



Superintendent (Academic),
INDIAN INSTITUTE OF TECHNOLOGY,
MADRAS-36.

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INDIAN INSTITUTE
OF
TECHNOLOGY
MADRAS

ANNUAL REPORT

1965-66

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1965-66



INDIAN INSTITUTE OF TECHNOLOGY
MADRAS

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SEVENTH ANNUAL REPORT

1965 — 1966

PART—I

1. INTRODUCTION :

The 30th of July 1959 is a red letter day in the history of this Institute, for it was on this day, the Institute was inaugurated by Prof. Humayun Kabir, the then Union Minister for S. R. & C. A. before a large and distinguished gathering, in Guindy, Madras City. This inauguration marked the beginning of the fulfilment of a dream-happily dreamt by that great 'Master Dreamer' of India's Scientific & Technological Revolution, the late Prime Minister Shri Jawaharlal Nehru and shaped to reality by the gracious offer of technical assistance to establish a technological Institute in India, made by the Government of Federal Republic of Germany to Shri Nehru during his visit to West Germany in June 1956. Since that date, out of the 633 acres of lovely wooded land, near Raj Bhavan and Deer Park, Guindy, generously gifted by the Government of Madras to the Government of India, a modern technological University Campus, fully residential, has been fast taking shape.

2. HIGHLIGHTS OF THE YEAR .

The Seventh year of the Institute has also been noteworthy for the remarkable and varied activities in the scholastic and other spheres of the Institute. The following were some of the important highlights of the year.

- (i) Institution of Aeronautical Engineering Branch of study for the 5 year B. Tech Degree course.
- (ii) Completion and commissioning of the ninth students' Hostel ; Boys' hostel for the students of the Central School & Hot and Cold working Laboratory.
- (iii) Completion and commissioning of the Building for the N. C. C. offices of the Institute.
- (iv) The signing of the Second Indo-German Agreement for the development of this institute.

- (v) Construction of an Enquiry Office out of cement hollow blocks manufactured in the Department of Civil Engineering.
- (vi) Inauguration of Steam Laboratory of the Department of Mechanical Engineering.
- (vii) Holding of the Tenth Conference of the Indian Society of Theoretical and Applied Mechanics.
- (viii) Inauguration of a short term Training Course in Economic Design of Multi Storeyed Buildings organised with the National Buildings Organisation.

(a) SECOND INDO-GERMAN AGREEMENT :

The Indo-German Agreement for the establishment of the I. I. T., Madras which came into force for a period of 5 years with effect from 7-8-1958 expired in August, 1963. There was provision in the agreement for extension for such further period as was mutually agreed between the two Governments. Accordingly the agreement was extended from time to time till the 31st of March 1966 or the date of signing of the next agreement under negotiation, whichever was earlier.

It was decided by the Government of India to extend the Scheme of collaboration with the Federal Republic of Germany in order to promote further development and the extension of this Institute in the fields of Engineering, Technology and Applied Sciences. After negotiation with that Government, the second agreement was signed on 28-3-1966, concerning technical co-operation in respect of this Institute for a further period of 5 years. In pursuance of this a supplementary agreement was executed on the 7th of June 1966 between the two Governments.

(b) INSTITUTE DAY.

The Institute Day was celebrated on 12-3-1966 with Dr. A. L. Mudaliker, Vice-Chancellor, University of Madras and the Chairman, Board of Governors of the Institute, as the Chief Guest, in the unavoidable absence of Sri C. Subramaniam, Union Minister for Food and Agriculture.

3. THE BOARD OF GOVERNORS :

The Board of Governors met three times during the year. The following members constituted the Board.

- (i) Dr. A. L. Mudaliar, Vice-Chancellor, University of Madras. (Chairman)
 - (ii) Prof. B. Sengupto, Director, I.I.T., Madras (ex-officio).
 - (iii) Prof. S. Rajaraman, Director of Technical Education, Government of Kerala.
 - (iv) Dr. B. L. Shanthamallappa, Director of Technical Education, Government of Mysore.
 - (v) Shri T. Muthian, Director of Technical Education Government of Madras.
 - (vi) Shri T. R. Doss, Director of Technical Education, Government of Andhra Pradesh.
 - (vii) Shri P. M. Reddy, General Manager, Hindustan Aeronautics Ltd., Bangalore.
 - (viii) Dr. S. Dhawan, Director, Indian Institute of Science, Bangalore.
 - (ix) Dr. D. S. Reddi, Vice Chancellor, Osmania University, Hyderabad.
 - (x) Dr. K. S. G. Doss, Director, Central Electro-Chemical Research Institute, Karaikudi.
 - (xi) Dr. W. Koch, Professor, Department of Physics, I.I.T., Madras.
 - (xii) Prof. S. Sampath, Professor, Department of Electrical Engineering, I.I.T., Madras.
- Shri C. V. Sethunathan, Registrar, I.I.T., Madras (Secretary).

4. STAFF :

Prof. B. Sengupto continued to be the Director of the Institute and Shri C. V. Sethunathan as the Registrar.

Staff appointments and resignations during the year under review are given in Appendix I to this Part

5. DISTINGUISHED VISITORS :

During the year under report, the Institute had the proud privilege of receiving a number of distinguished visitors among whom mention may be made of the following :

Hon'ble Shri M. C. Chagla, Union Minister for Education, New Delhi and Prof. Dr. K. Gerke, Rector, Technical University, Braunschweig, West Germany. Prof. Dr. P. Hilbig, Pro-Rector, Technical University, Berlin and Mr. Westphal, Director, Academic Foreign relations Office, Technical University, Berlin.

A list of distinguished visitors is given in Appendix II to this Part.

6. EQUIPMENT :

In accordance with the First Indo-German agreement, German equipment were continued to be supplied to this Institute. The value of German equipment, received during the year 1965-66 amounted to Rs. 22,67,305.34 bringing the value of equipment so far supplied to Rs. 1,76,43,497.79.

7. FACULTY ASSOCIATION :

The following were the office bearers for the year.

Prof. B. Sengupto	...	President
Prof. R. J. H. Bisanz	...	Vice-President
Prof. R. G. Narayanamurthi	...	Vice-President
Dr. V. Sethuraman	...	Secretary
Dr. V. Sreenivasan	...	Joint Secretary
Dr. D. K. Banerjee	...	Treasurer
Dr. L. V. K. V. Sarma	...	Auditor
Dr. B. V. Aswathanarayana Rao	...	do

A notable activity of the Association for this year was that the objectives of the Association were clearly spelt out so that the association could shape itself into an influential academic body reflecting the considered views of the members of the various faculties in the Institute on matters of academic interest. The objectives of the Association were defined as follows :

- (i) To promote professional brotherhood among all the members of the Faculty.
- (ii) To have inter-departmental liaison which will result in co-operation and contact at individual levels to help in research problems and to promote team work and study in associated fields of knowledge.
- (iii) To advance knowledge of general and topical interest by arranging popular lectures.
- (iv) To invite distinguished savants and scientists.
- (v) To honour members of the Faculty on the academic distinction they had achieved.
- (vi) To conduct regular discussions and seminars on matters of general academic interest to the Faculty.

There were a number of speakers and visitors this year.

A seminar on 'An appropriate examination system for the B. Tech Course' was organised and the deliberations of this seminar were transmitted to the President of the Association and Director of the Institute.

Scientific and technical films of interest were screened through the kind courtesy of the American Science Film Forum and the British Information Services.

8. THE ALUMNI ASSOCIATION & PLACEMENT WORK :

With Prof. M. V. C. Sastri continuing as the President and B. V. Aswathanarayana Rao as Treasurer & Sri V. D.

Muthayya as Auditor the following office bearers were elected for the year 1965-66 :

Vice-President	Mr. B. S. Sudhir Chandra
Secretary	Mr. T. K. Ramakrishnan
Joint Secretary and Members :	Mr. B. Gopalakrishnan Mr. S. R. Thangavelu Mr. P. K. Prabhakaran
Coopted Member :	Mr. P. M. V. Subrahmaniam

In the interim absence of Prof. M. V. C. Sastri for about 5½ months, Prof. R. G. Narayanamurthi took over charge as the President. From a strength of 275 in May 1965, the alumni association grew to 507 in July 1966. The alumni, who graduated this year, were very enthusiastic in getting enrolled as members of the association.

Since the main purpose of this association is to establish an everlasting relationship among the alumni themselves and between the alumni and the Alma Mater, a medium of effective communication in the form of a quarterly magazine is being brought out and titled as "News Letter". Three issues were published in 1965-66 and the fourth one was merged with "Pradeep", the Alumni Journal.

This association is in touch with quite a large number of universities abroad, to be of benefit to our alumni and the graduating students. The General Information Section provides valuable information to the alumni and the final year students. As regards placement positions of our alumni, it is gratifying to note that everyone from the first two batches of alumni, is well placed professionally in one form or the other. As regards the 1966 batch most of the alumni are employed already and the placement Section is doing its utmost to place the rest also in suitable positions. The new system of collecting the resume of each alumnus and keeping a complete record of the alumni with a suitable indexing system has proved to be useful.

9. PROJECT CONSTRUCTION :

The following were executed during 1965-66.

(a) MAJOR WORKS : INSTITUTE STRUCTURES :

Execution of works costing 59.8 lakhs of rupees were completed in the year 1965-66. The work of Hot and Cold working Laboratory which was started last year was completed in all aspects and it is being made use of. The Thermodynamics and Combustion Laboratory achieved a progress of over 90% and is expected to be completed within next few months. The work on the construction of Automobile Workshop has been taken up on hand and it is under progress.

Foundation and basement works were completed in all respects for the Administrative block and further work is in good progress. The Library building is in good progress.

b. HOSTELS :

- (i) The work on the construction of Students Hostel No. 9 achieved good progress.
- (ii) Boy's Hostel required for the students of Central School situated inside the Campus was started and it is nearing completion.
- (iii) Preparation of plan, estimate and other miscellaneous preparatory works for the women's Hostel were taken up and completed. The actual execution will be taken up shortly as tenders have been called for.

c. RESIDENTIAL BUILDINGS :

The III Phase of staff quarters which were started during the year 1965-66 achieved good progress. 'B1' type quarters came up quite speedily. 'C1' type and 'E1' type staff quarters which were started during 1965-66 are in good progress.

d. DRAINAGE AND SANITATION :

The second oxidation pond and laying of C. I. Pipe lines which were taken up last year is in good progress and is expected to be completed shortly.

e. WATER SUPPLY :

The work of constructing the R. C. C. under ground sump to receive and store Corporation Water was almost completed. The

temporary connection given to the steel tank has now been disconnected and the water is being diverted to R. C. C. under ground sump.

f. ELECTRICITY :

The work of erecting transformers and constructing sub-station near Hydraulic Laboratory and Seven Unit Workshop were completed and they were commissioned.

g. ROADS AND PATHS :

The work of providing dense grade heavy duty asphalt concrete for main roads inside the Campus was completed. The finished roads throw a good appearance and they are serving well. In addition many subsidiary roads were also completed. Widening and extending Madras Avenue is in progress.

h. DEVELOPMENT WORKS :

The work on the development of lake and improvement of isolated ponds is in progress. The work of constructing Masonry compound wall on the Northern boundary was completed, in all respects.

i. MISCELLANEOUS WORKS :

In addition to the major works, many service works, minor road works, fencing and airconditioning of different buildings were also completed. A stage and auditorium for the Primary School were also completed. A small extension to the existing Ladies club Hall was also finished inclusive of services.

j. SPECIAL CONSTRUCTION :

With the assistance of the Civil Engineering Department a new type of construction comprising only of cement hollow blocks was put on trial. The following constructions were successfully executed with precast cement hollow blocks and beams.

