. V. Sarma   | "Small perturbation theory in Fluid Mechanics." |
| 8. | 29-6-1964 | Shri R. Subramanian   | "Plane Collineation."                           |
| 9. | 25-5-1964 | Shri K. K. Srivastava<br>(Electrical Engineering Department). | "Maxwell's Equations."                          |

Professor B. R. Seth, Head of the Department of Mathematics, I.I.T., Kharagpur, gave a talk on *Some new trends in the theory of Plasticity* on 29th May 1964.

#### 4. RESEARCH WORK :

The members of the department are engaged in research in the following fields :

1. *Fluid Dynamics* : Flow at small Reynolds' numbers, Rotating fluids, Turbulence in Shear flows, Group-theoretic methods in Hydrodynamics.
2. *Magnetohydrodynamics* : Magnetohydrodynamic waves, magnetohydrostatic stable configuration.
3. Elasticity and Plasticity.
4. Probability and stochastic processes.
5. Statistical mechanics.
6. Theory of elementary particle interactions.
7. Theory of Cosmic radiation.
8. Statistical problems in Astronomy and Astrophysics.
9. Theory of Differential Equations and Control Processes.

#### 5. LIST OF PUBLICATIONS :

*Dr. S. D. Nigam :*

1. Flow at small Reynolds numbers.
2. Von Karman's Problem of rotating disc.

*Dr. S. C. Das and Shri R. Subramanian :*

3. Bars reinforced by Higherboloid Type Notches under Tension.
4. Bars reinforced by Higherboloid Type Notches under pure Bending.
5. Bars reinforced by Higherboloid Type Notches under pure Shear.
6. Semi Infinite Solid containing a Rigid Spherical Inclusion.
7. Composite spheriods under concentrated loads.

*Dr. S. K. Srinivasan :*

8. Some new mathematical features in cascade theory. (with Shri A. Ramakrishnan and Shri R. Vasudevan). Read at the International Conference on Cosmic Rays, Jaipur, December 1963.
9. Multiple product desimeter (with Shri A. Ramakrishnan and Shri R. Vasudevan).

*Dr. S. K. Srinivasan and Shri K. S. S. Iyer :*

10. Fluctuation problem in electromagnetic cascade—III (S.f.P.)
11. Sequant condition functions and its application to Cascade theories—Nuovo Cimento (in press).
12. On burts produced by meions and electrons. Nuovo Cimento (1964) (in press).

*Dr. S. K. Srinivasan, Shri K. S. S. Iyer and Shri N. V. Koteswara Rao :*

13. On fluctuation problem in Cascade theory. Read at the International Conference on Cosmic Rays, Jaipur, 1963.

*Dr. L. V. K. V. Sarma :*

14. Oscillation of Axisyurmetric bodies in electrically conducting rotating fluid.
15. Magnetohydrodynamic Power generation.

## DEPARTMENT OF PHYSICS

## 1. ACADEMIC STAFF :

Professors	..	..	..	2
Assistant Professors	..	..	..	2
Lecturers	..	..	..	6
Associate Lecturers	..	..	..	8
Senior Technical Assistants	..	..	..	5

The Department has 9 Doctors on its staff and 12 persons were engaged in research work leading to the Doctorate Degree.

## 2. TEACHING FACILITIES :

(a) Teaching of Physics including Modern Physics, Solid State Physics and Nuclear Engineering to the B. Tech. students during their five years of the course.

(b) Besides M.Sc. classes in Physics, this Department gives lectures in Physics to the students of the M.Sc. Degree classes in Chemistry and Mathematics branches.

(c) A distinctive feature of the M.Sc. course is that Solid State Physics is taught as a compulsory subject and X-ray Crystallography and Transistor Physics are taught as electives. Seminar discourses and a dissertation form part of the M.Sc. course.

(d) The Department also provides instruction in Measurements, Experimental Techniques, Material Science, Instrumentation and Controls to the students of the M.Tech. Degree classes of this Institute.

## 3. WORKSHOP :

This Department is equipped with a few machines forming a modest workshop.

## 4. SEMINARS/CONFERENCES :

14 seminar talks were held in the Physics Department during the year under review as detailed below. Papers were pre-

sented at various conferences — The Indian Science Congress at Delhi, The Indian Academy of Sciences at Nagpur, The Symposium on Spectroscopy and Allied Subjects at Varanasi, The Symposium on Radio Frequency Spectroscopy and Microwaves at Bombay and the Solid State Physics Symposium at Delhi. The papers presented were well received and accepted for publication in the respective journals.

#### SEMINAR TOPICS

<i>No.</i>	<i>Date</i>	<i>Speaker</i>	<i>Topic</i>
1.	9- 8-1963	Dr. W. Koch	" Lenard's Experiments on absorption of cathode rays."
2.	8-10-1963	Dr. S. Ramaseshan	" Absolute configuration of crystals by X-ray methods."
3.	6-11-1963	Shri T. M. Haridasan	" Physics of space flight."
4.	13-11-1963	Kum. Vijayalakshmi	" Production and measurement of Ultra high vacuum."
5.	20-11-1963	Shri Lakshmi-narasimhan	" Principles of and applications of Electron Microscope."
6.	27-11-1963	Shri C. S. Sastry	" Low Temperature Calorimetry."
7.	9-12-1963	Dr. S. Ramaseshan	" Working of Physics Department of I.I.T., Madras."
8.	11-12-1963	Kum. Annapoorni	" Hydrothermal Crystal Growth."
9.	18-12-1963	Shri Gowrishankar	" Nuclear Fission."

- |     |     |        |                    |   |
|-----|-----|--------|--------------------|---|
| 10. | 2-  | 1-1964 | Shri Ghambir       | “ Mass Spectrometer and its application.”         |
| 11. | 8-  | 1-1964 | Shri S. Srinivasan | “ Multiple beam interferometry.”                  |
| 12. | 12- | 1-1964 | Sir Lawrence Bragg | “ Television Talks on electricity and magnetism.” |
| 13. | 24- | 1-1964 | Shri Hariharaiyer  | “ Liquidation of Helium and properties of He.”    |
| 14. | 31- | 1-1964 | Shri Ramaswamy     | “ Study of Ionosphere.”                           |

#### 5. MAJOR EQUIPMENT PROCURED :

One Phillips X-ray unit and a powder camera were procured.

#### 6. RESEARCH :

Research activity is primarily in the fields of Solid State Physics, Paramagnetic Resonance Colour Centres, Electrical conduction in ionic crystals, Lattice vibrations and X-ray crystallography of both organic and inorganic materials.

#### 7. PUBLICATIONS :

The following list of research publications details the trend of research programmes.

*Dr. C. Ramasastry and Shri Y. V. G. S. Murti :*

1. “ Electrical Conductivity of Sodium Bromate Crystals ” — *International Journal of Physics & Chemistry of Solids*, Vol. 24, 1384 (1963).
2. “ Optical Absorption in Irradiated Sodium Bromate Crystals ” — *Indian Journal of Pure and Applied Physics*, Vol. 2, 35 (1964).

3. "Induced Optical Absorption in Irradiated Ionic Crystals" — Presented at the Physics Conference on 'Spectroscopy and Allied Subjects' held at Varanasi on 6th November, 1963.
4. "Electron Spin Resonance associated with Oxygen in Irradiated Crystals containing Oxygen rich anions" — Presented in the Symposium on Spectroscopy at 'Radio Frequency Spectroscopy and Microwaves' held in Bombay on 4th January, 1964. (National Institute of Sciences, India) (in press).
5. "Electrical Conduction in Sodium Nitrate" — Presented at the Symposium on 'Solid State Physics' held at New Delhi from April 8th to 13th, 1964.

*Dr. C. Ramasastry and Shri S. B. S. Sastry :*

6. "Colour Centres in  $\text{NaClO}_3$ ".
7. "Optical Bleaching of Radiation induced Absorption in  $\text{NaClO}_3$  and  $\text{KClO}_3$ ".
8. "Electrical Conductivity of  $\text{NaClO}_3$  Crystals".

*Dr. C. Ramasastry, Shri S. B. S. Sastry,  
Shri Y. V. G. S. Murti and Shri J. Sobhanadri :*

9. "Paramagnetic Centres in Irradiated  $\text{NaClO}_3$  and  $\text{NaBrO}_3$  Crystals" — *Journal of Physical Society of Japan*, Vol. 19, 1964.

*Dr. R. Srinivasan and Shri R. Ramji Rao :*

10. "Strain Dependence of the Frequencies and the Thermal Expansion of HCP Lattice" — Presented at the International Symposium on the 'Inelastic Scattering of Neutrons' held in December, 1964.

*Shri E. M. Gopalakrishna :*

11. "Structure of Meta Chlorinitrobenzene" — *Zeitschrift fur Crystallographic* (accepted for publication).



*Shri S. Ramaswamy and Dr. S. Ramaseshan :*

12. "Rapid Alignment of Crystals in X-ray Cameras" — *Indian Academy of Sciences*, Vol. LX, 1964.

*Shri G. Sreenivasamurthy, Shri G. Aravamudan and Dr. S. Ramaseshan :*

13. "An Apparatus for Low and High Temperature Optical Goniometry of Hygroscopic Crystals".

*Dr. S. Swaminathan and Shri A. K. Singh :*

14. "X-ray Crystallographic Structure of  $\text{AsBr}_3$ " — *Current Science* (sent for publication).

*Dr. S. Swaminathan, Shri G. Sreenivasamurthy and Shri S. Ramaswamy :*

15. "The Structure of Para Catechol" — *Current Science* (sent for publication).

## PROGRESS OF THE PROJECT CONSTRUCTION

The tempo of construction work was sustained in the year under report.

### 1. INSTITUTE BUILDING :

Works of the order of about Rs. 94 lakhs were executed during the year and almost all the major instructional buildings have been commissioned. Ninety per cent of construction work on the Electrical Sciences, Mechanical Sciences and Science and Humanities Blocks has been completed. All the Institute workshops have been completed and commissioned. Fifty per cent of construction work on the 60 feet workshop has been completed.

### 2. HOSTELS :

Out of 8 hostels programmed, 2 additional hostels have been completed bringing the number of hostels under occupation to six. One more hostel will be completed early in July 1964. Work on the eighth hostel is in full swing.

### 3. MISCELLANEOUS WORKS :

Besides, a number of other works like Electrical Installation, Sanitary Installation, Air-conditioning, etc., have been executed and completed during the year in the several Institute buildings. The campus is now a felicitous combination of granite and greenery.

### 4. STAFF QUARTERS AND ROADS :

198 Staff Quarters (Types B-20, C-10, D-42, E-66 and F-60) had been completed till the end of last year. 166 Quarters were taken up for execution during the year under report

and will be completed in September 1964. A Community Centre and additions/alterations to the existing Shopping Centre have been completed. The work relating to the Staff Club, Stadium and Secondary School is in progress. Two reservoirs — 50,000 gallons and 1,50,000 gallons capacity have been completed and a pumphouse for supply of fresh water has also been completed. There is a fine net-work of roads inside the campus, and most of them were completed during this year.

#### 5. GENERAL :

The Scheme to make the Institute campus a small self-contained 'Satellite City' took substantial shape during the year.

# HOSTELS

## GODAVARI HOSTEL

The Godavari Hostel, the fifth of the ten student-hostels in the campus, started functioning from August 12, 1963 with Dr. S. K. Srinivasan as Warden and Shri B. B. Bhattacharyya and Shri G. V. Yagnavalkya as Assistant Wardens.

A miscellany of cultural and sports activities were held for the inmates.

The hostel had a successful year and was closed for summer vacation on June 6, 1964.

## KAVERI HOSTEL

Kaveri Hostel re-opened, after summer recess on 30-5-1964 in view of the acceleration of the courses for the IV and V year students.

Prof. P. Venkata Rao, continued as Warden of the Hostel for the year 1963-64. Shri J. Joseph of the Humanities Department also continued as Asst. Warden.

Shri M. A. Veluswamy left the hostel on 14-8-1963 and Shri B. B. Bhattacharyya took charge as Assistant Warden on 15-8-1963. Consequent on his transfer to Godavari Hostel, Shri Bhattacharyya left the hostel on 15-7-1963 and Shri V. R. Asokan joined in his place with effect from 16-7-1963. Shri V. R. Asokan relinquished his post at the hostel on 31-8-1963 and Shri A. Chandrasekharan of the Electrical Department took charge as Assistant Warden from 2-9-1963.

The activities of the hostel started in right earnest with the election of the student representative to look after mess matters and the common room. The mess committee members spared no pains to manage the mess well in spite of spiralling prices.

Special dinners and talks were held on all important festive occasions.

The highlights of the year were :

1. The purchase of Water Cooler for the hostel by the students themselves ;
2. Farewell Dinner given to the outgoing graduates in January, 1964.

The year 1963-64 is of special significance to Kaveri Hostel as the first batch of B.Tech. students left the Institute from this hostel after graduation in February, 1964.

### KRISHNA HOSTEL

Dr. C. Ramasastry continued as Warden and Shri A. C. Gangadharan as Assistant Warden. Shri P. Achuthan took over as Assistant Warden from Shri D. S. Subramaniam. For a short period the hostel had the opportunity of accommodating two Thai students — Shri Yuen Paraken and Shri Suchin Jamched.

Elections to the Literary Activities, Social Activities, Sports, Mess and Common Room Committees were held in August.

In the first term the hostel conducted a debate and a quiz, which brought much new talent to light. Shri M. Menon and Shri R. A. Vaswani were adjudged first and second respectively at the debate presided over by Shri A. C. Gangadharan. The quiz was conducted by the well known Quiz Master Shri R. V. Narayan. Shri V. Venkatesan came first closely followed by Shri Vikram Rao and Shri G. R. V. L. Narasimhan.

This year saw the welcome arrival of a water-cooler.

Holi and Diwali were celebrated at the hostel with great eclat.

### NARMADA HOSTEL

The hostel functioned smoothly during its second year, with Prof. S. Sampath (Electrical Engineering) continuing as Warden and with Shri U. N. Srivastava (Mathematics) and Shri S. Srinivasan (Physics) as the new Assistant Wardens.

Shri A. K. Chhabra succeeded Shri Jaideep Singh as student-Secretary of the hostel. Shri Shah Bukht edited the Gymkhana paper, *Campastimes*, during the year.

The students of the hostel won many laurels in extra-curricular activities. Shri Krishna Mohan and Shri Kalyan Krishnan rendered useful service as rank-holders in the N.C.C. Sarvashri Gajraj Singh, Jacob, Srinath Bhaskaran, Rishi Raj Gaur and Harish Seth distinguished themselves in rifle practice. The best cadet prize was won by Shri Rishi Raj Gaur. Shri Krishna Mohan won a prize for meritorious performance. Shri S. K. Subramanian (Warrant-Officer of the N.C.C. Air Wing) had the distinction of participating in the Republic Day Parade at Delhi.

Only two students were selected from the Southern Zone for participating in the All-India Mountaineering Course in Manali. Both were from I.I.T., Madras and both from Narmada Hostel — Shri Jai Kumar and Shri S. K. Subramanian. They acquitted themselves creditably during the training course.

The hostel arranged for the regular screening of educational films obtained through the courtesy of the U.S.I.S. Library in Madras.

The internal sports activities, culminating in the annual tournaments, generated a good deal of enthusiasm. In Table-Tennis, the most popular of the games, Shri Jaideep Singh was the champion, while Sarvashri Batra and Jagannathan won the double prize. Shri Jagannathan won the Chess Crown. In Tennikoit, Shri Rajasekharan gained the singles prize, while Shri Abdul Hameed and Shri Gajraj Singh paired for the honour in doubles. The prize in Badminton went to Shri Gogna and Shri Sankaran. A prize instituted by the Warden for the best all-round performance was won by Shri K. K. Batra.

The hostel celebrated its Annual Day on the 7th March, 1964, with Shri R. Natarajan, Registrar, as the Chief Guest. Shrimathi Natarajan gave away the cups and prizes. After the dinner, the students put up a short programme of entertainment. The talents exhibited on this occasion won praise from all the guests.

## TAPTI HOSTEL

The following is a chronological report of the various activities of Tapti Hostel during the academic year 1963-64.

The Tapti Hostel was inaugurated on 28-6-1963 by Smt. Shanti Sengupto. A sumptuous tea preceded the function. Shri K. S. Sankaran joined as the Warden of the hostel. Dr. D. K. Banerjee and Shri M. A. Veluswami were Assistant Wardens till the latter was succeeded by Shri Ram Mohan Rao. The hostel had a strength of 190 students.

Students of this hostel had occasion to participate in a debate on "Ragging as a means of breaking the ice between the seniors and freshers is desirable" at the Narmada hostel on 8-8-1963. The annual Institute Debate was held at Tapti hostel on 16-8-1963. The motion 'India must adopt western culture and way of life in order to foster her development' was lost. Tapti was also the venue of the Annual Quiz Competition on 29-8-1963.

The terminal dinner came off in the hostel quadrangle on 18-12-1963 with Smt. Sengupto as the Chief Guest. The dinner was followed by a variety entertainment. Prizes were then distributed to the winners of the various sports championships held earlier.

There was also a variety programme got up on 7-2-1964.

On the sports field, the Hostel Cricket team led by Shri T. S. Mehta notched a creditable victory over the Krishna hostel. The highlight of the match was a scintillating century by the skipper.

The return cricket match at the Institute grounds between Tapti and Krishna Hostels on 7-3-1963 ended in a draw. The feature of the match was the fine bowling of Shri Kalappa who took six wickets.

The Tapti hostel played host to the delegates of the International Vegetarian Congress hailing from Norway, Sweden, England, Germany and Holland. After dinner the delegates spoke on vegetarianism and answered questions put forward by the students. This was followed by a film strip on the cruelty of animal slaughter.

The hostel closed for the summer vacation on 30-4-1964.

## LIBRARY

1. Total number of volumes acquired till the end of June 1964 ..	30,099
2. Number of books added during the period between July 1963 and June 1964 ..	4,777

## JOURNALS :

3. Total number of journals received during 1963-64	693
4. Number of journals arranged Department-wise as detailed below :	

Sl. No.	Department	No. of Journals Received	Gift/Exchange	Total received
<i>Humanities</i>				
1.	English	22	..	22
2.	History & Culture	6	..	6
3.	Economics	28	1	29
4.	General Interest	39	4	43
<i>Sciences</i>				
5.	Mathematics	79	1	80
6.	Applied Mechanics	5	1*	6
7.	Physics	80	1	81
8.	Electrical Engineering	42	2	44
9.	Mechanical Engineering	56	2	58
10.	Civil Engineering	93	1	94
11.	Chemistry	80	..	80
12.	Chemical Engineering	42	..	42
13.	Metallurgy	31	2	33
	<i>German Journals</i>	75	..	75
	Total number of journals received	678	15	693

\* Exchange.



## 5. BINDING

Number of periodicals bound during the year under review—1963-64 and reconditioning of damages to books wherever found necessary :—

<i>Journals</i>	<i>Books</i>
996	730

## 6. GIFTS

Names of organisations from where books, pamphlets, circulars and other reading materials have been received as free gifts are given below :—

1. Defence Science Laboratory, Metcalfe House, Delhi-6.
2. I.I.T., Kharagpur.
3. Ministry of Transport (Railway Inspectorate), Government of India, Meerut City.
4. University of Delhi, Delhi.
5. USIS, New Delhi.
6. Central Water and Power Research Station, Poona.
7. Director, Central Electro-Chemical Research Institute, Karaikudi.
8. Indian Institute of Science, Bangalore.
9. World University Service, Allahabad.
10. Khadi Gramodyog, Bombay-56.
11. Ministry of Scientific Research & Cultural Affairs, Government of India, New Delhi.
12. Director (Education), Government of India, Planning Commission, Yojana Bhavan, New Delhi.
13. Petroleum Information Service, State Bank Building, New Delhi.
14. Association of Consulting Engineers, Westminster, S. W. 1.
15. Indian Lead Zinc Information Centre, Calcutta.
16. University Grants Commission, New Delhi.

17. Highways Research Station, Government of Madras, Madras.
18. The Association of Commonwealth Universities, London.
19. Director, Institute of Applied Manpower Research, New Delhi.

#### 7. LIBRARY CO-OPERATION

Names of Libraries from where books and journals were obtained on Inter-Library loan system :

1. Madras Institute of Technology, Chromepet.
2. A.C. College of Technology, Guindy.

#### 8. EXPENDITURE

Books	..	..	..	Rs. 64,207
Journals	..	..	..	Rs. 85,576
Back volumes	..	..	..	Rs. 18,670
Operating cost	..	..	..	Rs. 289
Binding materials	..	..	..	Rs. 5,009
				Rs. 1,73,751
				Rs. 1,73,751

The Library, which is at present housed in the second floor of the Building Sciences block has got a total of 30,099 books, 693 current journals and back volumes of 82 important scientific journals including the gift from the Federal Republic of Germany.

Members of the Teaching Staff are eligible to borrow 10 volumes each and students 3 books each at a time for a period of a fortnight and one week respectively. Members of the Administrative Staff can borrow 3 books at a time for a period of a fortnight.

The Library is kept open from 9-30 a.m. to 9 p.m. on all days of the year including Sundays and public holidays except 7 closed holidays. The Staff is working in two shifts, one from 9-30 a.m. to 4-30 p.m. and the other from 2 p.m. to 9 p.m. On Second Saturdays, Sundays and Public Holidays, the Library is

kept open from 9-30 a.m. to 5-00 p.m. From 1-7-1964 the Library will be kept open from 7-30 a.m. to 9 p.m.

### NATIONAL CADETS CORPS

Under the compulsory military training scheme, N.C.C. training was imparted to all able-bodied students of I, II, III year classes of the 5 year B.Tech. Degree course and I year of 3 year B.Tech. Degree course from July 1963. The present strength of the three Rifle Coys. is 660. Arrangements are under way to raise Technical units. The unit has become richer by the addition of two officers — 2/Lt. M. Ramamoorthy from the O.T.S., Kamptee and 2/Lt. M. Sarvotham from the O.T.S., Pachaiyappa's College, Madras. Both these officers joined the Unit in July 1963. 2/Lt. Radhakrishnan who was with us last year, has left the Institute.

The N.C.C. schedule consisted of two parades of two hours' duration per week. The training programme was tough and exhaustive, covering drill, weapons training, field craft, map reading, first-aid and aid to civil power.

Out of the 18,000 cadets who participated in the Promise Parade held in Madras on the 15th of August 1963, 50 of our Institute cadets were selected for presenting the sole ceremonial Guard of Honour to the Governor of Madras. Our Senior Under Officer R. Rajamani won credit for himself and the unit by commanding the Guard of Honour with distinction.

400 of our cadets and officers participated in the annual NCC Day on the 20th of October 1963. Our cadets were selected to lead the column at flag march. 350 cadets of our NCCR Companies took part in range practice on the 12th and 13th October 1963.

Another "red-letter" feature of our NCC activities this year was the selection of cadet Jai Kumar for attending the Mountaineering course at Manali, Punjab, arranged by the Director, NCC, Madras and Pondicherry. He had the distinction of climbing a peak 18,200 feet high. Under Officer T. K. Ramakrishnan was selected to participate in the Republic Day Parade

in New Delhi in January 1964. Under Officer V. Varadarajan was selected for the All-India Summer Training Camp.

The Institute NCC Day was celebrated on the 4th of December 1963 when Maj-Gen. Virendra Singh, Director General, NCC, New Delhi was the Chief Guest.

A Ceremonial Parade was arranged on the 26th of January 1964, the Republic Day, when Prof. B. Sengupto, Director, hoisted the flag at the Open Air Theatre.

In view of the National Emergency, all camps were suspended and replaced by out-door exercises. The exercises were conducted for more than 15 hours and at distant places like Pallavaram.

The 'B' and 'C' certificate examinations were conducted on the 22nd of February 1964. 114 cadets appeared for 'B' certificate examination and 9 for 'C'. We are glad to report that 69 cadets (60%) have passed the 'B' certificate examination and 9 cadets the 'C' certificate examination.

A 'Bara-Khana' (Dinner) was arranged on the 22nd of February 1964 when Commodore Mody, Director, NCC, Madras and Pondicherry and Prof. B. Sengupto, Director, addressed the cadets. Over 900 cadets and guests attended the dinner.

The NCC had, on the whole, a very successful year.

## INSTITUTE GYMKHANA

### *Members of Committees*

*Rector* : PROF. B. SENGUPTO (Director)

**GYMKHANA** : Dr. D. Venkateswaralu (President), Registrar, Member (*Ex officio*), Dr. Gerhard Rouve (Member), Shri Y. S. Ramaswamy (Member), Dr. P. C. Verghese (Member), Auditor (Member).