- (i) An "Enquiry Office" out of cement hollow blocks was completed and all service connections were fully completed.

- (ii) A structure for "Hostel for Mess Staff" was also started and it has achieved a progress of 40%. Annual repairs to completed buildings, roads, water supply and drainage arrangements are also carried out.

10. HOSTELS

(a) GANGA :

From this year Ganga Hostel started functioning with full capacity. 182 students of the First year of the Five year Course were housed in it. Prof. R. K. Gupta, Professor in the Department of Humanities continued to be the Warden, with Shri K. S. Raghavan and Dr. K. K. Mukhopadhyaya as Assistant Wardens. Sri G. Sambasiva Rao took over from Dr. Mukhopadhyaya when the latter left the hostel.

On the Hostel Day, Dr. Edgar H. Reichel, Consul General for the Federal Republic of Germany was the Chief Guest and Mrs. Reichel gave away the prizes. Shri K. S. Raghavan, Asst. Warden who had endeared himself to all the students and mess staff expired in June 1966 in the Christian Medical Hospital Vellore, where he underwent an operation.

(b) GODAVARI :

The Hostel had a strength of 179 students with Dr. S.K. Srinivasan, Asst. Professor, Dept. of Mathematics, as Warden and Shri V. T. Shadagopan and Shri K. A. Natarajan, Associate Lecturers as Assistant Wardens.

The annual tournaments of the hostel in different games were conducted and prizes distributed to the winners. The Hostel Day was celebrated on 31-1-'66 with Prof. S. Ramaseshan as the Chief Guest.

(c) NARMADA :

The Hostel functioned with a student strength of 176. Prof. S. Sampath, Head of the Department of Electrical Engineering continued as Warden, with Sri U. N. Srivastava, Associate Lecturer, Dept. of Mathematics and Sri A. Venkatesh Associate Lecturer, Dept. of Mechanical Engineering as Assistant Wardens

The Chess team of this hostel won the Inter-Hostel Championship & The Sports-team won the Institute March Past Trophy.

Sri R. Jaikumar, who broke the world record for boys under 20, by climbing 20,400 feet peaks in the Himalayas last year, had the honour of leading the Indian Universities Mountaineering Team to Mount Shilla, 23,050 feet high in the Himalayas, this summer.

In the Science Fair this year, like last year, students of Narmada Hostel earned kudos for themselves.

The Hostel celebrated its Annual Day on Sunday the 13th March 1966, with Mr. G. I. Kaverin, Consul-General for the U. S. S. R. as the Chief Guest. Mrs. Kaverin gave away the prizes to the winners in the Hostel Tournaments.

(d) KAVERI :

The hostel had a total strength of 176 students including postgraduates and research scholars.

Dr. B. V. Aswathanarayana Rao, Asst. Professor in the Department of Applied Mechanics was the Warden with Dr. A. V. Krishna Rao, Lecturer in English, Shri J. Joseph S. T. A. (for some time) and Shri B. C. Bhattacharya (vice Shri Joseph) as Asst. Wardens.

A picnic party consisting of 60 students visited the Bird Sanctuary at Vedantangal, Mahabalipuram and Kancheepuram on 6th February 1966. A record reproducer with a few selected records were purchased for the benefit of the inmates in March 1966. The Hostel took active part in the Gymkhana activities and also conducted sports and cultural and literary competitions.

The Hostel Day was celebrated on 26th March 1966 when Shri M. K. Raju, Director and General Manager, India Pistons Ltd., Madras was the Guest of Honour. Prof. B. Sengupto, our

Director, presided and Mrs. M. K. Raju, distributed the prizes to winners in the Hostel competitions.

(e) KRISHNA :

Dr. C. Ramasastry, Assistant Professor of Physics continued to be the Warden and Dr. N. M. Raghavendra, Lecturer, Chemical Engineering and Shri S. K. Jain, Lecturer in Humanities Dept. the two Assistant Wardens.

The Independence Day was celebrated in a grand way. Prof. R. G. Narayanamurthy presided over the function and Dr. S. R. Valluri spoke. Following this was held a literary week which consisted of a quiz, debate, poetry and essay writing competition. The hostel team won the trophy for the group discussion in the Inter—Hostel competitions.

The highlight of the year's activities was the gala carnival which Mrs. Shanti Sengupto inaugurated on the 5th March '66. The carnival was a great success. It was the first time that any such carnival was being held in this campus.

On the 6th of March '66 the Hostel Day was celebrated on a grand scale. The Director of legal studies Sri S. Rangarajan was the chief guest. 'Krishna Hostel Day' brochure which was released by Prof. B. Sengupto on this occasion had more than a dozen articles from the hostel inmates.

(f) SARASWATHI :

Dr. D. Venkateswarlu, Head of the Department of Chemical Engineering continued to be the Warden, assisted by Sri S.K.V.K Sobanadrachari and Sri K. J. Sethuraman as Asst. Wardens. The Hostel day was celebrated on 3-3-66 with Dr. Franklin, U. S. Consul General as the Chief Guest and Prof. B. Sengupto, Director, presiding.

(g) TAPTI :

Dr. B. V. Ramanamurthi, Assistant Professor, Department of Physics, continued to be the Warden with Mr. Subramaniam

and P. K. Ninan as Assistant Wardens. The strength of students in the hostel was 79.

A Dinner was held on the eve of the Independence Day with Dr. Valluri as the Guest of Honour. Mrs. Valluri gave away the previous year's tournament prizes.

The Hostel Quiz Team won the Inter Hostel Quiz Championship.

The Taptians won the Inter—Hostel Athletic Championship.

Sri Jayaram won the prize for the best instrumentalist in Inter—Collegiate entertainment competition. Sri Ebbei Sargunar, perhaps the best Oarsman in Madras, represented Madras State both abroad and at home in Rowing Competitions. Sri Gopal Ramachandran was awarded the prize for the best solo item at the Inter—Collegiate competition.

The First Tapti Hostel Day was celebrated on 5th March, 1966 with Mr. Heathcote Smith, Deputy British High Commissioner in Madras as the Chief Guest. As Mrs. Heathcote Smith could not be present, Mrs. Sengupto distributed the prizes.

(h) JAMUNA :

There were 128 inmates in the hostel. Dr. V. Anantharaman Asst. Professor, Humanities Department was the Warden assisted by Shri P. Achuthan of the Mathematics Department and Shri T. K. Ramakrishna of the Mechanical Engineering Department as Assistant Wardens.

The Hostel Day was celebrated on 7th March 1966 with Shri R. Natarajan, former Registrar as the Chief Guest. Although this hostel is the junior most, it has been possible for the inmates of the hostel to put up a really commendable show at the Inter-Hostel Entertainment competition. This hostel was honoured by being presented with the coveted Engineering Unit Trophy for the entertainment competition for the year.

11. LIBRARY **

** The Library remained open on all days of the year (excepting on seven closed holidays declared for the Library) between

7-30 A. M. and 9 P. M. On Sundays and other closed holidays for the Institute, the Library was kept open between 10 A. M. and 5 P. M. Shri V. S. Nazir Ahmed joined the post as Librarian at the Institute on 3-7-1965. The membership of the Library is extended now to outsiders at the discretion of the Director on payment of a nominal deposit of Rs. 50/-.

The number of Library publications which was 45808 on 1-7-65 rose to 53680 at the end of the reviewing year. This new addition of 7888 volumes includes 5068 number of books and Periodicals and 2820 pamphlets. The new publications added to the Library were announced regularly through its fortnightly publication, Library Information Bulletin.

A separate section for Pamphlets was opened for the maintenance of Standard specifications, reprints, photostats etc. A collection of prospectus and handbooks of renowned technical Universities all over the world was built up for the use of students and others, interested in further studies. Similarly, on the periodicals side, a separate section for 'Approach' material like Abstracts and Indexes was opened for the benefit of the research scholars in their literature searches. A linedex has been prepared for the periodical holdings and kept in the periodicals section to help readers to help themselves. An up-to date catalogue of periodicals is under way to facilitate greater use of the Library holdings. A total number of 1135 titles of periodicals of which 281 were free of cost or in exchange to our publications were received. Back volumes for the last over 10 years for most of the periodicals currently subscribed are available in the Library. 8103 Volumes of books and pamphlets were classified and catalogued during the year involving the preparation and typing of 17068 cards. All the German books numbering over 2500 received under the Aid Programme have been processed. 3116 volumes of publications were got bound, of which 1391 were periodicals and 1725 were books-the latter's rebinding was necessitated by their frequent use by the readers.

The Library received 318 German Standards (DIN) and 60 titles of German periodicals under German Aid. In addition,

valuable publications from certain individuals and organisations were received.

The Library is indebted to several government institutions and individual donors for free supply of their publications.

The Library obtained from and issued publications on inter-library loan to a few organisations during the year under review.

The Librarian attended the Seminar on Academic Libraries organised by the British Council during March 1966.

12. INSTITUTE GYMKHANA :

The Institute Gymkhana continued its work in regard to the games and sports, literary and cultural activities of the students. The Gymkhana under the Presidentship of Dr. P. C. Varghese with Shri Lionel Paul as General Secretary organised and conducted the sports and games, cultural and other activities. This year, as in previous years, the Institute entered teams in the Madras Inter Collegiate leagues in football, hockey, tennis, cricket, volleyball and basket ball. The Institute's performance, though not excellent, was good enough to keep the Institute's name alive in the Sports World of Madras.

A calendar of the activities of the Gymkhana during the year is given in Appendix III to this part.

13. CAMPUS ACTIVITIES

(a) CENTRAL SCHOOL :

The Central School in the Campus is one of the 102 Higher Secondary Schools established by the Ministry of Education, Government of India. The School is affiliated to the Central Board of Secondary Education, New Delhi and prepares students for the All India Higher Secondary Examination. The School started functioning on 20-7-64 with classes VI to IX. Class X was added in June 1965 and Class XI, the highest class, came into being in June 1966. At the end of the academic year 1965-66 the strength in various classes was as follows: VI — 45, VII — 33, VIII — 31, IX — 14, X — 8.