*Student Representatives* : Shri Ananda Bhat, V year (Secretary), Shri T. S. Ananthu, IV year (Member), Shri S. M. Krishnan, III year (Member), Shri R. Jaikumar, II year (Member), Shri Vijaya Sharada, I year (Member).

*Sports Committee* : Shri V. Srinivasan (Convener), Shri M. Sarvotham, Shri P. K. Jacob, Shri Jacob Dominic, V year, Shri Syed Abdul Aleem, IV year, Shri Lionel Paul, III year (Secretary).

*Literary Activities* : Dr. N. Klein (Convener), Shri S. Ramani, Shri M. Vikram Rao, IV year, Shri R. A. Vaswani, IV year, Shri K. M. Kripanarayanan, IV year (Secretary).

*Entertainment* : Prof. R. Krishnamurti (Convener), Shri A. C. Gangadharan, Shri R. Venkateswaran, V year, Shri C. V. Sahasranaman, IV year, Shri P. L. Kapur, IV year (Secretary).

*Publications Committee* : Shri G. Viswanathan (Convener), Dr. M. S. Vairanapillai, Shri V. S. Kumar, Shri J. Joseph, Shri S. S. Randhava, V year, Shri N. Ramesh, IV year, Shri Sudhir Puri, III year, Shri Shah Nawaz Bhukht, II year (Secretary).

*Fine Arts Committee* : Dr. V. Srinivasan (Convener), Shri K. Mahesh, IV year, Shri E. A. Olia, IV year, Shri Lovv Kumar Sharma, IV year (Secretary).

## ACTIVITIES

The Institute Gymkhana had another triumphant year. Prof. D. Venkateswaralu continued as President of the Gymkhana. The highlights of the year were :

- 30- 7-1963 Inauguration of Institute Gymkhana by Mr. Gerhard Fischer, Consul, Federal Republic of Germany.
- 16- 8-1963 Annual Debate.
- 29- 8-1963 Annual Quiz.
- 4-10-1963 Annual Group Discussion.
- 29- 9-1963 Participation in the 'Students Conference' conducted by the Y.M.C.A. at Christian College, to  
1-10-1963 Tambaram.

- 11-11-1963 Participation in Inter-University Youth Festival in  
to New Delhi.  
18-11-1963
- 29-11-1963 Inter-Collegiate German Recitation.
- 30-11-1963 All-India Debate.
- 1-12-1963 Inter-Collegiate Quiz and Group Discussion.
- 2-12-1963 Inter-Collegiate Photographic Competition.  
Inter-Collegiate Entertainment Competition.  
Address and Prize Distribution by Shri M. Bhakta-  
vatsalam, Chief Minister of Madras.  
Participation in Madras Inter-Collegiate Athletic  
Association League Matches.  
Participation in Bertram Tournaments conducted  
by Loyola College.
- 12-12-1963 Address by Shri R. A. Padmanabhan, Sub-Editor,  
*The Hindu*, on 'Subramanya Bharathi'.
- 15-12-1963 Fifth Annual Athletic Meet.
- 26-12-1963 Participation in the Second Inter-I.I.T. Sports Meet  
to at Kharagpur.  
29-12-1963
- 1- 2-1964 First Inter-Collegiate Athletic Meet for Director's  
and Trophy.  
2- 2-1964
- 16- 3-1964 Dances and Songs by the cast of 'Space is so  
Startling'.
- 2- 4-1964 Fifth Institute Day — Address by Shri R. Venkata-  
raman, Minister of Industries, Government of  
Madras ; President : Dr. A. L. Mudaliar, Chair-  
man, Board of Governors.

## WINNERS OF INTER-COLLEGIATE TROPHIES

<i>Trophy</i>	<i>Winners</i>
1. Institute Trophy for All-India Debate.	.. Queen Mary's College, Madras.
2. Dr. Klein Trophy for German Recitation.	.. A. C. College of Technology, Madras.
3. Rao Bahadur Ramachandra Iyer Trophy for Quiz.	.. Engineering College, Guindy.
4. Prof. M. V. C. Sastry's Trophy for Group Discussion.	.. I. I. T., Madras.
5. Prof. Narayanamurthy Trophy for Entertainment Competition.	.. Queen Mary's College, Madras.
6. Dr. Koch Trophy for Photographic Competition.	.. I. I. T., Madras.
7. Director's Trophy for Athletic Meet.	.. Y.M.C.A. College of Physical Education, Saidapet.
8. Consul Gerhard Fischer's Challenge Cup for Individual Championship in Athletic Meet.	.. Y.M.C.A. College of Physical Education and Institute of Leather Technology, Madras.
9. Chilukuri Veeravadhanulu Trophy for Tennis (Doubles).	.. A. C. College of Technology, Madras.
10. German Workshop Staff Trophy for Tennis (Singles).	.. A. C. College of Technology, Madras.
11. Prof. R. Krishnamurti's Trophy for Table Tennis (Doubles).	.. Engineering College, Guindy.
12. Mrs. Erna Schroeter's Trophy for Table Tennis (Singles).	.. Stanley Medical College, Madras.

## TROPHIES FROM OUTSIDE WON BY OUR STUDENTS

1. Engineering College Trophy for Quiz Competition won by Siddhartha and Venkateswaran.
2. Saturday Evening Club Trophy (Shield) for Quiz competition won by S. Nageshwar and Venkatesan.
3. V. Guruswamy Memorial Shield for Debate won by Siddhartha and T. S. Ananthu.

4. Sportex Cup for Table Tennis (Doubles) won by S. Gopalakrishnan and Subba Rao.
5. Sundaravaradhan Cup for Tennis (Singles) won by Lionel Paul.
6. A. Krishnaswamy Iyer Cup for Table Tennis (Doubles) won by S. Gopalakrishnan and Subba Rao.
7. Loyola College Principal's Cup for Table Tennis (Singles) won by Subba Rao.
8. I.I.T. Meet Trophy for Tennis (Doubles) by Lionel Paul and partner.

#### INTRA-MURAL COMPETITIONS

<i>Trophy</i>	<i>Winners</i>
1. Sharman & Company Trophy for Cricket.	.. Shivaji House.
2. Surana & Company Trophy for Football.	.. Ashoka House.
3. Pioneer Sports Company Trophy for Hockey.	.. Shivaji House.
4. Meenakshi Memorial Trophy for Volley Ball.	.. Ashoka House.
5. Mehendru Sports Company Trophy for Basket Ball.	.. Ashoka House.
6. Schroeter's Trophy for General Championship.	.. Shivaji House.

Trophies were presented by the following for Gymkhana activities :—

<i>Presented by</i>	<i>Trophy for</i>
1. Mr. Gerhard Fischer, Consul, Federal Republic of Germany, Madras.	.. Individual Championship in Inter-Collegiate Athletic Meet.
2. Dr. W. Koch, Professor of Physics, I. I. T., Madras-36.	.. Inter-Collegiate Photo- graphic Competition.
3. German Workshop Staff, I. I. T., Madras-36.	.. Inter-Collegiate Tennis (Singles).



- |    |  |     |  |
|----|--|-----|--|
| 4. | Prof. R. G. Narayanamurthi,<br>Head of the Dept. of<br>Mechanical Engineering,<br>I. I. T., Madras-36. | . . | Inter-Collegiate Enter-<br>tainment Competition.           |
| 5. | Prof. R. Krishnamurti,<br>Head of the Dept. of<br>Humanities,<br>I. I. T., Madras-36.                  | . . | Inter-Collegiate Table<br>Tennis (Doubles).                |
| 6. | M/s. Surana & Company,<br>373, Triplicane High Road,<br>Triplicane, Madras-5.                          | ..  | Intra-mural Competition<br>for Foot Ball.                  |
| 7. | Engineering Unit,<br>I. I. T., Madras-36.  | ..  | Intra-mural Competition<br>for Entertainment<br>programme. |

### I. I. T. CO-OPERATIVE STORES

The I. I. T. Co-operative Stores entered its 3rd year of business activity. A gross profit of Rs. 5,791.65 was made over a turn-over of Rs. 71,616.75 during the year 1963-64.

The office-bearers of the Stores during the year 1963-64 were as follows :

Dr. M. V. C. Sastry	..	<i>President.</i>
Dr. S. C. Das	..	<i>Vice-President.</i>
Shri P. K. Jacob	..	<i>Secretary.</i>
Shri V. K. Vaidyanathan	..	<i>Treasurer.</i>
Shri R. M. Dubay	}	.. <i>Members of the Board of Directors.</i>
Shri S. Sarathy		
Shri M. Varadarajan		
Shri G. Suresh Lulla		
Shri S. Srinivasan		

When Shri P. K. Jacob, Secretary, left the Institute to join the Army Commission, Dr. S. Ramagopala Sarma was elected as Secretary in his place on 26-2-1964. Shri S. Srinivasan, Student-Director, left the Institute on completion of his studies and Shri N. Mani was elected in his place on 26-2-1964.

The Stores completed a very useful year and looks forward to further service.

## JOINT ENTRANCE EXAMINATION — 1963

## APPENDIX I

## TOTAL NUMBER OF APPLICATIONS RECEIVED

I YEAR

II YEAR

Sl. No.	State	I. I. T. Bombay	I. I. T. Kanpur	I. I. T. Kharagpur	I. I. T. Madras	I. I. T. Bombay	I. I. T. Kanpur	I. I. T. Kharagpur	I. I. T. Madras
1.	Andhra ..	15	11	34	693	16	9	16	266
2.	Assam ..	..	..	166	..	..	1	64	..
3.	Bihar ..	1	31	544	1	3	30	537	3
4.	Delhi ..	9	1,451	15	3	5	511	6	..
5.	Goa ..	14	1	1	2	26	..	..	2
6.	Gujarat ..	103	4	6	3	143	6	1	..
7.	Himachal Pradesh ..	..	43	1	..	..	31	1	..
8.	Jammu & Kashmir	1	61	1	..	2	65	..	..
9.	Kerala ..	21	15	19	302	19	5	3	84
10.	Madhya Pradesh ..	219	15	6	..	143	17	8	..
11.	Madras ..	27	55	26	1,002	26	13	8	106
12.	Maharashtra ..	1,179	28	10	8	1,428	11	13	2
13.	Manipur ..	..	..	11	..	1	..	3	..
14.	Mysore ..	63	13	12	330	51	2	4	153
15.	Orissa ..	..	..	210	2	..	1	241	1
16.	Pondicherry ..	..	..	..	6	..	1	..	2
17.	Punjab ..	32	1,010	61	6	22	795	21	4
18.	Rajasthan ..	20	281	25	1	13	146	11	..
19.	Tripura ..	..	..	44	..	..	..	7	..
20.	Uttar Pradesh ..	23	2,307	61	3	26	3,107	67	6
21.	West Bengal ..	9	52	2,066	8	5	20	567	..
22.	Foreign Countries	5	5	2	..	12	2	1	..
		1,741	5,383	3,321	2,370	1,941	4,773	1,579	629

TOTAL

12,815

Total

8,922

Sl. No.	State	FIRST YEAR				SECOND YEAR					
		Western Zone (Bombay)	Northern Zone (Delhi) (Kanpur)		Eastern Zone (Kharagpur)	Southern Zone (Madras)	Western Zone (Bombay)	Northern Zone (Delhi) (Kanpur)		Eastern Zone (Kharagpur)	Southern Zone (Madras)
1.	Andhra	13	8	..	27	540	30	5	2	13	146
2.	Assam	..	..	..	131	..	..	1	..	39	..
3.	Bihar	1	5	22	485	..	3	1	26	203	1
4.	Delhi	6	1,342	13	11	1	3	316	14	2	1
5.	Goa	12	1	..	1	2	25	..	..	..	..
6.	Gujarat	73	2	1	5	1	119	1	5	..	..
7.	Himachal Pradesh	1	18	2	1	..	..	19	3	1	..
8.	Jammu and Kashmir	1	47	3	..	..	1	39	2	..	..
9.	Kerala	16	12	4	17	247	16	3	3	3	35
10.	Madhya Pradesh	177	6	6	6	1	67	4	8	4	..
11.	Madras	24	45	6	23	799	23	5	1	6	72
12.	Maharashtra	1,073	15	7	7	4	1,303	1	7	6	2
13.	Manipur	..	..	..	8	..	1	..	..	3	..
14.	Mysore	52	7	4	10	267	40	..	2	3	76
15.	Orissa	..	..	..	181	..	..	..	..	135	1
16.	Pondicherry	..	..	..	..	4	..	..	1	..	2
17.	Punjab	29	844	38	43	5	19	502	42	12	3
18.	Rajasthan	19	34	195	20	..	10	4	69	5	..
19.	Tripura	..	..	..	32	..	..	..	..	5	..
20.	Uttar Pradesh	21	171	1,900	52	3	25	229	2,781	56	6
21.	West Bengal	6	28	15	1,707	6	5	7	11	356	..
22.	Foreign Countries	2	3	..	1	..	12	1	1	1	..
		1,526	2,588	2,216	2,768	1,880	1,702	1,138	2,979	853	345
	Total	..	10,978				Total	..	7,017		

*Number of candidates who scored 50% marks in the aggregate in the written examination and were called for interview  
at the five Centres (Distribution shown State-wise)*

Sl. No.	State	FIRST YEAR					SECOND YEAR				
		I. I. T. Bombay	C. E. T. Delhi	I. I. T. Kanpur	I. I. T. Kharagpur	I. I. T. Madras	I. I. T. Bombay	C. E. T. Delhi	I. I. T. Kanpur	I. I. T. Kharagpur	I. I. T. Madras
1.	Andhra ..	2	3	..	7	32	..	..	..	2	7
2.	Assam ..	..	..	..	13	..	..	..	..	1	..
3.	Bihar ..	..	1	2	84	..	..	..	1	4	..
4.	Delhi ..	1	460	3	7	..	..	15	..	..	1
5.	Goa ..	3	..	..	1	..	3	..	..	..	..
6.	Gujarat ..	15	..	..	3	..	8	..	..	..	..
7.	Himachal Pradesh ..	..	2	..	..	..	..	1	..	1	..
8.	Jammu & Kashmir ..	..	4	..	..	..	..	1	..	..	..
9.	Kerala ..	3	3	..	5	24	1	1	1	..	4
10.	Madhya Pradesh ..	23	2	2	..	..	4	2	..	..	..
11.	Madras ..	4	22	2	6	124	..	1	..	2	1
12.	Maharashtra ..	260	8	2	6	..	119	..	1	1	1
13.	Manipur ..	..	..	..	..	1	..	..	..	..	..
14.	Mysore ..	6	1	1	4	36	3	..	..	..	..
15.	Orissa ..	..	..	..	41	..	..	..	..	3	..
16.	Pondicherry ..	..	..	..	..	2	..	..	..	..	..
17.	Punjab ..	7	136	7	12	2	1	41	4	1	1
18.	Rajasthan ..	3	5	32	7	..	2	1	6	2	..
19.	Tripura ..	..	..	..	6	..	..	..	..	..	..
20.	Uttar Pradesh ..	13	44	323	12	3	..	15	109	1	1
21.	West Bengal ..	1	13	4	564	2	..	..	..	4	..
22.	Foreign Countries ..	1	..	..	..	..	..	..	..	..	..
		<u>342</u>	<u>704</u>	<u>378</u>	<u>778</u>	<u>226</u>	<u>141</u>	<u>78</u>	<u>122</u>	<u>22</u>	<u>16</u>

## (Distribution shown State-wise)

5

Sl. No.	State	FIRST YEAR					SECOND YEAR		
		I. I. T. Bombay	C. E. T. Delhi	I. I. T. Kanpur	I. I. T. Kharagpur	I. I. T. Madras	I. I. T. Bombay	C. E. T. Delhi	I. I. T. Kharagpur
1.	Andhra Pradesh	3	3	..	7	16	1	..	6
2.	Assam	..	..	..	6	..	..	..	1
3.	Bihar	5	1	5	37	2	..	..	3
4.	Delhi	16	387	66	56	19	1	15	2
5.	Goa	2	..	..	..	..	3	..	..
6.	Gujarat	12	..	..	3	..	10	..	..
7.	Himachal Pradesh	..	2	..	1	..	..	1	2
8.	Jammu & Kashmir	..	4	..	..	..	1	1	..
9.	Kerala	2	3	..	7	17	1	1	3
10.	Madhya Pradesh	4	2	1	4	1	3	2	1
11.	Madras	7	20	..	8	99	2	1	3
12.	Maharashtra	165	7	6	23	8	78	..	5
13.	Manipur	..	..	..	..	..	..	..	..
14.	Mysore	5	1	..	3	24	2	..	..
15.	Orissa	..	..	1	16	3	1	..	2
16.	Pondicherry	..	..	..	..	..	..	..	..
17.	Punjab	12	112	16	27	7	2	41	12
18.	Rajasthan	8	3	4	3	5	4	1	5
19.	Tripura	..	..	1	2	..	..	..	..
20.	Uttar Pradesh	19	39	142	46	22	19	15	58
21.	West Bengal	12	12	14	346	17	..	..	3
22.	Foreign Countries	4	..	2	1	..	..	..	..
		276	596	258	596	240	128	78	106

Total .....

1,966

Total .....

312

*Number of students who actually joined the various Institutes for the Session 1963-64*  
(Distribution shown State-wise)

Sl. No.	State	FIRST YEAR					SECOND YEAR		
		I. I. T. Bombay	C. E. T. Delhi	I. I. T. Kanpur	I. I. T. Kharagpur	I. I. T. Madras	I. I. T. Bombay	C. E. T. Delhi	I. I. T. Kharagpur
1.	Andhra Pradesh	3	2	..	6	13	1	..	5
2.	Assam	..	..	..	6	..	..	..	1
3.	Bihar	5	..	5	22	1	..	..	3
4.	Delhi	16	153	41	46	17	1	10	1
5.	Goa	2	..	..	..	..	3	..	..
6.	Gujarat	11	..	..	3	..	7	..	..
7.	Himachal Pradesh	..	..	..	1	..	..	..	2
8.	Jammu & Kashmir	..	1	..	..	..	1	..	..
9.	Kerala	3	..	..	5	16	1	1	3
10.	Madhya Pradesh	4	1	1	2	1	2	2	1
11.	Madras	7	3	..	4	95	1	..	3
12.	Maharashtra	154	5	6	17	4	73	2	4
13.	Manipur	..	..	..	..	..	..	..	..
14.	Mysore	5	..	..	3	22	2	..	..
15.	Orissa	..	..	..	9	2	1	..	2
16.	Pondicherry	..	..	..	..	..	..	..	..
17.	Punjab	12	28	10	24	6	2	20	9
18.	Rajasthan	8	2	3	3	4	4	1	2
19.	Tripura	..	..	..	1	..	..	..	..
20.	Uttar Pradesh	17	13	125	35	16	18	13	40
21.	West Bengal	12	3	8	235	12	..	..	2
22.	Foreign Countries	4	..	1	1	..	..	..	..
		263	211	200	423	209	117	49	78

## APPENDIX II

## SCHOLARSHIPS FOR THE YEAR 1963-64

## I. INSTITUTE SCHOLARSHIPS :

(a) *Undergraduate Course* :*Number awarded*(i) *5 year B.Tech. Degree Course—*

Merit Scholarship	..	55
Merit-cum-Means Scholarship	..	131
Free Studentship	..	18

(ii) *3 year B.Tech. Degree Course—*

Merit Scholarship	..	6
Merit-cum-Means	..	17
Free Studentship	..	9

(b) *Post-Graduate Course* :(i) *M.Sc. Degree Course—*

Merit Scholarship	..	1
Merit-cum-Means Scholarship	..	3
Free Studentship	..	2

(ii) *M.Tech. Degree Course—*

Chem. Engg.	..	7
Civil Engg.	..	10
Elect. Engg.	..	12
Mech. Engg.	..	4

(c) *Ph.D. Degree Course* .. 4

## II. EXTERNAL SCHOLARSHIPS :

Sl. No.	Name of the sanctioning authority	Nature of scholarships	No. of students	Value per annum Rs.
1.	Government of India, Ministry of Education	Merit Scholarships for Post-Matriculation studies	9	1,200
2.	Director of Technical Education, Assam	Engineering Scholarships ..	1	940
3.	-do-	-do- ..	1	760
4.	State Scholarships Board for Backward and other Backward classes, Assam	Post-Matric Scholarship ..	1	1,007
5.	-do-	-do- ..	1	1,052
6.	-do-	-do- ..	1	1,007
7.	Director of Social Welfare, Andhra Pradesh	Government of India Scholarships (Decentralised)	4	900
8.	The Director of Public Instruction, Hyderabad	National Merit Scholarship ..	4	1,320
9.	-do-	Educational concession to children of political sufferers	1	400
10.	-do-	Scholarship for children of secondary and primary school teachers	1	600
11.	Director of Education, Ahmedabad	National Merit Scholarship ..	1	600
12.	Director of Education, Himachal Pradesh	Govt. of India Scholarships (Decentralised) ..	1	977



## II. EXTERNAL SCHOLARSHIPS —(Contd.)

Sl. No.	Name of the sanctioning authority	Nature of scholarships	No. of students	Value per annum Rs.
13.	Director of Collegiate Education, Trivandrum	National Merit Scholarship	.. 2	990
14.	Director of Harijan Welfare, Trivandrum	Govt. of India Scholarship (Decentralised)	.. 1	900
15.	Director of Collegiate Education, Madhya Pradesh	Engineering Scholarships	.. 1	1,000
16.	Director of Harijan Welfare, Madras	Govt. of India Scholarship (Decentralised)	.. 4	900
17.	Director of Public Instruction, Madras	National Merit Scholarship	.. 3	475
18.	-do-	-do-	.. 16	990
19.	-do-	Scholarship for the children of secondary school teachers	.. 1	1,000
20.	Director of Social Welfare, Poona	Govt. of India Scholarship (Decentralised)	.. 2	1,127
21.	Director of Education, Poona	National Scholarship	.. 1	1,052
22.	Govt. of Orissa, Tribal & Rural Welfare Dept., Bhubaneswar	Govt. of India Scholarship	.. 2	900
23.	Department of Education, Bhubaneswar	Loan Stipend	.. 5	902
				1,375

## II. EXTERNAL SCHOLARSHIPS — (Contd.)

Sl. No.	Name of the sanctioning authority	Nature of scholarships	No. of Students	Value per annum Rs.
24.	Director of Technical Education, Chandigarh, Punjab	Loan for Engineering studies ..	1	400
25.	-do-	-do- ..	1	650
26.	-do-	-do- ..	1	450
27.	-do-	Govt. of India Scholarship (Decentralised) ..	1	1,127
28.	Director of Public Instruction, Pondicherry	State Scholarships for Technical Education	1	900
29.	Director of Social Welfare, Mysore	Govt. of India Scholarship ..	1	900
30.	Director of Collegiate Education, Mysore	National Scholarship ..	6	990
31.	-do-	-do- ..	1	475
32.	Director of Public Instruction, Calcutta	-do- ..	1	1,000
33.	Director of Tribal Welfare, Calcutta	Govt. of India Scholarship (Decentralised) ..	1	887
34.	The Nedheshak Harijan Kalyan, Uttar Pradesh	-do- ..	1	977
35.	Department of Education, Government of Jammu and Kashmir	Govt. Scholarship ..	1	1,094
36.	M/s. Tata Iron & Steel Co. Ltd., Jamshedpur	Jubilee Scholarship ..	2	1,250
37.	Department of Atomic Energy, Govt. of India, Bombay	Undergraduate Scholarship Metallurgy Branch ..	4	1,800
38.	Prime Minister's Relief Fund	Financial Aid ..	2	1,300

## APPENDIX III-A

*List of students who were awarded prizes during 1963-64*

Branch	Name of student and year	Prize awarded	Value of prize Rs.
<b>5-YEAR B.TECH. DEGREE COURSE</b>			
<i>First year</i>			
	Shri Suresh Balani	I	50
	Shri T. N. Vijayanarayana Reddi	II	25
<i>Second year</i>			
	Shri Gurusharan Singh Sidhu	I	50
	Shri P. Jagannathan	II	25
<i>Third year</i>			
Civil Engineering :			
	Shri K. V. Natarajan	I	50
Mechanical Engineering :			
	Shri H. K. Viswanatha Rao	I	50
Electrical Engineering :			
	Shri K. Radhakrishna Rao	I	50
Chemical Engineering :			
	Shri N. Sekhar	I	50
Metallurgy :			
	Shri C. Devadas Kamath	I	50

Branch	Name of student and year	Prize awarded	Value of prize Rs.
<i>Fourth year</i>			
Civil Engineering :	Shri K. M. Kripanarayanan	I	50
Mechanical Engineering :	Shri M. Venkatakrishna Rao	I	50
Electrical Engineering :	Shri C. R. Muthukrishnan	I	50
Chemical Engineering :	Shri S. Veeraraghavan	I	50
Metallurgy :	Shri M. Narayanan Kutty Menon	I	50
3-YEAR B.TECH. DEGREE COURSE			
<i>First year</i>			
	Shri L. Padmanabhan	I	50
M.Sc. DEGREE COURSE			
<i>First year</i>			
Physics :	Shri T. P. Srinivasan	I	50
Chemistry :	Shri K. Vasudevan	I	50
M.TECH. DEGREE COURSE			
<i>First year</i>			
Civil Engineering :	Shri K. Muthukrishniah	I	50
Mechanical Engineering :	Shri R. Rajagopal	I	50
Electrical Engineering :	Shri S. Pasupathy	I	50
Chemical Engineering :	Shri T. S. Sridhar	I	50

## APPENDIX III — B

## THE GOVERNOR'S MEDAL

The Governor's Medal shall be awarded to the best all-round student of the 5-year and 3-year B.Tech. Degree Courses.