On 20-1-65, Dr A. Lakshmanaswami Mudaliar, Vice-Chancellor of the Madras University, declared open the new school building. It has spacious class-rooms intended for an initial intake of 360 pupils, laboratories for Physics, Chemistry and Biology, a large hall for the library and well equipped room for the office and administration. The school has a large playground and provision has been made for playing Foot-ball, Hockey, Cricket, Volley ball, Basket ball, Badminton, Ring Tennis and Throw ball. There is a junior division of the NCC (army wing) for the pupils of the school.

The school day celebration for the year took place on 5-5-1966. Sri G. Venkataraman, Principal, Vivekananda College, Madras presided over the function and gave away the prizes for the pupils who had distinguished themselves in sports and literary competitions. The affairs of the school are managed by a local committee consisting of :

- (i) Prof. B. Sengupto, the Director of the Institute (Chairman)
- (ii) Prof. R. K. Gupta, Professor of Industrial Management in the Institute.
- (iii) Prof. R.G. Narayanamurthi, Head of the Department of Mechanical Engineering in the Institute.
- (iv) Rev. Father L. D. Murphy, S. J. Loyola College, Madras.
- (v) Sri Hussain Aga, Accountant General, Madras.
- (vi) Sri L. M. Vasagam, I. A. s. Collector of Madras, Madras.
- (vii) Sri V Anandaraj, Divisional Inspector of Schools, Madras Division.

(viii) Sri M. K. Natarajan, Principal of the Central School.

(ix) Sri R. Rama, Post-graduate Teacher in History, Central School.

(b) VANAVANI PRIMARY SCHOOL :

The school has been conducted with success with a strength slightly reduced. The strength of the school is as follows :

Nursery 103, Std. I—56, Std. II—50, Std. III—62, Std. IV—45 and Std. V—28.

There are two sections in each class excepting in the Lower Nursery and Std. V.

The Managing Committee Consists of :

- (i) Rev. Fr. L. D. Murphy (Chairman)
- (ii) Dr. D. Venkateswarlu, Head of the Dept. of Chemical Engineering, in the Institute,
- (iii) Prof. S. Sampath Prof. of Electrical Engineering, in the Institute
- (iv) Sri M. K. Natarajan, Principal, Central School.
- (v) Mrs. Valluri.
- (vi) Mrs. J. Peter. (Secretary)

The staff consists of the Headmistress, twelve teachers, two Hindi teachers, a dance teacher and subordinate staff. In the second term the bigger children were taken on a picnic to Pulicat where they enjoyed themselves immensely. At the end of April, the First Convocation was held for the outgoing students of Standard Five. That day was also Parents Day. The little ones put up a variety entertainment which was largely attended.

(c) STAFF CLUB :

The following were Office Bearers for the year :

President	...	Prof. R. G. Narayanamurthi
Vice-President	...	Prof. S. Sampath
Gen. Secretary	...	Dr. V. Sivaramakrishnan
Treasurer	...	Sri P. S. Srinivasan
Secretaryfor		
Games & Sports	...	Sri V. Radhakrishnan
Secretary for Fine Arts and		
Literary Societies	...	Sri C. M. Gopal
Secretary Ladies Club	...	(Ex. Officio) Mrs. C. M. Gopal
Ordinary Members	...	Prof. C. V. Sethunathan
		Prof. Rouve
		Prof. N. Klein
		Dr. B. V. A. Rao
Auditor	...	Sri R. V. Venkatasubramanian

The Club was inaugurated by the Hon. Minister of Industries of the Madras State Sri R. Venkataraman in March 1965. Films were shown regularly twice in a month. Several classical and oriental dance performances were arranged. A full length Drama was enacted. Various Magazines were obtained for the use of the Members. Indoor games like Table Tennis, Bridge and Carroms were played regularly by the Members. Out-door games-Tennis was played regularly and Shuttle Badminton, Ball Badminton and Tennikoit were played occasionally.

Annual tournaments were conducted in March 1966 and more than 70 members participated in the various games. The club observed and celebrated the Independence Day on 15-8-65 and the Republic Day on 26-1-66. The Annual Day function was celebrated on a grand scale with Justice K. Veeraswamy of the Madras High Court as the Chief Guest.

(d) LADIES CLUB :

The following members were elected as office bearers :

President	... Mrs. Shanti Sengupto
Vice-Presidents	... Mrs. Koch ; Mrs. Ramaswamy ... Mrs. Bisanz ; Mrs. Rouve and ... Mrs. Varghese.
Treasurer	... Mrs. Narayanamurthi
Secretary	... Mrs. Raghavendra
Joint Secretaries	... Mrs. Radhakrishna and Mrs. Sankaran.

A committee of 20 members representing various blocks of residences was nominated for the propagation of the activities. Apart from the normal activities, namely, Tailoring, Cooking, Music and Dance classes, a batch of 20 members were trained in First Aid.

On 'Childrens' Day' (14th November, '66), an "On-the-spot Painting Competition" was held successfully. The Club Day held on the 20th November 1966 was another success. Both the occasions were graced by Her Excellency Sardarni Ujjal Singh, wife of the Governor of Madras. Among the other activities, the Annual Sports and the visit to the Canning Centre are worth mentioning.

(e) STAFF CO-OPERATIVE CANTEEN :

The I. I. T. Staff Co-operative Canteen which commenced functioning in the campus with effect from January '64 completed two years of useful service to the staff of the Institute. Sri T. S. Rajagopalan, Assistant Registrar (Administration), held the office of the President and Sri A.V. K. Nambiar, Accountant, Sri V. M. Swamy, Foreman and Sri B. Nagaraja Rao, U. D. C. were elected as Vice-President, Secretary and Treasurer respectively.

The Board of Directors took various steps to improve the service in the canteen ensuring quality without increasing the sale price of the edibles, in spite of the soaring price of the pulses, oils, provisions, vegetables and milk. The service conditions of the canteen staff were also improved.

(f) CO-OPERATIVE STORE :

The I. I. T. Co-operative Stores began its 4th year of its business. The following persons were elected as Board of Directors for the year 1965-66.

Sri R. K. Gupta	President
„ E. M. Gopalakrishnan	Vice-President
„ G. Bapaiah	Secretary
„ Nagendar	Asst. Secretary
„ T. C. S. Venkatrangam	Treasurer
„ S. Sethuraman	Director
„ R. Subramanyam	Director
„ C. P. Subramanyam	Director
„ K. K. Talwar	Director

APPENDIX I

STAFF APPOINTMENTS, RESIGNATIONS, ETC.

(during the year)

APPOINTMENTS

Professor :

Prof. T. N. Seshadri

Assistant Professor :

- 1 Shri G. V. N. Rayudu
- 2 Shri K. Balaraman
- 3 Dr. D. K. Banerjee
- 4 Dr. G. N. Garud
- 5 Dr. H. C. Radhakrishna
- 6 Dr. R. S. Alwar
- 7 Dr. G. Aravamudan
- 8 Dr. C. Narayana Pillai
- 9 Dr. (Ing) P. Srinivasa Rao
- 10 Dr. K. Sivaprasad
- 11 Dr. K. P. Rajappan

Lecturers :

- 1 Shri M. Balakrishnan
- 2 Dr. C. S. Swamy
- 3 Shri G. K. Narasimhamurtly
- 4 .. M. Subramanian
- 5 .. B. C. Bhattacharya
- 6 .. S. K. Jain
- 7 .. G. Sambasiva Rao

- 8 Dr. S. Ramagopala Sarma
- 9 Shri P. Ramachandran
- 10 Shri P. K. Philip
- 11 Dr. S. R. Ramadas
- 12 Shri R. K. Srikanta Kumaraswamy
- 13 „ V. Seshagiri Rao
- 14 „ M. S. Subramanyam
- 15 „ C. S. Krishnamoorthy
- 16 „ V. Paramasivam
- 17 „ P. Krishna Iyer
- 18 „ V. C. Kothandaraman
- 19 Shri V. N. Rajan
- 20 „ N. S. Subbanarayanan
- 21 „ V. Subrahmanyam

Workshop Superintendent :

Shri S. S. Mani

Librarian :

Shri V. S. Nazir Ahmed

Associate Lecturers :

- 1 Shri K. Jayaram
- 2 „ M. Kuppuraj
- 3 „ N. Venkateswaran
- 4 „ G. Bapaiah
- 5 „ K. Muthu Krishnaiah
- 6 „ N. Jothi Shanker
- 7 „ Y. Subba Rajan
- 8 „ K. Jayaraman

- 9 Shri A. C. Radhakrishnan
- 10 „ P. Satyanarayana Rao
- 11 „ K. Thulasiraman
- 12 „ K. Palaniswamy
- 13 „ E. V. James
- 14 „ Prem Bhatia
- 15 „ S. R. Srinivasan
- 16 „ K. R. Parthasarathy
- 17 „ H. Achyutha
- 18 „ K. A. Natarajan
- 19 „ C. S. Krishnan
- 20 „ M. Krishnamurthy
- 21 „ B. Subrahmanyam
- 22 „ Harnam Singh Bhatla

Senior Technical Assistants :

- 1 Shri J. Inder Rao
- 2 „ D. Suresh
- 3 „ S. Arunachalam
- 4 „ S. Doraiswamy
- 5 „ R. Ravindaran
- 6 „ P. P. Kunhi Krishnan
- 7 Dr. B. Bhaskar Rao
- 8 Shri S. Varadachari
- 9 „ K. R. Venkatachalam
- 10 „ K. Raman
- 11 „ S. N. Venkatarangam
- 12 „ S. Kumaraswamy

- 13 Shri C. V. Raghava Rao
- 14 „ B. Raghunatha Rao
- 15 „ M. Venkateswara Rao
- 16 „ G. R. Padmanabhan
- 17 „ M. Durgaprasada Rao
- 18 Kumari V. Hamsaleelavathy
- 19 Shri R. V. Ramakrishan Sastry
- 20 „ B. Gopala Rao

Junior Technical Assistants :

- 1 Shri T. V. Gopalan
- 2 „ R. Santhana Krishnan
- 3 „ C. Lalitha Prasad
- 4 „ Jagdish Rai Jain
- 5 „ R. Chandrasekharan
- 6 „ J. Srinivasan
- 7 „ Nejmin Harifin

Foremen :

- 1 Shri M. K. Pani
- 2 „ T. S. Loganathan
- 3 „ K. S. Venugopal
- 4 „ G. K. Nair

Mechanic 'A' :

- 1 Shri G. R. Krishnan
- 2 „ V. Varghese
- 3 „ C. Ramaswamy
- 4 „ K. Bhaskaran
- 5 „ M. Mahalingam
- 6 „ K. Victor Manuel

- 7 Shri V. Sahadevan
- 8 „ M. I. Thomas
- 9 „ V. K. Vijayaraghavan
- 10 „ V. Sankaran

Mechanic 'B' :

- 1 Shri V. Lakshmipathy
- 2 „ V. Loganathan
- 3 „ S. N. Ramakrishnan
- 4 „ P. Padmanabhan
- 5 „ K. M. Kanagasundaram
- 6 „ T. H. Thangamani
- 7 „ C. Sambandam
- 8 „ P. J. John
- 9 „ V. M. Balasundaram
- 10 „ D. S. Paramanandam
- 11 „ K. Madhavan
- 12 „ P. K. Gopi
- 13 „ B. Narasimhulu
- 14 „ B. Purushotham
- 15 „ M. A. Ramachandran
- 16 „ M. Periaswamy
- 17 „ A. Babu
- 18 „ C. Kuppaswamy
- 19 „ D. S. Srinivasan
- 20 „ S. Devanathan
- 21 „ C. Seethapathi
- 22 „ A. R. Subramanian
- 23 „ T. S. Subramjee

Mechanic 'C' :

- 1 Shri D. Sambandam
- 2 „ E. Natarajan
- 3 „ K. Ellarpan
- 4 „ N. Prabhakaran
- 5 „ R. S. Sridharan
- 6 „ T. Arumugam
- 7 „ C. Raghavan
- 8 „ R. Krishnamurthy
- 9 „ R. Mohanakrishnan
- 10 „ C. A. Ignatious Raj
- 11 „ J. Patrick
- 12 „ P. Kumaran
- 13 „ N. Mohana Kumaran
- 14 „ K. G. Kothandan
- 15 „ S. Gajapathy
- 16 „ A. Thyagarajan
- 17 „ V. R. Kannappan
- 18 „ S. V. Krishnamurthy
- 19 „ R. Balakrishnan
- 20 „ S. Rangaswamy
- 21 „ A. Vasudevan
- 22 „ N. Chester

Draughtsman :

- 1 Shri M. Ranganathan
- 2 „ M. Palayam

Workshop Supervisor :

- 1 Shri R. Srinivasan

Junior Superintendents :

- 1 Shri M. Gopalan Nayar
- 2 „ S. Narasimhan
- 3 „ D. Thiagarajan

Assistants :

- 1 Shri K. V. Natarajan
- 2 Kumari G. Saroja
- 3 Shri K. Rengarajan
- 4 „ V. Subramanian
- 5 „ K. Ramaswamy

Auditor :

Shri P. S. Sivaguru

Assistant Accountant :

Shri V. Jayaraman

Chief Storekeeper :

Shri T. J. Thomas

Upper Division Clerks :

- 1 Shri A. G. Venkateswarulu
- 2 „ V. C. Srinivasa Rao
- 3 „ K. S. Narasimhan
- 4 „ V. Loganathan
- 5 „ S. Kalyanasundaram
- 6 „ L. M. Jagdesh
- 7 „ K. Seetharaman
- 8 „ B. Vasudevan
- 9 „ P. V. Srinivasan

- 10 Shri L. Varadarajan
- 11 „ R. Purushothaman
- 12 „ G. H. Subramaniam
- 13 „ K. Devarajan

Storekeeper :

- 1 Shri K. Ramanathan
- 2 „ S. R. Kannan
- 3 „ P. Srinivasan

Compounder :

- 1 Shri K. R. Venkataramani

Lower Division Clerks :

- 1 Shri C. V. Thyagarajan
- 2 „ S. Subramaniam
- 3 „ V. Raghunathan
- 4 „ O. A. Venkateswaran
- 5 „ N. Varadan
- 6 „ P. S. Sridharan
- 7 „ K. H. Subramaniam
- 8 Kumari S. Subhashini
- 9 Kumari V. Sneha Prabha
- 10 Shri R. Y. Srinivasan
- 11 „ N. Sethuraman
- 12 „ T. S. Sivarama Krishnan
- 13 „ K. Thiruvengadam
- 14 „ P. S. Rajagopalan
- 15 „ S. Ramanathan

Drivers :

- 1 Shri E. Murugesan
- 2 „ N. Kanniappan
- 3 „ R. Benjamin

Assistant Engineer :

Shri T. S. Shanmugham

Supervisor (Electrical) :

Shri B. Sankaran

,, K. Ramakrishnan

Horticultural Supervisor :

Shri P. N. Hangal

Library Attendants (Gr. I) :

1 Shri L. Gopalan

2 ,, V. K. Kalyanasundaram

3 ,, N. R. Jayaraman

Library Attendants (Gr. II) :

1 Shri M. Anthony

2 ,, G. Krishnaswamy

Laboratory Attendants :

1 Shri Isaac George

2 ,, T. S. Rangan

3 ,, N. Thankachan

4 ,, P. A. Selvaraj

5 ,, J. Raphale

6 ,, G. Sadasivam

7 ,, V. S. Rangarajan

8 ,, J. Dorairaj Andrew

9 ,, T. V. Dinesan

10 ,, G. Ranganathan

11 ,, V. Sankaranarayanan

12 ,, S. Samuel

13 ,, M. Munuswamy

14 ,, K. R. Sulaiman Sherif

Store Attendants :

- 1 Shri R. Balakrishnan
- 2 „ M. Subburaj
- 3 „ M. Sharif
- 4 „ A. Ramadas
- 5 „ R. Ramamurthy
- 6 „ A. N. Shanmugham
- 7 „ R. Kannan
- 8 „ C. Anandan
- 9 „ K. Venkatraman
- 10 „ P. V. Radhakrishnan

Gestetnor Operator (Grade II) :

- 1 Shri D. A. Thomas
- 2 „ T. P. Chellappa

Peons :

- 1 Shri P. Ranganathan
- 2 „ J. S. Daniel

Lascars :

- 1 Shri M. C. Shanmugham
- 2 „ E. K. Kannian

RESIGNATIONS/RELIEF ETC.

Professor :

Dr. S. R. Valluri

Assistant Professor :

- 1 Dr. K. S. Raman
- 2 Dr. S. C. Das

Lecturers :

- 1 Shri A. L. Abdul Sattar
- 2 „ B. B. Bhattacharya
- 3 „ B. Ganguly
- 4 „ K. Venkataramani

- 5 Shri S. Rajan
- 6 Dr. M. S. Murthy
- 7 Shri V. Nagarajan
- 8 „ V. Subramanyam
- 9 „ M. Subramaniam

Associate Lecturers :

- 1 Dr. (Mrs) Jayanthi Lalitha
- 2 Shri B. Vasudeva Rao
- 3 „ S. Gopalakrishna
- 4 „ A. B. Srinivasan

Senior Technical Assistant :

- 1 Shri C. T. Zachariah
- 2 „ K. Eswara Iyer
- 3 „ N. Subramanian
- 4 „ V. Manickavasagam

Junior Technical Assistant :

Smt. Jagadambal Srinivasan

Junior Engineers :

- 1 Shri Ch. Arabindo
- 2 „ S. Krishnamurthy
- 3 „ P. Ramani

Junior Superintendent :

Shri O. A. Govindarajan

Divisional Accountant :

Shri K. R. Ranganathan

Auditor :

Shri P. N. Parthasarathy

Upper Division Clerk :

Shri T. M. Dhanaraman

Storekeepers :

- 1 Shri V. Krishnamurthi
- 2 „ A. T. Venkatam

Lower Division Clerks :

- 1 Shri K. Rajan
- 2 „ N. Venkatasubramaniam
- 3 „ N. Srinivasa Rao
- 4 „ M. Balasubramaniam
- 5 „ S. Sainath
- 6 „ K. Venkatraman

Steno-Typist :

Smt. Hema Bai

Chief Store-keeper :

Shri S. V. Sarma

Mechanic 'A'

- 1 Shri R. Viswanathan
- 2 „ B. R. Kaliyaperumal

Workshop Supervisor :

Shri P. K. Sen

Store Attendants :

- 1 Shri S. R. Kannan
- 2 „ K. S. Krishnamurthy
- 3 „ S. Subramanian
- 4 „ N. Prabhakaran
- 5 „ A. Vasudevan
- 6 „ K. Surya Babu

Supervisor :

- 1 Shri K. Balan
- 2 „ S. Sundaramurthy
- 3 „ R. Ravindran

Carpenter :

Shri A. Raman

APPENDIX II

DISTINGUISHED VISITORS TO THE INSTITUTE

- 27-6-65 Mr. Casimir Rakowski, Associate Professor of Technology, State University, New York.
- 27-6-65 Mr. N. Srinivasan, Industrial Adviser, Government of India, New Delhi.
- 6-7-65 Mrs. Chandrasekhar, Deputy Minister for Social Security, Govt. of India, New Delhi.
- 27-7-65 The Education Commission, Government of India, consisting of Dr. T. Sen, Rector, Jadavpur University, Calcutta. Prof. A. R. Rrest, Manchester University, England and Prof. M. V. Mathur, Head of the Dept. of Economics and Public Administration, Rajasthan University.
- 28-7-65 Mr. Scholtens, Ministry of Education Netherlands Government.
- 29-11-65 Mr. Helmut Biermann, German Federal Railways, Bonn.
- 30-11-65 Mr. Joseph N. Greene, (Jr.), Minister-Counsellor, Embassy of the United States of America, New Delhi
- 5th to 11th Dec. 1965 Prof. Dr. P. Hilbig, Pro-Rector, Technical University, Berlin and Mr. Westphal, Director, Academic Foreign Relations Office, Technical University, Berlin.
- 12-12-65 Dean Robert S. Green, Programme Leader, Kanpur-Indo-American Programme, Indian Institute of Technology, Kanpur.
- 31-12-65 Lord Fenner Brockway, Labour Peer, United Kingdom.

- 10-1-66 Miss M. E. Schmitz, German Academic Exchange Service, Bad Godesberg.
- 19-1-66 Prof. K. Smulikowski and Prof. I Malecki, Polish Academy of Sciences, Warsaw.
- 19-1-66 Prof. A. S. Khatchian, and Prof. V. N. Mastachenko, Russian Professors, Indian Institute of Technology Bombay.
- 5-2-66 Mr. A. K. Robertson, Ministry of Overseas Development, London.
- 9-2-66 Dr. Hessberger, German Academic Exchange Service, New Delhi.
- 13th to 18th Feb. 1966 Prof. Dr. K. Gerke, Rector, Technical University Braunschweig, West Germany.
- 22-3-66 Dr. Ofjeord, Chief Technical Adviser, UNSF Project, CMERI, Durgapur.
- 26-3-66 Mr. J. F. Lockwood, Group Staff Administration Officer, Dunlop Rubber Co., London.
- 11-4-66 Mr. L. Drucquer, President & Dr. G. F. Gainsborough, Secretary, Institution of Electrical Engineers, London.
- 22-4-66 Dr. A. C. Joshi, Adviser, Planning Commission, New Delhi.
- 3-5-66 Lt. W. F. Stuhrke, Department of Air Force (Air Force Materials Laboratory), U.S.A.
- 7-6-66 Gen. K. M. Kariappa, Former Chief of Army Staff.
- 17-6-66 Hon'ble Sri M. C. Chagla, Union Minister for Education, New Delhi.