1. The following categories of undergraduate students of the Institute who had studied for a period of 3 years or more in this Institute shall be considered for the Medal :—

(a) Students who successfully completed the five-year integrated course for the B.Tech. Degree.

(b) Students who joined directly the second year of the five-year integrated course and successfully completed the remaining four years course of the B.Tech. Degree.

(c) Students who successfully completed the three-year degree course leading to the B.Tech. Degree.

2. The award shall be on the basis of the over-all performance during all the years of study at the Institute.

3. The academic performance shall include the results of terminal and final examinations, periodical and other tests and sessional work as may be prescribed from time to time in all the subjects of study.

4. The weightage for the different activities in judging the over-all performance shall be as follows :

(a) Academic performance	50%
(b) Sports Activities	20%
(c) Literary Activities	10%
(d) Cultural Activities	10%
(e) N.C.C.	10%

5. The medal shall be presented to the best candidate as judged above at the Convocation along with the Diploma.

APPENDIX IV

**A C C O U N T S**

# THE INDIAN INSTITUTE OF

## *Receipts and Payments Account*

RECEIPTS	Rs.	Rs.
OPENING BALANCE ..		23,96,672
A. GRANT FROM GOVERNMENT OF INDIA :		
(1) On Capital Account ..		1,29,00,000
B. GRANT FROM GOVERNMENT OF INDIA :		
(2) On Revenue Account ..		21,00,000
C. RECEIPTS FROM ACADEMIC SECTION :		
Tuition fees ..	1,55,875	
Hostel seat rent ..	1,01,033	
Gymkhana and Medical fees ..	28,487	
Fines ..	2,098	
Examination fees ..	4,900	
	2,92,393	
Carried over ..		1,76,89,065

**TECHNOLOGY, MADRAS***for the year 1963-64*

PAYMENTS		Rs.	Rs.
<b>A. ON CAPITAL ACCOUNTS :</b>			
(i) Works and Buildings	..		96,05,220
(ii) Equipment, furniture & fittings (Departments)			
Civil Engineering	..	2,81,543	
Mechanical Engineering	..	48,214	
Workshops	..	59,735	
Electrical Engineering	..	61,520	
Chemical Engineering	..	1,11,850	
Metallurgy	..	36,923	
Applied Mechanics	..	39,160	
Chemistry	..	75,251	
Physics	..	2,75,128	
Humanities	..	404	
			9,89,728
(iii) Customs duty on West German Equipments	..	18,58,299	
Clearance Charges	..	32,801	
			18,91,100
(iv) Furniture & fitting (Office, Library & Institute)	..		1,34,015
(v) Hostels Utensils	..	34,672	
Furniture & fittings	..	55,291	
			89,963
(vi) Motor Vehicles	..	68,022	
Cycles	..	2,222	
Typewriters & duplicator	..	18,276	
			88,520
(vii) Books & Journals—			
Books	..	63,991	
Journals & back issues	..	52,519	
			1,16,510
Carried over	..		1,29,15,056



# THE INDIAN INSTITUTE OF

## *Receipts and Payments Account*

RECEIPTS	Rs.	Rs.
Brought forward ..		1,76,89,065
<b>D. OTHER RECEIPTS :</b>		
Application fees from students ..	61,708	
Application fees for advertised posts ..	8,427	
Admission fees ..	3,680	
Grade cards ..	1,845	
On Gymkhana Account ..	2,136	
Institute Bus collections ..	35,625	
Hire of Institute Vehicles ..	2,063	
Sale of Instructions sheets ..	75	
Library overdue charges ..	2,250	
Sale of Tender Forms ..	80	
Sale of Dealwood plans ..	974	
Recoveries of charges relating to previous years ..	1,561	
Checking totals or marks in Answer Books ..	140	
Migration and Duplicate Certificate ..	136	
Interest on Conveyance advance ..	2,122	
Sundry Receipts (Breakages etc.) ..	86	
	1,22,908	
<b>E. RECEIPTS FROM BUILDINGS :</b>		
Rent on buildings ..	98,900	
Electricity, Water supply & Service charges ..	39,040	
	1,37,940	
<b>F. LANDS AND GARDENS :</b>		
(i) Auction sale of trees and usufructs ..	5,353	
(ii) Sewage farms ..	428	
	5,781	
Carried over ..		1,79,55,694

**TECHNOLOGY, MADRAS***for the year 1963-64*

PAYMENTS	Rs.	Rs.
Brought forward ..		1,29,15,056
<b>B. ON REVENUE ACCOUNT :</b>		
<b>I. Academic Sections—Pay and Allowances of teaching staff—</b>		
Physics ..	1,25,854	
Civil Engineering ..	1,07,250	
Mechanical Engineering ..	1,61,604	
Applied Mechanics ..	63,647	
Chemical Engineering ..	76,382	
Chemistry ..	85,090	
Electrical Engineering ..	1,62,072	
Mathematics ..	51,050	
Metallurgy ..	61,310	
Humanities ..	40,697	
	<hr/>	9,34,956
<b>II. Pay and Allowance of non-teaching staff—</b>		
Physics ..	70,878	
Civil Engineering ..	45,619	
Mechanical Engineering ..	43,927	
Applied Mechanics ..	17,444	
Chemical Engineering ..	72,344	
Chemistry ..	47,304	
Electrical Engineering ..	56,142	
Mathematics ..	21,394	
Metallurgy ..	40,180	
Humanities ..	14,947	
	<hr/>	4,30,179
<b>III. (a) Departmental Expenses—</b>		
Physics ..	49,121	
Civil Engineering ..	31,182	
Mechanical Engineering ..	18,041	
Applied Mechanics ..	10,975	
Chemical Engineering ..	1,18,484	
	<hr/>	1,42,80,191
Carried over ..		<hr/>

# THE INDIAN INSTITUTE OF

## *Receipts and Payments Account*

RECEIPTS	Rs.	Rs.
Brought forward ..		1,79,55,694
RECOVERY OF ADVANCES :		
(1) Motor Car and other conveyance ..	33,539	
(2) Customs duty ..	28,25,169	
(3) <i>Others</i> —		
Festival advances ..	22,246	
D.G.S. & D. ..	16,537	
Letters of Credit ..	1,13,833	
Miscellaneous ..	1,33,934	
	31,45,258	
Carried over ..		2,11,00,952

**TECHNOLOGY, MADRAS***for the year 1963-64*

PAYMENTS		Rs.	Rs.
Brought forward	..		1,42,80,191
Chemistry	..	40,423	
Electrical Engineering	..	26,729	
Mathematics	..	627	
Metallurgy	..	25,838	
Humanities	..	477	
			<u>3,21,897</u>
 (b) <i>Institute Scholarships</i> —			
Under-graduate students	..	1,54,244	
Post-graduate scholarships	..	80,865	
N. C. C.	..	4,667	
Atheletic and Gymkhana (including Pay and Allowances)	..	65,013	
T. A. for excursion and surveys	..	2,306	
Prizes	..	450	
Part-time lecturers and visiting professors	..	8,537	
Training of teachers in India	..	1,367	
Models and exhibits	..	65	
Convocation	..	8,933	
			<u>3,26,447</u>
 IV. (1) OTHER SECTION :			
(a) <i>Central Administration</i> —			
1. Pay and Allowances—Officers, Directors etc.	..	79,774	
2. Establishment	..	2,84,411	
			<u>3,64,185</u>
 IV. (b) <i>Library</i> —			
Pay and Allowances	..	36,539	
Contingencies (Operating cost etc)	..	6,424	
Journals (of general interest)	..	1,700	
			<u>44,663</u>
Carried over	..		<u>1,53,37,383</u>

# THE INDIAN INSTITUTE OF

## *Receipts and Payments Account*

RECEIPTS	Rs.	Rs.
Brought forward . . . . .		2,11,00,952
<b>DEPOSITS RECEIVED :</b>		
(1) External Scholarships . . . . .	1,01,247	
(2) <i>Contractors' Deposits</i> —		
On works . . . . .	3,34,672	
On others . . . . .	31,655	
(3) Students' Caution Deposits . . . . .	9,475	
(4) <i>Miscellaneous Deposits</i> —		
C.S.I.R. . . . .	3,351	
Others . . . . .	5,695	
	4,86,095	
Carried over . . . . .		2,15,87,047

**TECHNOLOGY, MADRAS***for the year 1963-64*

PAYMENTS	Rs.	Rs.
Brought forward ..		1,53,37,383
<b>(2) Contingencies—</b>		
Postage ..	10,658	
Entertainments ..	2,619	
Telephones ..	14,413	
Stationery ..	44,091	
Printing ..	1,693	
Advertisement ..	36,038	
Electricity ..	25,820	
Liveries ..	2,584	
Sundries ..	14,855	
	<hr/>	1,52,771
<b>(3) Other items—</b>		
Expenditure from Director's Discretionary fund ..	4,526	
Power ..	63,529	
Oil and petrol ..	19,581	
Conservancy ..	275	
Repairs and services Furniture ..	952	
-do- Motor vehicles ..	9,592	
-do- Cycles ..	50	
-do- Typewriters and duplicator ..	2,554	
Examination fees to external Examiners etc. ..	18,149	
Transportation charges ..	110	
Lodging allowances to West German experts ..	14,721	
Hire-charges of furniture ..	1,254	
Duty Insurance and Road tax ..	6,651	
Audit charges ..	1,380	
Rent on buildings ..	17,738	
Joint Entrance Examination (May 1963) ..	38,218	
Carried over ..		<hr/> 1,54,90,154

**THE INDIAN INSTITUTE OF***Receipts and Payments Account*

RECEIPTS	Rs.	Rs.
Brought forward ..		2,15,87,047
Carried over ..		<u>2,15,87,047</u>

**TECHNOLOGY, MADRAS***for the year 1963-64*

PAYMENTS		Rs.	Rs.
Brought forward	..		1,54,90,154
Customs duty on personal effects of West German experts	..	81,949	
Legal expenses	..	1,887	
Travelling allowances to Members of Board of Governors	..	3,288	
Members of Senate	..	656	
Members of Selection Committee (for appointment of teaching staff)	..	11,814	
Members of other committees	..	2,556	
Members of External Examiners	..	11,650	
Joint Entrance Examination	..	10,653	
Science Congress and seminars	..	3,352	
Train fare of candidates for interview	..	16,808	
			3,43,893
<b>(4) Stores—</b>			
Pay and Allowances—Officers	..	9,462	
-do- Establishment	..	29,706	
-do- Contingencies (Helpers etc.)	..	4,833	
			44,001
<b>(5) Workshops—</b>			
Pay and Allowances	..	1,64,241	
Contingencies	..	46,373	
			2,10,614
<b>(6) Hostel</b>			
	..		28,765
<b>(7) Lands and Gardens—</b>			
Honorarium to Horticulturist	..	4,800	
Daily labourers, Purchase of seeds etc.	..	18,279	
			23,079
Carried over	..		1,61,40,506