APPENDIX III

INSTITUTE GYMKHANA ACTIVITIES--1965-66

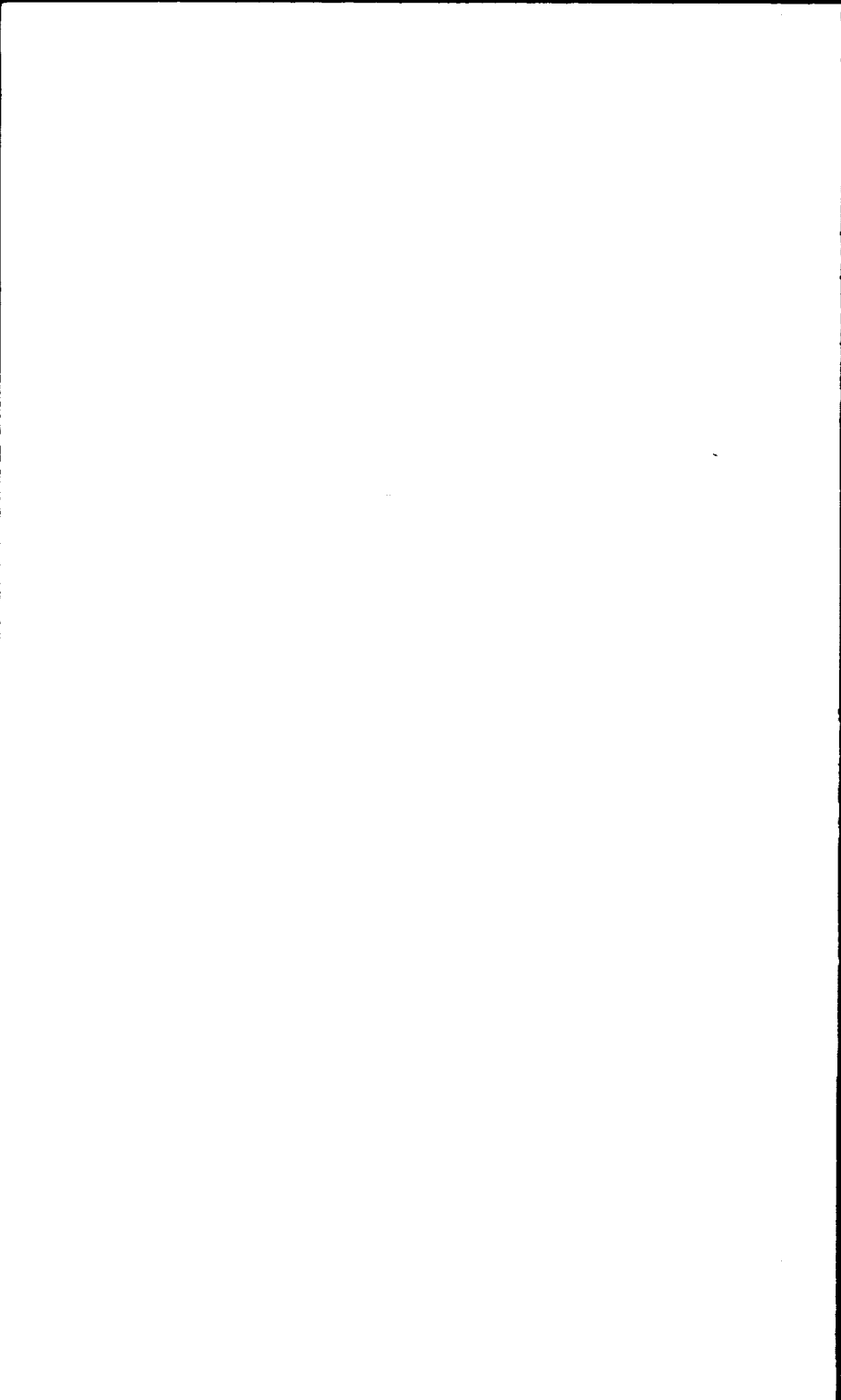
- 3-8-65 Gymkhana Elections.
- 4-8-65 Exhibition of the works and creations of Walter Groupius
- 16-8-65 Lecture on Samarasa Suddha Sanmargamby Sri N. Giridhari Prasad
- 20-8-65 Inauguration of Institute Gymkhana by Dr. W. Koch.
- 1-9-65 Inter Hostel Quiz
- 14-9-65 Bharathi Day.
- 15-9-65 Annual Essay Competition.
- 18-9-65 Exhibition Football match between the German Sailors and I. I. T. team.
- 28-9-65 Annual Debate.
- 11-10-65 German Students visit.
- 20-10-65
and
21-10-65 Puppet Show by German puppeteer, Mr. Dennebogh.
- 28-10-65 Participated in N. S. O. Contest--Consolation prize won by Sri P. S. Padmanabhan.
- 30-10-65 Recorded Music from "My Fair Lady" by the USIS.
- 3-11-65 Participated in Inter Collegiate Oratorical contest conducted by the Saturday Evening Club,
- 4-11-65 Won the Inter Collegiate Quiz competition conducted by the Saturday Evening Club. (Winners : V. Venkatesan and R. Neelamegam)

- 20-11-65 Participated in Inter Collegiate variety Entertainment competition conducted by Q. M. College.
- 7-12-65 Participated in Inter Collegiate Art Festival conducted by Engineering College, Guindy.
- 13-12-65 Lecture by Capt. A. V. Rajagopal on "Will Sabotage Succeed—Will India take it lying down".
- 16-12-65 Lecture by Dr. Jaeckel on "Revolutions and Social Changes in Modern Europe".
- 25-1-66 Recorded Music from "My Fair Lady".
- 26-1-65 Institute orchestra team participated in the Musical knock-out programme organised by Student Times at the Music Academy and won the Judges prize.
- 27-1-66 Annual Group Discussion. Winners : Saraswathi Hostel team, Runners up : Krishna Hostel.
- 3-2-66 Participated in Buck Festival Hockey tournament and athletics.
- 5-2-66 Participated in relay race on MCC Sports Day.
- 12-2-66
and
13-2-66 Second Inter Collegiate Athletic Meet for Director's Trophy.
- 16-2-66 Music Programme arranged by the USIS.
- 17-2-66 Annual Quiz competition.
- 18-2-66 Lecture on "Some ideas on Studies in Germany" by Prof. Dr. Gerke, Prof of the Technical University of Braunschwick.
- 19-2-66 Participated in the Lions Club of Meenambakkam.

- 20-2-66 Participated in the Inter Collegiate Debate conducted by the Madras Institute of Technology and won the Rolling Trophy. (Winners: Caius Camillus and Madhusudan Menon).
- 21-2-66 All India Inter Collegiate Debate for Institute Trophy
- 22-2-66 Inter Collegiate German Recitation for Dr. Klein's Trophy. Participated in Inter Collegiate Debate conducted by the Madras Christian College, Tambaram and won the Gorden Mathews Cup. (Winners: R. Shankar and Ashok Kacker)
- 23-2-66 Inter Collegiate Group Discussion for Prof. M. V. C Sastry's Trophy.
- 24-2-66 Inter Collegiate Quiz for Rao Bahadur Ramachandra Iyer's Trophy.
- 25-2-66 Inter Collegiate Photographic Competition for Prof. Koch's Trophy. Inter Collegiate Entertainment competition for Prof. Narayanamurthy's trophy. Prize Distribution Day.
- 27-2-66 Institute Annual Sports.
- 3-11-66 Won Junior Chamber of Commerce shield for Debating at SIET (Best Speaker: R. Shankar)
- 12-3-66 Institute Day.

PART II

AN ACCOUNT OF THE ACADEMIC WORK OF
THE INSTITUTE INCLUDING RESEARCH,
INVESTIGATION FOR INDUSTRY AND
ALLIED WORK DONE BY THE VARIOUS
DEPARTMENTS



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SECRET

CONFIDENTIAL

SECRET

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GENERAL

1. COURSES OFFERED :

The Institute offered the following courses during the year under report.

I. UNDERGRADUATE DEGREE COURSES :

(a) *5-Year Course* leading to the Degree of Bachelor of Technology in

- (i) Aeronautical Engineering
- (ii) Chemical Engineering
- (iii) Civil Engineering
- (iv) Electrical Engineering (Heavy current and Light current options)
- (v) Mechanical Engineering
- (vi) Metallurgy

(b) *3-Year Course* leading to the Degree of Bachelor of Technology in

- (i) Chemical Engineering
- (ii) Civil Engineering
- (iii) Electrical Engineering (Heavy current and Light current options)
- (iv) Mechanical Engineering
- (v) Metallurgy (2nd and 3rd years)

II. POST-GRADUATE DEGREE COURSES :

- (a) 2-Year Course leading to the Degree of Master of Science in
- (i) Chemistry
 - (ii) Mathematics
 - (iii) Physics
- (b) 2-Year Course leading to the Degree of Master of Technology in
- (i) Chemical Engineering
 - (ii) Civil Engineering :
 - (a) Structural Engineering
 - (b) Hydraulic Engineering
 - (c) Soil Mechanics and Foundation Engineering
 - (iii) Electrical Engineering :
 - (a) Power System Engineering
 - (b) Control System Engineering
 - (c) Electrical Measurements
 - (iv) Mechanical Engineering :
 - (a) Machine Design
 - (b) Machine Tool Design

III. Ph. D. DEGREE COURSES :

- (a) Sciences :
- (i) Chemistry
 - (ii) Mathematics
 - (iii) Physics
- (b) Engineering and Technology :
- (i) Aeronautics & Appl. Mechanics
 - (ii) Chemical Engineering
 - (iii) Civil Engineering
 - (iv) Electrical Engineering
 - (v) Mechanical Engineering
 - (vi) Metallurgy.

IV. Diploma courses.

IV. The Post-graduate Diploma Course in Industrial Engineering was newly instituted and introduced from the end of the academic session. The course is of one year's duration and is open to graduates in all branches of Engineering and technology generally with about two years of experience in industry.

2. THE SENATE :

The Senate met ~~eight~~ ^{Seven} times during the year.

MEMBERS ON THE SENATE AS ON 1-7-1966.

Chairman

1. Prof. B. Sengupto (Director)

2.

External Experts Members

2. Dr. P. L. Bhatnagar,
Head of the Department of Applied Mathematics,
Indian Institute of Science,
Bangalore-12.

3. Dr. G. S. Laddha,
Director,
A. C. College of Technology,
Madras-25.

4. Prof. T. Balakrishnan Nayar,
Principal,
Tagore Arts College,
Pondicherry.

Internal Members

✓ 5. Prof. R. G. Narayanamurthy,
Head of the Department of Mechanical Engineering.

✓ 6. Dr. E. G. Ramachandran,
Head of the Department of Metallurgy.