**THE INDIAN INSTITUTE OF***Receipts and Payments Account*

RECEIPTS	Rs.	Rs.
Brought forward	..	2,15,87,047
TOTAL	Rs.	2,15,87,047

# TECHNOLOGY, MADRAS

for the year 1963-64

PAYMENTS		Rs.	Rs.
Brought forward ..			1,61,40,506
(8) <i>Medical</i> —			
Honoraria & conveyance allowan- ces to part time Medical Officer		6,753	
Medical dispensary ..		9,334	
			16,087
(9) <i>Security</i> ..			49,323
(10) <i>Works and maintenance</i> ..			2,09,752
(11) <i>Contribution to C. P. Fund</i> ..			1,58,044
(12) <i>Leave salary and pension contribution</i>			5,446
(13) <i>Grant to Institute Primary School</i> ..			3,704
(14) <i>Honorarium to legal adviser</i> ..			2,000
(15) <i>Advances paid</i> —			
(a) Motor Car Advance & other conveyance ..		36,350	
(b) Customs duty ..		28,37,000	
(16) <i>Other advances</i> —			
Festival advance ..		25,510	
D. G. S. & D. ..		14,111	
Letters of Credit ..		31,873	
Other miscellaneous advances ..		2,14,882	
			31,59,726
(17) <i>Refund of deposits</i> —			
(a) External Scholarships ..		1,03,581	
(b) Contractor's deposits (works) ..		6,89,821	
-do- (others) ..		17,805	
(c) Students Caution deposits ..		525	
(d) Miscellaneous deposits CSIR ..		2,583	
(e) Other Miscellaneous ..		5,593	
			8,19,908
(18) Closing balance as on 31-3-1964 ..			10,22,551
TOTAL		Rs.	2,15,87,047

# THE INDIAN INSTITUTE OF

## *Income and Expenditure Account*

EXPENDITURE	Rs.	Rs.
<b>A. EDUCATION EXPENSES :</b>		
<b>(1) Pay of Teaching Staff :</b>		
Department of Physics	.. 1,29,178	
Civil Engineering	.. 1,11,283	
Mechanical Engineering	.. 1,68,923	
Applied Mechanics	.. 65,615	
Chemical Engineering	.. 79,493	
Chemistry	.. 86,622	
Electrical Engineering	.. 1,74,075	
Mathematics	.. 52,883	
Humanities	.. 42,858	
Metallurgy	.. 63,342	
	9,74,272	
<b>(2) Pay of Non-Teaching staff :</b>		
Department of Physics	.. 73,990	
Civil Engineering	.. 48,146	
Mechanical Engineering	.. 46,745	
Applied Mechanics	.. 18,236	
Chemical Engineering	.. 76,819	
Chemistry	.. 49,465	
Electrical Engineering	.. 60,241	
Mathematics	.. 22,387	
Metallurgy	.. 41,633	
Humanities	.. 16,105	
	4,53,767	
<b>(3) Departmental Working expenses :</b>		
Physics	.. 79,056	
Civil Engineering	.. 33,306	
Mechanical Engineering	.. 72,615	
Applied Mechanics	.. 13,058	
Chemical Engineering	.. 2,63,563	
Chemistry	.. 86,299	
Electrical Engineering	.. 44,146	
Mathematics	.. 627	
Carried over	.. 5,92,670	14,28,039

**TECHNOLOGY, MADRAS***for the year ended 31-3-1964*

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**INCOME****Rs.**

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**A. GRANT FROM GOVERNMENT OF INDIA :**

(On Revenue Account)	..	..	21,00,000
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Carried over	..	..	21,00,000
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# THE INDIAN INSTITUTE OF

## *Income and Expenditure Account*

EXPENDITURE	Rs.	Rs.
Brought forward ..	5,92,670	14,28,039
Metallurgy ..	38,768	
Humanities ..	477	
	<hr/>	
	6,31,915	
<i>Less</i> : cost of consumable stores ..	5,88,229	
	<hr/>	43,686
 <b>B. OTHER EXPENSES :</b>		
<i>Institute Scholarships :</i>		
to Under-graduate students ..	1,62,049	
to Post-graduate students ..	89,616	
N. C. C. ..	4,517	
Athletic and Gymkhana ..	65,022	
Prizes ..	450	
Part time Lecturers & Visiting Professors ..	8,537	
Training of Teachers (India) ..	1,366	
Medals and Exhibits ..	65	
Convocation ..	8,961	
Excursion and surveys ..	2,306	
	<hr/>	3,42,889
 <b>C. OTHER SECTIONS :</b>		
(1) <i>Central Administration—</i>		
<i>Pay and Allowances :</i>		
Director and other officers ..	81,062	
Establishment ..	2,95,350	
	<hr/>	3,76,412
(2) <i>Library :</i>		
Pay and Allowances ..	38,000	
Contingencies (Operating cost) ..	6,493	
Journals and purchase of reprints ..	1,700	
	<hr/>	46,193
Carried over ..		<hr/> 22,37,219

**TECHNOLOGY, MADRAS***for the year ended 31-3-1964*

INCOME		Rs.
Brought forward	.. ..	21,00,000
<b>B. GENERAL INCOME :</b>		
Tuition Fees	.. ..	1,56,075
Hotel Seat Rent	.. ..	1,01,295
Admission Fees	.. ..	3,680
Gymkhana and Medical fees	.. ..	28,605
Fines	.. ..	2,099
Application fees from candidates for admission	.. ..	61,708
Application fees for appointment	.. ..	8,427
Carried over	.. ..	24,61,889

# THE INDIAN INSTITUTE OF

## *Income and Expenditure Account*

EXPENDITURE	Rs.	Rs.
Brought forward ..		22,37,219
<b>D. CONTINGENCIES :</b>		
Postage ..	12,702	
Entertainments ..	2,619	
Telephones ..	14,645	
Stationery ..	45,065	*
Printing ..	964	
Advertisement ..	36,481	
Electricity ..	23,357	
Liveries ..	2,584	
Sundries ..	14,458	
	1,52,875	
<b>E. OTHER ITEMS :</b>		
Expenditure from Director's discretionary fund ..	4,526	
Power ..	63,529	
Petrol ..	21,632	
Conservancy ..	275	
Repairs and services—Furniture ..	952	
Motor Vehicles & Cycles ..	10,386	
Typewriters & duplicators ..	2,707	
Examination fees to external examiners ..	18,149	
Transportation charges ..	110	
Lodging allowances to West German Experts ..	13,592	
Hire charges for furniture ..	1,296	
Duty, Insurance & Road Taxes ..	6,651	
Audit charges ..	1,720	
Joint Entrance Examination (May, 1963) ..	38,218	
Customs duty on personal effects of West German Experts ..	81,949	
Carried over ..		23,90,094

**TECHNOLOGY, MADRAS***for the year ended 31-3-1964*

INCOME		Rs.
Brought forward ..	..	24,61,889
<b>C. MISCELLANEOUS RECEIPTS:</b>		
Grade cards ..	..	1,845
Rent on buildings ..	..	1,07,030
Electricity, Water and Service Charges ..	..	39,040
Bus collections ..	..	35,625
Hire of Institute vehicles ..	..	2,063
Gymkhana Receipts ..	..	2,136
Examination fees ..	..	4,900
Miscellaneous receipts ..	..	13,205
Carried over ..	..	26,67,733



# THE INDIAN INSTITUTE OF

## *Income and Expenditure Account*

EXPENDITURE	Rs.	Rs.
Brought forward ..		23,90,094
Legal Expenses ..	1,887	
Overtime allowance to Drivers ..	636	
T. A. to members of Board of Governors	3,288	
„ to Senate ..	728	
„ to Selection Committee ..	11,814	
„ to Other Committee ..	2,556	
„ to External Examiners ..	11,835	
Joint Entrance Examination ..	10,653	
Science Congress and Seminars ..	3,352	
Candidates called for Interview ..	16,808	
	3,29,249	
<b>F. WORKSHOPS :</b>		
Pay and Allowances ..	1,78,163	
Contingencies ..	43,938	
	2,22,101	
<b>G. STORES :</b>		
<i>Pay and Allowances :</i>		
Stores Officer ..	9,678	
Establishment ..	29,745	
Helpers ..	5,329	
	44,752	
<b>H. HOSTELS</b> ..		25,091
<b>I. LANDS AND GARDENS :</b>		
Honorarium to Horticulturist ..	4,800	
Wages to Daily Labourers, Purchase of seeds etc. ..	19,028	
	23,828	
<b>J. MEDICAL HONORARIUM AND CON- VEYANCE TO PART-TIME MEDICAL OFFICER</b> ..	6,853	
<b>MEDICAL DISPENSARY</b> ..	9,634	
	16,487	
Carried over ..		30,51,602

**TECHNOLOGY, MADRAS***for the year ended 31-3-1964*

INCOME		Rs.
Brought forward	.. ..	26,67,733
D. EXCESS OF EXPENDITURE OVER INCOME :	.. ..	8,07,136
Carried over	.. ..	34,74,869

# THE INDIAN INSTITUTE OF

## *Income and Expenditure Account*

EXPENDITURE	Rs.	Rs.
Brought forward ..		30,51,602
K. SECURITY ..		50,925
L. WORKS AND MAINTENANCE ..		2,09,752
M. CONTRIBUTION TO C. P. FUND ..		1,51,423
N. LEAVE SALARY AND PENSION CONTRIBUTIONS ..		5,463
O. GRANTS TO INSTITUTE PRIMARY SCHOOL ..		3,704
P. HONORARIUM LEGAL ADVISER ..		2,000
TOTAL ..		Rs. 34,74,869

**TECHNOLOGY, MADRAS***for the year ended 31-3-1964*

INCOME		Rs.
Brought forward	..	34,74,869
TOTAL ..		Rs. 34,74,869

# THE INDIAN INSTITUTE OF

*Balance Sheet as on*

CAPITAL AND LIABILITIES	Rs.	Rs.
<b>CAPITAL FUND :</b>		
Block value of German aid <i>per contra</i> —		
Equipment ..	1,14,78,476	
Technical Books and Journals ..	1,48,431	
	1,16,26,907	
Capital grants and balances of Income and Expenditure ac- count as on 31-3-63 ..	2,96,30,973	
Add : Capital grant for 1963-64	1,29,00,000	
	4,25,30,973	
Less : Excess of Expenditure over Income ..	8,07,136	
	4,17,23,837	5,33,50,744
<b>DEPOSITS :</b>		
Earnest money, Caution and other deposits ..		7,07,732
<b>SUNDRY CREDITORS :</b>		
On works account (Purchase) ..	97,238	
For supplies to the Departments ..	63,418	
	1,60,656	
<b>OUTSTANDING EXPENSES PAYABLE :</b>		
Pay and allowances ..	2,31,092	
Lodging allowance to West German Experts	800	
Furniture hire charges ..	42	
Scholarships ..	28,131	
Travelling allowance ..	256	
Other allowances (Medical) ..	660	
O.T. allowance to Drivers ..	47	
C.P.F. Contribution ..	1,648	
Contingencies ..	494	
N.M.R. Wages ..	7,114	
Leave Salary and Pension Contribution ..	456	
Athletic and Gymkhana ..	1,372	
Audit Fees ..	1,530	
	2,73,642	
<b>FEEES REFUNDABLE</b> ..		325
Carried over ..		5,44,93,099

**TECHNOLOGY, MADRAS**

31st March 1964

PROPERTY AND ASSETS	Rs.	Rs.	Rs.
<b>BUILDINGS :</b>			
Cost of completed buildings ..	58,25,618		
Add : Buildings completed during the year ..	70,58,106		
		1,28,83,724	
Buildings under construction—			
Expenditure as on 31-3-63 ..	1,46,30,601		
Add : Expenditure for the year ..	90,77,226		
	2,37,07,827		
Less : Transfer to completed buildings ..	70,58,106		
		1,66,49,721	2,95,33,445
<b>EQUIPMENT, FURNITURE AND FITTINGS :</b>			
At cost as on 31-3-63 ..	29,19,979		
Add : Additions during the year ..	10,92,953		
		40,12,932	
Block value of West German Equipments as on 31-3-63 ..			
Add : Additions during the year ..	68,34,178		
	46,44,298		
		1,14,78,476	
Customs duty and clearing charges on equipments from West Germany as on 31-3-63 ..			
Add : Expenditure during the year ..	13,52,319		
	18,94,954		
		32,47,273	1,87,38,681
<b>MOTOR VEHICLES :</b>			
At cost as on 31-3-63 ..		1,64,348	
Add : Additions during the year ..		68,022	
			2,32,370
Carried over ..			4,85,04,496

**THE INDIAN INSTITUTE OF***Balance Sheet as on*

CAPITAL AND LIABILITIES	Rs.	Rs.
Brought forward ..		5,44,93,099
TOTAL ..		<u>5,44,93,099</u>

# TECHNOLOGY, MADRAS

31st March 1964

PROPERTY AND ASSETS	Rs.	Rs.	Rs.
Brought forward ..			4,85,04,496
<b>LIBRARY BOOKS AND SCIENTIFIC JOURNALS :</b>			
At cost as on 31-3-63 ..	5,32,085		
Add : Additions during the year	1,17,744		
		6,49,829	
Block value of Technical Books and Journals from West Germany ..	1,41,431		
Add : Additions during the year	7,000		
		1,48,431	
			7,98,260
<b>TYPEWRITERS AND DUPLICATORS :</b>			
At cost as on 31-3-63 ..		46,040	
Add : Additions during the year		18,276	
			64,316
<b>CYCLES :</b>			
At cost as on 31-3-63 ..		1,182	
Add : Additions during the year		2,222	
			3,404
Stock of Stationery articles as on 31-3-64 ..			10,678
Stock of Consumable Stores (with departments) as on 31-3-64 ..			5,88,229
Stock of Construction Materials ..			26,06,024
Fees receivable ..			3,850
Rent recoverable ..			9,400
Stamps on hand ..			4,912
<b>ADVANCES AND DEPOSITS :</b>			
Works advances ..		3,68,974	
Others (General) ..		5,07,505	
			8,76,479
<b>CLOSING BALANCE :</b>			
Office imprest cash ..		500	
Cash and bank balances ..		10,22,551	
			10,23,051
<b>TOTAL ..</b>		<b>Rs.</b>	<b>5,44,93,099</b>



## APPENDIX V

Statement showing the results of the I, II, III, IV and V year classes of the 5-year B.Tech. Degree Course

Sl. No.	Class	Branch	No. of students on rolls	No. permitted to take the Final Examination	Total No. passed	Total No. failed	Percentage
1.	I B.Tech.	All	233	230	225	5	98%
2.	II B.Tech.	All	187	186	181	5	97%
3.	III B.Tech.	Civil	21	21	18	3	
		Mechanical	43	43	40	3	
		Electrical	38	38+1*	35+1*	3	
		Chemical	20	20+1*	17+1*	3	
		Metallurgy	23	23+1*	22+1*	1	
		Total	145	145+3*	132+3*	13	91%
* External students.							
4.	IV B.Tech.	Civil	16	16	15	1	
		Mechanical	35	35	35	..	
		Elec. (H.C.)	23	23	21	2	
		Elec. (L.C.)	9	9	9	..	
		Chemical	20	20	19	1	
		Metallurgy	19	19	18	1	
		Total	122	122	117	5	96%
5.	V B.Tech.	Civil	16	16	16		
		Mechanical	28	28	28		
		Elec. (H.C.)	16	16	16		
		Elec. (L.C.)	8	8	8		
		Chemical	11	11	11		
		Metallurgy	13	13	13		
		Total	92	92	92	..	100%

Course	Number appeared		Number passed		Number failed		Percentage of pass	
	I	II	I	II	I	II	I	II
	Term	Term	Term	Term	Term	Term	Term	Term
<b>3-YEAR DEGREE COURSE</b>								
<i>I Year</i>	90	82	82	77	8	5	91%	93.9%
<b>M.Sc. DEGREE COURSE</b>								
<i>I Year</i>								
Chemistry	4	4	3	1	1	3	75%	25%
Physics	10	9	5	7	5	2	50%	77.8%
<i>II Year</i>								
Mathematics	5	5	5	5	..	..	100%	100%
Physics	9	9	5	9	4	..	55.6%	100%
<b>M.TECH. DEGREE COURSE</b>								
<i>I Year</i>								
Civil Engineering								
(a) Hydraulics	2	2	2	Nil	..	2	100%	Nil
(b) Soil Mechanics & Foundation Engg.	4	4	4	4	..	..	100%	100%
(c) Structural Engg.	4	4	4	2	..	2	100%	50%
Mechanical Engineering	4	4	4	4	Nil	Nil	100%	100%
Electrical Engineering								
(a) Electronics	4	4	4	4	..	..	100%	100%
(b) Power Systems	4	4	4	4	..	..	100%	100%
(c) Servo Systems	4	4	4	4	..	..	100%	100%
Chemical Engineering	6	6	5	6	1	Nil	83.3%	100%

NOTE :—Final examinations are held at the end of each term for the 3-year M.Sc. and M.Tech. Degree courses. Students who fail in a subject/subjects are permitted to keep further terms, with the proviso that they should successfully complete the subject/subjects at a supplemental examination.

## APPENDIX VI

*List of Appointments during 1963-64*  
(July 1963 to June 1964)

*Professors :*

1. Dr. S. R. Valluri.
2. Dr. D. Venkateswarlu.
3. Prof. R. K. Gupta. ✓
4. Dr. S. D. Nigam.

*Assistant Professors :*

1. Dr. K. S. Raman.
2. Shri K. K. Srivastava.
3. Dr. T. Gopichand.

*Lecturers :*

1. Shri K. Remananda Rao.
2. Shri P. Sankaran.
3. Shri H. Rama Ayyar.
4. Dr. R. Vasudevan.
5. Dr. G. N. Garud.
6. Shri S. Vaidyanathan.
7. Shri S. S. Yegnanarayanan.
8. Shri B. Ganguly. ✓
9. Shri S. Venkatesan.
10. Dr. K. Srinivasaraghavan.
11. Shri K. Lakshminarayana.
12. Dr. T. V. Herwadkar.
13. Shri C. R. Subramanian.
14. Shri T. P. Ganesan.
15. Shri K. Venkataramani.
16. Shri V. Subrahmanyam.
17. Shri M. S. Murthy.
18. Shri B. Ramanathan.
19. Shri T. Venkatram.
20. Shri S. Rajan.

*Associate Lecturers :*

1. Shri A. Chandrasekharan.
2. Shri B. S. V. S. Ramachandracharyulu.
3. Shri U. N. Srivastava.
4. Shri V. V. Bapeswara Rao.
5. Shri R. Krishnamurthy.
6. Shri B. R. Nagarajan.
7. Shri V. T. Shadagopan.
8. Shri K. Sankara Rao.
9. Shri P. S. Sarma.
10. Shri C. R. Reddy.
11. Shri M. S. Subrahmanyam.
12. Shri K. A. Bhaskaran.
13. Shri G. Ramachandra Raju.
14. Shri C. S. Krishnamoorthy.

*Senior Technical Assistants :*

1. Shri R. Subramanian.
2. Shri J. Ranganadha Sastry.
3. Shri V. S. Kumar.
4. Shri K. Srinivasan.
5. Shri K. Ramamurthy.
6. Shri S. Sankaran.
7. Shri M. J. Varghese.
8. Shri S. B. Dias.
9. Shri T. S. Sathiamurthy.
10. Shri C. V. Rajan.
11. Shri M. Velayudhan.
12. Shri S. Krishnamurthy.
13. Shri A. V. Narasimham.
14. Shri V. Muthukrishnan.
15. Shri O. T. Mohanachandran.
16. Shri A. Venkatesh.
17. Shri K. Sarangapani.
18. Shri K. S. Raghavan.
19. Shri P. Sasidhara Rao.
20. Shri K. Venkataramani.

*Junior Technical Assistants :*

1. Shri P. S. Kalyanasundaram.
2. Shri M. T. Jose.
3. Shri C. V. Raghava Rao.
4. Shri S. Kumaraswamy.
5. Shri T. V. Kuppuswami. ✓
6. Shri R. Balasubramanian.
7. Shri K. Vasudevan.

*Foremen :*

1. Shri P. Shashidhara Rao.
2. Shri R. Rangachari.
3. Shri V. M. Swamy.

*Mechanics 'A' :*

1. Shri N. Murugesan.
2. Shri R. Chengalrayan.
3. Shri S. A. Kanakaraj.
4. Shri S. B. Patil.
5. Shri R. Parthasarathy.
6. Shri L. Devarajulu.
7. Shri T. Palani.

*Mechanics 'B' :*

1. Shri Madhava Pathak.
2. Shri P. B. Raghupathy.
3. Shri C. Ramaswamy.
4. Shri Bhuvan Sampathy.
5. Shri I. Selvanayagam.
6. Shri T. N. Krishnamurti.
7. Shri V. Varghese.
8. Shri G. R. Krishnan.
9. Shri K. S. Ravindranath.
10. Shri G. Shanmugam.
11. Shri K. Govinda.

*Mechanics 'C' :*

1. Shri P. G. Venkatesh Naidu.
2. Shri R. Natarajan.

3. Shri V. Kamala Vijayan.
4. Shri V. Loganathan.
5. Shri T. Thangaraj.
6. Shri V. Avanasiaappan.
7. Shri S. Joseph.
8. Shri M. Kesavan.

*Workshop Supervisors :*

1. Shri Dayal Singh.
2. Shri K. S. Venugopal.

*Tracer :*

Shri M. R. Ramadasan.

*Accounts Officer (Works) :*

Shri S. G. Chandrasekharan.

*Assistants :*

1. Shri K. S. Mani.
2. Shri R. Gangadharan.

*Divisional Accountants :*

1. Shri K. R. Ranganathan.
2. Shri R. Krishnan.

*Auditor :*

Shri P. V. Ramakrishnan.

*Personal Assistant to Director :*

Shri T. Varadarajan.

*Upper Division Clerks :*

1. Shri S. A. Hussainy.
2. Shri S. M. Rajasekharan.
3. Shri G. N. Vittal.
4. Shri M. K. Subramanian.
5. Shri V. M. Dhanaraman.
6. Shri K. Babu.
7. Shri D. Srinivasan.
8. Kum. S. Mangalam.

9. Shri C. Krishnamoorthy.
10. Shri S. Hariharasubramanian.
11. Shri A. Subramanian.
12. Shri D. Sankaralingam.
13. Shri K. T. Ramachandran.
14. Shri N. Krishnamurthy.
15. Shri S. Subramanian.
16. Shri V. Ramamurthy.
17. Shri S. Chandran.
18. Shri T. S. Sethuraman.

*Store Keepers :*

1. Shri D. Daniel.
2. Shri V. Krishnamurthi.

*Lower Division Clerks :*

1. Shri P. M. Krishnamurthy.
2. Shri T. K. Rangamani.
3. Shri S. Babu Rao.
4. Shri B. Subramanian.
5. Kum. S. Radha.
6. Shri R. Suryanarayanan.
7. Shri T. Krishnamurthi.
8. Shri P. Narayanan.
9. Shri K. Venkatasubramanian.
10. Kum. S. S. Thulasilakshmi.
11. Shri A. Subramanian.
12. Shri N. Srinivasan.
13. Shri T. Narayanan.
14. Shri N. Srinivasa Rao.
15. Shri K. Krishnan.
16. Shri S. Jayaraman.
17. Kum. L. Ramalakshmi.
18. Shri S. Narayanan.
19. Shri N. C. Seshadri.

*Steno Typists :*

1. Kum. S. Hema Bai.
2. Shri M. T. Varghese.
3. Shri T. R. Swaminathan.

*Truck Driver :*

Shri P. Sekhara Kurup.

*Laboratory Attendants :*

1. Shri K. S. Swaminathan.
2. Shri R. Santhanam.
3. Shri G. L. Bakthavatchulu.
4. Shri V. K. Vaidyanathan.
5. Shri T. Dhanasekaran.
6. Shri A. Venkata Subbiah.
7. Shri G. L. Adhikesavalu.
8. Shri B. Dhalbadu Maricar.
9. Shri N. Stalin.
10. Shri N. Chester.
11. Shri A. K. Srinivasan.
12. Shri M. P. Unnikrishnan.
13. Shri S. Rangaswamy.
14. Shri R. Pitchumani.
15. Shri K. Ellappan.
16. Shri S. Manickam.
17. Shri M. Joseph.
18. Shri L. Srinivasan.