7. Prof. S. Sampath,
Head of the Department of Electrical Engineering and
Chairman, Council of Wardens.

8. Dr. P. C. Varghese,
Head of the Department of Civil Engineering.
9. Prof. R. Krishnamurthi,
Head of the Department of Humanities.
10. Dr. C. Ramasastri,
Asst. Professor of Physics,
In-charge, Department of Physics.
11. Dr. D. Venkateswarlu,
Head of the Department of Chemical Engineering.
12. Prof. R. K. Gupta,
Professor, Department of Humanities.
13. Dr. S. D. Nigam,
Head of the Department of Mathematics.
14. Dr. M. V. C. Sastri,
Head of the Department of Chemistry.
15. Dr. S. R. Valluri,
Head of the Department of Aeronautics and Applied
Mechanics.
16. Dr. W. Koch,
Professor, Department of Physics.
17. Dr. G. Stahl,
Professor, Department of Mechanical Engineering.
18. Dr. W. Scheer,
Professor, Department of Mechanical Engineering.
19. Dr. N. Klein,
Professor, Department of Humanities.
20. Dr. G. Rouve,
Professor, Department of Civil Engineering.
21. Dr. H. Heitland,
Professor, Department of Mechanical Engineering.
22. Dr. W. Lutz,
Professor, Department of Mechanical Engineering.
23. Dr. E. Hohmann, (26.V.66)
Professor, Department of Chemical Engineering.
- Prof. T. N. Seshadri
Professor
Dept. of Physics
Lecturer
AN-De

Shri V.S. Nazir Ahmed
Librarian

✓ 24. Prof. F. W. Lohr,
Professor, Department of Mechanical Engineering.

✓ 25. Dr. H. W. Meyer,
Professor, Department of Electrical Engineering.

✓ 26. Dr. R. J. H. Bisanz, (31.5.65)
Professor, Department of Chemical Engineering.

Dr. A. Klein
Professor
Dept of AER -
Mechanics & App.

Shri S.S. Mani
Workshop Supt.

Secretary

Dr. D.V. Reddy.
H D O B A A

Shri C. V. Sethunathan (Registrar)

MEMBERS OF THE SENATE AFTER 1-7-1965

Dr. S. Ramaseshan,
Head of the Department of Physics (Returned from abroad).

Dr. C. Ramaswamy
Dept. in charge Dept of (3-5-6)

Dr. J. C. Kuriacose,
Asst. Professor, Department of Chemistry (From 13-9-'65 to 15-5-'66—In the place of Dr. M. V. C. Sastri who had gone abroad).

Dr. P. Venkatarao
H D O B ELEC Engg (From 8/1/7)

Dr. D. V. Reddy,
Head of the Department of Aeronautics and Applied Mechanics (From 22-9-'65—on taking over charge as the Head of the Department).

Dr. M. Venkatarao
Assoc. Prof.
Dept. of Elec. Engg: (From 12.10.66 to 17.11.66 in place of Prof. S)

Dr. ~~S. K. Srinivasan~~ B. V. Ramaswamy
Asst. Professor, Department of Mathematics (From 1-7-1965—~~15-7-'65~~ in his capacity as Senior Warden).

1-7-1966

Shri V. S. Nazir Ahmed,
Librarian (From 3-7-'65—on appointment as Librarian).

Dr. HED 2
Professor, Dept of Met (From 7.1.6)

Dr. A. Klein,
Professor, Aeronautics and Applied Mechanics (From 1-10-'65—on appointment as Professor in the Department).

Shri S. S. Mani,
Workshop Superintendent (From 31-8-65—on appointment as Workshop Superintendent).

Prof. N.K. Dutta
Professor, Dept of Met (15.4.67)
Prof. A. L. Krishna
Professor, Dept of Chem (11.5.67)

MEMBERS WHOSE TERMS OF OFFICE ENDED
OR GOT INTERRUPTED

Dr. W. Lutz

Dr. C. Ramasastry,
Asst. Professor, Department of Physics (From 25-9-'65—
on (the return of Dr. S. Ramaseshan, Head of the
Department from abroad).Term of
office completed
on 18.3.1967Dr. M. V. C. Sastri,
Head of the Department of Chemistry, (From 13-9-'65 to
15-5-'66—went abroad.)Prof. R. Srinivasan
(Dept)Dr. W. Lutz
ProfessorDr. S. R. Valluri,
Head of the Department of Aeronautics and Applied
Mechanics. (From 22-9-'65 a.n.—Resigned.)

Dept. of Mech. Engg

3. ADMISSIONS :

Students were admitted into the first year classes as detailed
below :

Class	Branch	No. Admitted
(a) 5-year B. Tech. Degree Course	Aeronautics & Applied Mechanics	23
	Chemical Engineering	29
	Civil Engineering	54
	Electrical Engineering	46
	Mechanical Engineering	60
	Metallurgy	31
		— 243
(b) 3-year B. Tech. Degree Course	Chemical Engineering	20
	Civil Engineering	16
	Electrical Engineering	26
	Mechanical Engineering	31
		— 93
(c) M. Sc. Degree Course	Chemistry	6
	Mathematics	10
	Physics	5
		— 21

(d) M. Tech. Degree Course	No. Admitted			Total
	Full time Students	Staff-members on part-time basis	Technical Teacher Trainees	
Chemical Engineering	11	...	...	11
Civil Engineering	10	...	4	14
Electrical Engineering	16	2	5	23
Mechanical Engineering	4	7	3	14
	<u>41</u>	<u>9</u>	<u>12</u>	<u>62</u>

(e) Post Graduate Diploma Course in Industrial Engineering	20
--	-----	-----	----

(f) Ph.D. Degree : Registration during the year :

Science : ~~18~~; Engineering/Technology : ~~4~~

Details showing the number of candidates who appeared for the Joint Entrance Examination, for admission to the 5 year B. Tech. Degree Course, the number joined and other particulars are in APPENDIX 1.

Admissions to the 3-year B. Tech., M. Sc., and M. Tech. Degree Courses were made on the basis of the candidates' previous academic records and performance at the interviews.

The strength of the students on rolls at the commencement of the year and in the previous year is in APPENDIX II.

4. EXAMINATIONS :

The following number of students qualified themselves for the award of the respective degrees.

	I Class with Distinction	I Class	II Class	Total
5-year B. Tech. Degree Course	5	84	44	133*
3-year B. Tech. Degree Course	2	43	25	70
M. Sc. Degree Course	2	14	11	27
M. Tech. Degree Course	2	28	2	32

(* Includes seven students who completed their course in April 1965)

The Degrees will be conferred on these students at the Third Convocation to be held on the 30th July, 1966. The details of the results of each class and branch after the final examinations held at the end of the 1965-66 academic session are in APPENDIX III.

5. SCHOLARSHIPS & PRIZES :

AL. 8. (a) Scholarships

Scholarships and Freestudentships were awarded to the students by the Institute as noted below :

Course	Merit Scholarships	Merit-cum-means Scholarships	Freestudentships
5-Year B. Tech.	69 77	174 190	66 71
3-Year B. Tech.	19 23	53 63	30 40
M. Sc.	6 ✓	69	6 ✓
M. Tech.	61 68	—	—
Ph. D.	36 51	—	—

The expenditure incurred by the Institute on scholarships was Rs. ~~4,99,904.65.~~

The Government of India, the different State Governments, Social Welfare Boards, Harijan Welfare Departments in the States, the Atomic Energy Commission and other bodies sanctioned scholarships and loans to the students of this Institute as in the previous year.

Needy students were given financial assistance from the Students' Aid Fund of the Institute.

Particulars of the scholarships and loans and the number of students benefited are in APPENDIX IV.

(b) Prizes

The Institute awarded, Merit Prizes to the students in the different disciplines of study, the value of the First Prize being Rs. 50 and that of the Second Prize being Rs. 25. Details are in APPENDIX V.

6. ACADEMIC SESSION :

Extracts of the academic calendar for ~~1965-66~~ ⁽¹⁹⁶⁶⁻⁶⁷⁾ for the various courses are given below :—

	Commencement of session.		Close of session.
5-year B. Tech. Degree Course	4.7.1966		6.5.1967
I year	5.7.1965		30.4.1966
II, III, IV and V years	12.7.1965	II year	1.5.1966 3.5.1967
	11.7.1966	III year	7.5.1966 6.5.1967
		IV year	
		and V year	
3-year B. Tech. Degree Course	18.7.1966		3.6.1967
I year	26.1965		30.4.1966
II and III years	12.7.1965	II year	30.4.1966 3.6.1967
	11.7.1966	III year	14.5.1966 13.5.1967
M. Sc. Degree Course	19.7.1966		13.5.1967
I year	18.8.1965		30.4.1966
II year	11.7.66 12.7.1965		28.5.1966
	13.5.1967		20.5.1967
M. Tech. Degree Course	18.7.1966		28.4.1967
I year	26.7.1965		30.4.1966
II year	12.7.1965		28.5.1966
	11.7.1966		20.5.1967

7. SEMINARS AND CONFERENCES ORGANISED BY THE DEPARTMENTS :

Under the auspices of the Department of Chemical Engineering, the Development Council for Paper Pulp and Allied Industries met on the 13th and 14th November 1965.

The inaugural meetings of the Madras Centre of the Indian Plastics Institutes were held at the Institute on the 13th and 14th March 1966.

A training course on 'Economical Design of Multistoreyed Buildings' was organized by the Department of Civil Engineering in collaboration with the National Buildings Organization. The course which was of 3 months' duration was attended by 33 practising Engineers from all-over India.

8. INDUSTRIAL VISITS :

As in the previous years, visits to major industrial units were arranged for the students of the Institute. The final year undergraduate students of the 5 year and 3 year B. Tech. Degree Courses were taken on a two-week educational tour to the Chemical Industries located at Bangalore, Mysore and Mettur.

No info with ACC

⊗ 20.6.66 introductory course

August 1966

Final year students of the Metallurgy Branch underwent a month-long special training programme arranged in collaboration with the Tata Iron and Steel Co. Ltd., Jamshedpur, the Hindustan Steel Ltd., Ranchi and the National Metallurgical Laboratory, Jamshedpur.

An educational tour was also arranged for the final year students of the 3 year B. Tech. Degree Course and the pre-final year students of the 5 year B. Tech. Degree Course covering Neyveli, Tiruchirapalli, Coimbatore, Kundah, Mysore and Bangalore. The students visited important industries, laboratories, projects and educational institutions in and around these towns, besides visiting the various factories in and around Madras.

9. DEPUTATION OF STAFF MEMBERS TO SEMINARS/CONFERENCES ETC.

Details are given in the respective departmental reports.

10. RESEARCH :

Scholars were as usual registered in the various Departments for doing research work for the Ph. D. Degree. Academic and technical staff members of the Institute have also been registered on part-time basis for doing research work for the Ph. D. Degree. The number of scholars engaged in research in the different Departments is given below.