*Store Attendants :*

1. Shri V. S. Radhakrishnan.
2. Shri P. L. Dasarathan.
3. Shri C. Rajendran.

*Peons :*

1. Shri R. Sundaramurthy.
2. Shri G. V. Raghavan.
3. Shri J. Dorairaj Andrew.
4. Shri P. Doraiswamy.
5. Shri M. Amaladoss.
6. Shri P. S. Shanmughasundaram.
7. Shri V. Sankaranarayanan.
8. Shri A. Arumugham.
9. Shri S. Pattu.
10. Shri T. Adhimoolan.
11. Shri V. Narayanan.



*Chowkidars :*

1. Shri V. Arumugham.
2. Shri M. Sambamurthy.
3. Shri A. Balaraman.
4. Shri A. Arumugham.
5. Shri R. Irusappan.
6. Shri Agan Bahadur.
7. Shri C. Govindaraj.
8. Shri M. Periaswamy.
9. Shri D. Janarthanam.
10. Shri V. Babu.
11. Shri Ramjas Singh.
12. Shri K. Gangadharan.
13. Shri G. Ramakrishnan.
14. Shri Mukdev Singh.

*Sweepers :*

1. Shri P. Panchelliah.
2. Shri P. Venkatiah.
3. Shri C. Muthuswamy.
4. Shri D. Ranganathan.
5. Shri T. Subbiah.

*Library Attendant Grade I*

Shri Abdul Hakim.

*Library Attendants Grade II :*

1. Shri D. Gopalakrishnan.
2. Shri A. Nicholas.

## ENGINEERING UNIT

*Executive Engineer :*

Shri C. M. Gopal.

*Assistant Engineers :*

1. Shri K. Shankar.
2. Shri D. Ramanathan.

*Junior Engineers/Supervisors :*

1. Shri K. R. Natarajan.
2. Shri K. Ananthanarayanan.
3. Shri G. K. Natarajan.
4. Shri N. D. Logasundaram.
5. Shri S. Srinivasan.
6. Shri K. Balan.
7. Shri T. V. Balasubramanian.
8. Shri J. C. Jinadoss.
9. Shri T. Seshan.
10. Shri R. Ravindran.
11. Shri C. S. Krishnan.
12. Shri S. Chandrasekaran.
13. Shri P. Venkataraman.

*Carpenters :*

1. Shri M. Ramachandran.
2. Shri A. Raman.

*Head Electrician :*

Shri G. Kuppuswamy.

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*List of expiry of contract, deputation, promotions, resignations,  
etc., during 1963-64.*

(July 1963 to June 1964)

*Professor :*

Dr. I. Ramakrishna Rao.

*Assistant Professor :*

Dr. T. C. M. Pillay.

*Lecturers :*

1. Shri M. A. Parameswaran.
2. Shri S. R. Majumdar.
3. Dr. T. S. Govindan.
4. Shri M. A. Lakshmithathachar.
5. Shri N. V. Dravid.
6. Dr. T. V. Herwadkar.

*Associate Lecturers :*

1. Shri G. V. Yagnavalkya.
2. Shri R. Krishnamurthy.
3. Shri C. R. Reddy.
4. Shri G. Ramachandraraju.

*Senior Technical Assistants :*

1. Shri M. N. Sampath.
2. Shri G. N. Krishna Iyengar.
3. Shri S. K. Bhatnagar.
4. Shri V. R. Ashokan.
5. Shri S. R. Narayanan.
6. Shri V. N. Mukundan.
7. Shri S. Sankaran.
8. Shri M. J. Varghese.
9. Shri C. V. Rajan.

*Junior Technical Assistants :*

1. Shri R. Nagarajan.
2. Shri T. N. Venugopal.

*Mechanics 'A' :*

1. Shri V. K. Kshirasagar.
2. Shri R. Parthasarathy.

*Mechanics 'B' :*

1. Shri G. Kondayya.
2. Shri P. Sukumaran Nair.

3. Shri D. Ramakrishnan.
4. Shri Bhuvan Sampathy.
5. Shri P. G. Venkatesh Naidu.

*Draughtsman :*

Shri R. V. Somayajulu.

*Accounts Officer (Works) :*

Shri G. Sundaram.

*Stenographer :*

Shri T. Varadarajan.

*Upper Division Clerk :*

Shri V. Krishnaswamy.

*Store Keepers :*

1. Shri K. G. Sankaran Nair.
2. Shri K. S. Karthikeyan.
3. Shri K. Sridharan.
4. Shri S. S. Mani.

*Lower Division Clerks :*

1. Shri C. Krishnamurthy.
2. Shri S. Hariharasubramanian.
3. Shri N. Krishnamurthy.
4. Shri S. M. Rajasekharan.
5. Shri G. N. Vittal.
6. Shri S. Subramanian.
7. Shri V. Ayyaswamy.
8. Shri S. A. Hussainy.
9. Kum. S. Hema Bai.
10. Shri D. Daniel.
11. Shri M. T. Varghese.
12. Shri T. R. Swaminathan.
13. Shri N. Rajagopalan.
14. Shri R. Chandrasekharan.
15. Shri A. Subramanian.

*Steno Typists :*

1. Shri T. Israel.
2. Shri T. S. Sethuraman.
3. Shri M. Sankaran Kutty.
4. Shri M. K. Subramanian.
5. Kum. S. Mangalam.

*Laboratory Attendant :*

Shri L. A. Balasubramanian.

*Peon :*

Shri S. Ramamurthy.

*Sweeper :*

Shri G. Thirupal.

*Services placed back at the disposal of the Govt. of Madras  
after deputation.*

*Executive Engineer :*

Shri P. K. Ramanathan.

*Assistant Engineer :*

Shri N. R. Wadhwa.

*Junior Engineers/Supervisors :*

1. Shri D. Krishnamurthy.
2. Shri K. E. Raghavan.
3. Shri K. Venkatasubramanian.
4. Shri R. Sankararajan.
5. Shri G. K. Natarajan.
6. Shri K. Ramachandra.
7. Shri S. Srinivasan.
8. Shri V. Thirunarayanan.
9. Shri A. V. Subramanian.
10. Shri R. Jambunathan.
11. Shri B. S. Venkatarao.
12. Shri R. Mahalingam.
13. Shri S. Chandrasekharan.

*Draughtsman :*

Shri N. Masilamani.

*List of staff who had been deputed abroad for higher training or returned to duty during the period  
June 1963 to May 1964.*

Subject	Name of trainee	Country where training course is undertaken	Date of departure from India		Date of joining the Institute	Name of programme under which training facilities were declared
Electronics	Shri D. K. Banerjee	West Germany	May	1961	4-6-1963	German Training Scheme under Indo-German Agreement.
-do-	Shri G. N. Garud	-do-	December	1959	6-8-1963	-do-
Metallurgy	Dr. R. Vasudevan	-do-	-do-		1-8-1963	-do-
Instrument Technology	Shri B. C. Bhattacharyya	-do-	June	1963	..	-do-

## APPENDIX VII

*List of Distinguished Visitors to the Institute*

Dr. K. L. Shrimali, Union Minister for Education, New Delhi.	2- 8-1963
Prof. McGauhey, Chairman, Division of Hydraulic and Sanitary Engineering, University of California, Berkeley (U.S.A.)	12- 8-1963
Dr. A. L. Mackay, Birkbeck College, London.	28- 8-1963
Dr. G. B. James, State Director of Vocational Training, North Carolina (U.S.A.)	29- 8-1963
Professors Morrison, E. R. Slemon and I. W. Smith, University of Toronto, Canada.	1- 9-1963
Shri Sahid Pravin, Regional Director, National Productivity Council, Calcutta.	22- 9-1963
Prof. Hass, University of Delft, Netherlands.	28-10-1963
Dr. C. H. Luders, <i>Charge de Affaires</i> , Embassy of the Federal Republic of Germany, New Delhi.	28-10-1963
Mr. R. Frank Thomas, General Manager, IBM World Trade Corporation, Bombay.	29-10-1963

Prof. Dr. Ing. Felix Eisele, Technical University, Munich.	2-11-1963
Air Vice Marshal S. N. Goyal, AOC-in-C, Indian Air Force, Bangalore.	18-11-1963
Prof. V. T. Cherepin, UNESCO Expert, IIT, Bombay.	27-11-1963
His Excellency Mr. Walter Scheel, Minister for Economic Cooperation, Federal Republic of Germany, Bonn.	4-12-1963
Dr. G. A. Sonnenhol, Ministerialdirektor, Federal Republic of Germany, Bonn.	4-12-1963
Dr. Henckel, Ministerialdirektor, Federal Republic of Germany, Bonn.	4-12-1963
Dr. F. Fechner, Ministerialdirektor, Federal Republic of Germany, Bonn	4-12-1963
Mr. R. P. Kaden, Director, Messrs CALOR Emg, West Germany.	6-12-1963
Professors Norton C. Seeber and H. D. Huskey, Indian Institute of Technology, Kanpur	10-12-1963
Dr. F. K. Stewart, Secretary, Commonwealth Education Liaison Unit, London.	13-12-1963
Members of the Estimates Committee, Madras Legislative Assembly, Madras.	18-12-1963
Prof. S. I. Molokovsky, Russian Expert in Electrical Engineering, Indian Institute of Technology, Bombay.	19-12-1963



- Lt.-Gen. Williams,  
Council of Scientific & Industrial Research,  
New Delhi. 20-12-1963
- Mr. Bluemenfeldt,  
Member of Parliament, Bonn. 20-12-1963
- Mr. E. F. Starke,  
Project Designer, Hindusthan Aircraft Ltd.,  
Bangalore. 22-12-1963
- Mr. Hoffmann,  
German Academic Exchange Service, Bonn. 26-12-1963
- Prof. S. R. Sparkes,  
Chairman, Academic Working Party, London. 9- 1-1964
- Prof. R. S. Brittain,  
Dept. of Mining Engineering, I.I.T., Kharagpur. 11- 1-1964
- Mr. Leonard Marks, Jr.,  
Associate Director, I.C.A.M.E.,  
Stanford University, California (U.S.A.) 21- 1-1964
- His Excellency Mr. Hans Lenz,  
Minister for Scientific Research,  
Federal Republic of Germany, Bonn. 30- 1-1964
- Prof. Dr. D. Hans J. Jensen,  
Director, Institute of Theoretical Physics,  
University of Heidelberg, West Germany. 30- 1-1964
- Dr. J. Pretsch,  
Director, Ministry of Scientific Research,  
Federal Republic of Germany, Bonn. 30- 1-1964
- Capt. R. B. Fanderlinden,  
Indian Navy,  
New Delhi. 3- 2-1964
- Mrs. Wulthers,  
Ex-Secretary of the State for Technical Education,  
Federal Republic of Germany, Bonn. 14- 2-1964

- Mr. Cooper,  
Educational Officer,  
Institution of Production Engineers, London 18- 2-1964
- Prof. Vollmar E. Bergdolt,  
Purdue University, (U.S.A.) 21- 2-1964
- Mrs. and Mr. F. Perkins,  
Simpsons, Madras. 26- 2-1964
- Dr. Martin Schmiesser,  
President, Foundation Committee,  
Technical University, Dortmund (West Germany). 5- 3-1964
- Shri T. Sen,  
Rector, Jadavpur University, Calcutta. 9- 3-1964
- Shri V. Siddharthachary,  
Consul-General of India,  
Frankfurt/Main (West Germany). 11- 3-1964
- Dr. C. C. Schweitzer,  
Professor, Free University of Berlin (Germany) 13- 3-1964
- Shri P. A. Menon,  
Ambassador of India in Germany,  
Bonn. 21- 3-1964
- Shri Tarlok Singh,  
Member, Planning Commission,  
New Delhi. 23- 3-1964
- Shri D. S. Sastry,  
General Manager, High Explosives Factory,  
Poona. 24- 3-1964
- Prof. Y. V. Novojilov,  
Vice-Chancellor,  
Leningrad University, Leningrad (USSR). 31- 3-1964

- Prof. A. Authier, 31- 3-1964  
 Dy. Director of the Laboratory for Theoretical  
 Physics,  
 College de France, Paris.
- Dr. Trevor Williams, 14- 4-1964  
 Member, Advisory Committee,  
 English Language Book Society, London.
- Lady Gertrude Williams, 28- 4-1964  
 Professor of Social Economics,  
 Bedford College, London.
- Dr. (Mrs.) T. S. Soundaram Ramachandran, 24- 5-1964  
 Union Deputy Minister for Education,  
 New Delhi.
- Air Commodore R. Sitaram, 29- 6-1964  
 Officiating Director-General,  
 National Cadet Corps,  
 New Delhi.