Department	No. of Scholars.	
	Part-time (Staff members)	Full time
Aeronautics & Applied Mechanics	2	—
Chemical Engineering	7	3
Civil Engineering	5	1
Electrical Engineering	4	1
Mechanical Engineering	4	—
Metallurgy	1	—
Chemistry	4	9
Mathematics	7	9
Physics	14	15
	<hr/> 48	<hr/> 38

The following have been recommended for the award of the Ph. D. Degree.

Name	Department	Title of Thesis
Shri Balagangadhara Varma Yalamanchili (Staff-member)	Chemical Engineering	Compaction of Solids
Shri Anil Kumar Singh (CSIR Research Fellow)	Physics	Some investi- gations in X- ray Crystallo- graphy.

Typed
matter
for 1966
6/2/66

In addition, the Departments have also been carrying out research in collaboration with Industry. The results of research work have been published in journals of repute in India and abroad. These are detailed in the Departmental reports which follow.

A few scholars from outside like National Institute of Sciences or C. S. I. R. have been engaged in research work at this Institute. A few industries extended facilities to our students in the M. Tech-Degree course for their project work.

11. COMMISSION IN THE ARMED FORCES

During the year under report, the Selection Boards of the Army and Air Force visited the Institute to interview students for the preliminary selection for the grant of Short Service Commission in the armed forces under the University Entry Scheme. The following students were finally selected for the Short Service Commission.

Sl. No.	Name	Appointment	Designation & Date
<i>5-year B. Tech. Degree Course</i>			
1.	Shri S. K. Ragunathan, Final year Class (Civil Engineering Branch).	2/Lt in the Army (Corps of Engineers) from	11-7-1966
2.	Shri P. V. Raman, Final year Class (Electrical Engineering Branch)	Air Force (Tech. Signals)	from 11-7-1966
<i>3-year B. Tech. Degree Course</i>			
3.	Shri G. S. Raghavan, Final year Class (Electrical Engineering Branch)	Air Force (Tech. Signals or Electrical Branch) from	11-7-1966

5-7-1966 B.Tech. Contn.
2. M. K. Raghavakrishnan

Sub-Lt — 10-7-1967
(Engg. Branch?)
(Indian Nav.?)

II. REPORTS FROM DEPARTMENTS

1. DEPARTMENT OF AERONAUTICS AND APPLIED MECHANICS.

1. ACADEMIC STAFF :

Professors	...	1
Assistant Professors	...	5
Lecturers	...	10
Associate Lecturers	...	4
Senior Technical Assistants	...	2

2. TEACHING FACILITIES :

(a) Under-graduate Degree Courses.

(i) 5 year B. Tech.

(i) Applied Mechanics I (Statics and Strength of Materials)	...	II year
(ii) Applied Mechanics II (Strength of Materials)	...	III year
(iii) Introduction to Aeronautics	...	do
(iv) Fluid Mechanics	...	do
(v) Kinematics and Vibrations	...	do
(vi) Vibrations I	...	IV year
(vii) Theory of Machines	...	do
(viii) Vibrations II	...	V year

(ii) 3 year B. Tech.

(i) Applied Mechanics I (Statics and Strength of Materials)...	...	I year
(ii) Applied Mechanics II (Dynamics)	...	do
(iii) Strength of Materials I	...	II year
(iv) Fluid Mechanics I	...	do
(v) Applied Mechanics III (Kinematics)	...	do
(vi) Applied Mechanics IV (Dynamics of Machines)	...	do

(vii)	Fluid Mechanics II	...	II year
(viii)	Vibrations I	...	do
(ix)	Vibrations II	...	III year

(b) Post-graduate Degree Courses.

M. Tech. (Mechanical)

1. Elasticity, Plasticity and Experimental Stress Analysis.
2. Theoretical Hydrodynamics.
3. Vibrations.
4. Kinematics and Dynamics.

M. Tech. (Civil)

1. Theory of Elasticity and Experimental Stress Analysis.
2. Theoretical Hydrodynamics.

(c) Doctorate Course (Ph. D.)

Research Projects: (1) "Wear in Metallic Surfaces" and (2) "Wing Theory."

3. LABORATORIES/WORKSHOP FACILITIES.

1. Mechanisms and Vibrations Laboratory.
2. Elasticity and Experimental Stress Analysis Laboratory.
3. Fluid Mechanics Laboratory.

4. MAJOR EQUIPMENT PROCURED DURING THE YEAR UNDER REPORT

1. Wind Tunnel Components.
2. Strain measuring equipment.
3. Lathe, Drilling Machine etc.

5. RESEARCH WORK DONE BY THE STAFF MEMBERS OF THE DEPARTMENT :

Industry-biased research projects are indicated by asterisk.

<i>Name of the staff member</i>	<i>Field of Research</i>	<i>Whether completed or in progress</i>
Dr. D. V. Reddy	*"Vibration of a Long Cylindrical Shell under Initial Stress and containing an Elastic core"	Completed
Shri G. K. Narasimha Murthy & Dr. D. V. Reddy	"Frequency Analysis of a Clamped Trapezoidal Plate by collocation"	do
Shri G. K. Narasimha Murthy & Dr. D. V. Reddy	"Transient response of a spherical shell surrounded by an Elastic Medium"	In progress
Shri K. Palaniswamy & Dr. D. V. Reddy	"Application of Closed form Difference Equation solutions to Vibration Analysis of Plane Grids, Cylindrical Grids and Ring-stiffened Cylindrical Shells."	do
Dr. D. V. Reddy, Shri S. Venkatesan, Shri B. Gopala Rao & Shri R. V. Ramakrishna Sastry	"Theoretical (including computer) & Experimental Analysis of Diagrids"	In progress
Dr. D. V. Reddy, Shri M. N. Sidhanty & Shri R. V. Ramakrishna Sastry	"Network Analyser for certain problems in the Analysis of Beam, Plates and Shells"	do
Dr. N. V. Chandrasekhara Swamy and Shri G. Bapaiah	*"Non-newtonian Lubrication of Slider Bearings"	Completed

Dr. N. V. Chandrasekhara Swamy	“ Pulsating Pressure Gradient effect on Laminar Flow through Circular Pipes ”	Completed
Dr. N. V. Chandrasekhara Swamy	“ Effect of Free Stream Turbulance on Laminar Boundary Layers ”	do
Dr. N. V. Chandrasekhara Swamy	“ Unsteady Flow through Circular Conduits ”	In progress
Dr. R. S. Alwar	“ Theoretical Investigations regarding the Mechanics of Adhesive Joints ”	do
Dr. R. S. Alwar	“ Analysis of Composite Plates using Thick Plate theory ”	do
Dr. R. S. Alwar	* “ Junction stresses in Shells ”	do
Dr. B. V. A. Rao	** “ Experimental Investigation in Rotor Instabilities due to Oil Film in Journal Bearings ”	do
Dr. B. V. A. Rao	“ Theoretical and Experimental investigations of Elastic and Damping properties of Oil Films in Journal Bearings ”	do
Dr. B. V. A. Rao	“ Theoretical and Experimental Analysis of Isolators and Dynamic Absorbers for Non-linear Systems ”	do

Dr. Klein and Shri P. S. * "Wing Theory" In progress
Srinivasan

Shri M. A. Veluswamy * "Wear in Metallic Surfaces" do

Collaboration projects: The Department has initiated collaboration projects with the Artificial Limb Centre and Highways Research Station, both of the Government of Madras; and the Structural Engineering Research Centre, Roorkee, U. P.

6. LIST OF PUBLICATIONS BY THE STAFF MEMBERS :

Name of the Staff Member	Title of the Publication	Journal in which published	Date of publication
Shri K. Palani-swamy & Dr. D. V. Deddy	"Frequency analysis of grids using Difference Equations"	Paper accepted for presentation at the Third Earthquake Engineering Symposium, Roorkee	November 1966
Dr. D. V. Reddy & E. L. Murp-hree Jr.	"Ultimate-Load Analysis of Edge - loaded Foundation Slabs"	Paper submitted to Proc. ASCE, Journal of the Engg. Mech. Division.	
Dr. N.V. Chan-dra sek h a r a Swamy	"Characteristics of Open Channel"	IAHR, Journal, Delft, Holland	
Shri G. K. Nara-simha Murthy	"A simplified Method of Matrix Inversion"	do	

Papers presented at the 10th Congress of the Theoretical and Applied Mechanics :

Dr. D. V. Reddy "Vibration of a long Cylindrical Shell under initial Stress and containing an Elastic Core"

- Shri G. K. Narasimha Murthy & Dr. D. V. Reddy "Analysis of a Clamped Trapezoidal plate by Collocation"
- Dr. D. V. Reddy "A Review of Vibrations of Certain Grid Frameworks"
- Dr. D. V. Reddy "Transient Response, of a Cylindrical Shell surrounded by an Elastic Medium."
- Dr. N. V. Chandrasekhara Swamy "Non-newtonian Lubrication of Slider Bearings"
- Dr. S. R. Valluri "Some Speculations Concerning Elevated Temperature Fatigue of Materials"

7. DEPUTATIONS OF MEMBERS OF THE STAFF TO SEMINARS, ETC.

Sl. No.	Period of Deputation	Seminar/Conferences/Conventions/Summer Schools	Member of Staff
1.	13th June to 2nd July 1965	Summer School for Engineering College Teachers - Experimental Stress Analysis.	Shri S. Venkatesan
2.	16th June 1965	do guest lecture.	Dr. D. V. Reddy

8. RESEARCH SCHOLARS :

Name	Research topic	Date of registration
(a) Full time : Nil		
(b) Part-time :		
Shri P. S. Srinivasan	Wing Theory	12-2-1966
Shri M. A. Veluswamy	Wear in Metallic Surfaces	1-1-1966

2. DEPARTMENT OF CHEMICAL ENGINEERING.

1. ACADEMIC STAFF :

Professor :	...	1
German Professors :	...	2
Assistant Professors :	...	3
Lecturers :	...	10
Associate Lecturers :	...	5
Senior Technical Assistants	...	7
Junior Technical Assistants :	...	4

2. TEACHING FACILITIES :

(a) Under-graduate Degree Courses :

(i) 5-Year B. Tech :

17 students appeared for the final examination. Nuclear Engineering was offered as an elective to these students.

The number of other students in the other years of the 5-year degree course are as follows :

IV year	...	38
III year	...	44
II year	...	30
I year	...	30

(ii) 3-year B. Tech.

Nine students appeared for the final examination. Cellulose Technology was offered as an elective for these students.

The number of students in the other years of the 3-year degree course are as follows :

II year	...	9
I year	...	21

(b) Post graduate course :

M. Tech.

Six full time students have finished all the course requirements including submission of research project reports for M. Tech. degree in Chemical Engineering. 'Heavy chemicals and fertilisers' was offered as an elective to these students.

The number of students in the I. M. Tech. Degree course is 10.

Six staff members of this Department have been undergoing the course on part-time basis, of whom three have completed all the course requirements including the submission of research project reports.

(c) Doctoral course :

Ph. D.

One candidate has been recommended to be conferred the Ph. D. Degree in Chemical Engineering for the thesis on 'Compaction of Solids.'

Eight candidates are engaged in research projects for Ph. D. in Chemical Engineering.

Four candidates have registered for Ph. D. and are undergoing the course requirements.

LABORATORIES/WORKSHOP FACILITIES :

The Department has the following Laboratory/Workshop facilities.

Technical Analysis
 Chemical Technology including fuels
 Fluid flow
 Mechanical Operations
 Heat Transfer
 Mass Transfer
 Departmental Workshop

Facilities in these laboratories and workshop continue to be expanded.

4. EDUCATIONAL TOURS :

Final year undergraduate students of the five year and three year degree courses were taken on a two weeks' educational tour to the chemical industries in Bangalore, Mysore and Mettur.

5. MAJOR EQUIPMENT PROCURED DURING THE YEAR UNDER REPORT :

Laboratory ball mill
 Vibrating screen and sieve shaker
 Centrifugal elutriator
 Fractionating column
 Drum filter
 Dense medium cyclone type pilot plant
 Bag filter
 Extraction and absorption plant
 Compression testing medium
 Ore mounting press

6. RESEARCH WORK DONE :

(Industry-biased research projects are indicated by asterisk.)

<i>Name of staff members</i>	<i>Field of research</i>	<i>Whether completed or in progress</i>
Varma, Y. B. G. and Venkateswarlu, D.	*" Compaction of Solids-I "	Completed for Ph. D.
Nagarajan, R. and Venkateswarlu, D.	" Rheological studies on clay suspensions "	Completed for M. Tech.
Jayasimhulu, K. and Venkateswarlu, D.	" Entrainment of liquid drops "	do
Murali Mohan, S. and Rao, P. B.	" Equilibrium studies on water-phosphoric acidorganic solvent "	do
Vijayan, C. P., Gopichand, T. and Heitland.	" Effect of sound on flames "	do

<i>Name of staff members</i>	<i>Field of research</i>	<i>Whether completed or in progress</i>
Baradarajan, A. and Satyanarayana, M.	"Separation of binary azeotropes by extractive and azeotropic distillation."	Completed for M. Tech.
Suryanarayana-murthi, K. and Satyanarayana, M.	"*Removal of traces of nitric acid from nitro - benzene by liquid extraction." (On the request of High Explosives Factory, Poona.)	do
Panda, S. C, and Venkatram, T.	"Dropwise condensation of steam."	do
Neelakantan, K., and Ramanujam, M.	"Classification of solids in a pipe line."	do
Gopala Reddy, K. V., and Subramaniam, N.	"Studies in fluid bed drying."	do
Ramanujam, M, and Venkateswarlu, D.	"* Studies in fluid energy grinding."	Work in progress for Ph. D.
Vedaraman, R., Raghavendra, N. M., and Venkateswarlu, D.	"Vibration milling."	do
Ramanujam, T. K., Davies and Venkateswarlu, D.	"Mixing of solids."	do
Battacharya, B. C., and Bisanz, R. J. H.	"Thin film evaporation."	do
Subramaniam R., and Rao, P. B,	"Kinetics of esterification of alcohols."	do
Subramaniam, N., and Gopichand, T.	"Study of particle motions in fluid beds."	do
Ramamurthy, K., and Subbaraju, K.	"Heat transfer in fluidised beds."	do

<i>Name of staff members</i>	<i>Field of research</i>	<i>Whether completed or in progress</i>
Muthukrishnan, S. M., and Bisanz, R. J. H.	"Spray drying of synthetic tannins"	Work in progress for M. Tech.
Sudarsanam, G., and Gopichand, T.	"*Utilisation of waste lime" (suggested by Central Leather Research Institute, Madras)	do
Raghuna dha Rao, S. and Ragavendra, N. M.	"Removal of Silica from Lime stone"	do
Venugopal Ch., and Davies, G. S.	"Extraction of wax from lignite tar"	do
Venkatanarayana, M. S. and Davies, G. S.	"* Reactivation of lubricating Oils"	do
Ramkumar, N., and Subbaraju, K.	"* Utilisation of waste barks (Suggested by C. L. R. I. Madras)"	do
Neelakantan, N. R., and Subbaraju, K.	"Control of evaporation"	do
Subramanian, K. M., and Venkatram, T.	"* Utilisation of barytes"	do
Rajamani, K., and Satynrayana, M. S.	"Utilisation of Indian pyrites"	do
Ananthanarayanan, P., and Rao, P. B.	"Diffusion in liquids"	do

7. LIST OF PUBLICATIONS BY STAFF MEMBERS.

<i>Name of staff member</i>	<i>Title of publication</i>	<i>Journal in which published</i>	<i>Period of publication</i>
Sivaprasada Rao, C. Nagarajan, R., and Venkateswarlu, D.	A general survey on the utilisation of chlorine in chemical industry including recent trends.	Proceedings of the symposium on 'Utilisation of chlorine' published by I. I. T., Madras	March 1966
Ramamurthy, K.	Utilisation of chlorine.	do	do

Name of staff member	Title of publication	Journal in which published	Period of publication
Varma, Y. B. G., and Venkateswarlu, D.	Ammonia synthesis processes.	Chemical Age of India.	March 1966
Sethuraman, K. J., and Varma, Y. B. G.	Production of hydrogen	do	do
do	Hydrotreating techniques in the petroleum industry	do	do
Prasada, Rao C. S.	Mixing of solids	Chemical Age of India	July 1965
do	Sodium sulphide	Indian Chemical Manufacturer	January 1966

8. DEPUTATION OF MEMBERS OF THE STAFF TO SEMINARS ETC.

Sl. No.	Period of Deputation	Seminar/Conferences/Convention/Summer Schools	Member of staff
1.	1 year	Unesco Seminar in Chemical Engineering at Karlsruhe, West Germany	Dr. K. Remananda Rao
2.	3 days	Annual meeting of the Indian Institute of Chemical Engineers at Chandigarh	Dr. Ing. Hohmann
3.	3 days	Annual meeting of the Fertiliser Association of India at New Delhi	do
4.	3 days	Annual meeting of the Indian Institute of Chemical Engineers at Chandigarh	Dr. Y. B. G. Varma
5.	3 weeks	Summer School on "Numerical Analysis" at Poona	Dr. N. M. Raghavendra

9. RESEARCH SCHOLARS :

	Name	Research topic	Date of registration
(a)	<i>Full time :</i>		
1.	Shri C. M. Ramaswamy	Compaction of Solids	1-9-1965
2.	Shri V. Narayana Rao	Granulation of Fertilisers	7-9-1965
3.	Shri D. V. Ramana Rao	Flotation of in-organic minerals	6-10-1965

<i>Name</i>	<i>Research topic</i>	<i>Date of registration</i>
(b) Part time :		
1. Shri M. Ramanujam	Studies in fluid energy grinding	11-11-1963
2. Shri N. Subramaniam	Study of particle motions in fluid beds	8- 2-1963
3. Shri R. Vedaraman	Studies in vibration milling	28-10-1965
4. Shri K. Ramamurthy	Heat transfer in fluidised beds	2- 6-1965
5. Shri R. Subramaniam	Kinetics of esterification of alcohols	} Doing course requirements
6. Shri T. K. Ramanujam	Mixing of solids	
7. Shri R. Ramakrishnan	Diffusion in chemical reaction in solids	
8. Shri B. C. Battacharya	Thin film evaporation	16-3-1966

10. OTHER ACTIVITIES :

- (a) Under the auspices of the Dept. of Chemical Engg., the Development Council for Paper, Pulp and Allied Industries met on the 13th and 14th November 1965.
- (b) The Inaugural meetings of the Madras Centre, Indian Plastics Institute were held on the 13th and 14th March 1965.

3. DEPARTMENT OF CIVIL ENGINEERING

1. ACADEMIC STAFF :

Professors	...	2
Assistant Professors	...	2
Lecturers	...	12
Associate Lecturers	...	8
Senior Technical Assistants	...	6
Junior Technical Assistants	...	4

2. TEACHING FACILITIES :

- (a) Undergraduate course :—Courses in Civil Engineering were offered for 5 year and 3 year B. Tech. Degree courses.
- (b) Post-graduate course :—Courses were offered for the M. Tech. Degree in the following branches :—
 - (i) Structural Engineering.
 - (ii) Hydraulic Engineering.
 - (iii) Soil Mechanics and Foundation Engineering.
- (c) Doctorate Course :—Facilities are available for Doctorate course in Structural Engineering, Hydraulic Engineering and Soil Mechanics and Foundation Engineering.

3. LABORATORIES/WORKSHOPS FACILITIES :

The department has the following laboratories for undergraduate, post-graduate and doctorate work : Survey, Geology Soils, Concrete, Highways, Structures and Models. In addition, the Hydraulic Laboratory is being equipped. Limited workshop facilities are available for post-graduate and doctorate research work.

4. EDUCATIONAL TOURS :

No educational tour was conducted this year.

5. MAJOR EQUIPMENTS PROCURED DURING THE YEAR UNDER REPORT :

- (i) *Structures Laboratory* : Transistorised Strain Measuring Bridge and a Balancing Unit. A loading frame for testing structures was fabricated.
- (ii) *Soils Laboratory* : Hot Air Oven for drying soils, Keroy's Precision Physical Balance of 200 gms. capacity ; Electronic Strip chart Potentiometer Recorder ; Circular shear Box ; Avery Platform Balance 100 Kgms., Power Drilling Machine for Site Exploration Works.
- (iii) *Hydraulic Laboratory* : Flumes have been fabricated in the laboratory itself.
- (iv) *Models Laboratory* : Models of different types of bridges, trusses and doors.
- (v) *Workshop* : Pipe Bending Machine.

RESEARCH WORK DONE BY THE STAFF MEMBERS OF THE DEPARTMENT :

Industry-biased research projects are indicated by asterisk.

<i>Sl. No.</i>	<i>Topic of Research</i>	<i>Whether completed or in progress</i>
1.	*Thermal Characteristics of R.c. Floors.	... In progress
2.	*Precast Units for floors, roofs and walls	... do
3.	*Properties of Encased Beams	... do
4.	Study of mortar models of vierendeel girders.	Completed
5.	Protoelastic Analysis of stresses in Frame Corners	... do
6.	Experimental Investigation of Folded plates	do
7.	*Investigation of Braced triangular girders	... do
8.	Elastic Behaviour of non-continuous media under repetitive loads	... do
9.	Shear strength of partially saturated soils	... do
10.	Estimation of value for soils from split tests.	In progress
11.	*Studies on spillways under high heads	... do
12.	Studies in spatial Hydraulic Jump	... do
13.	*Analogue studies on systems of surge tanks.	do
14.	Experimental studies on spatial hydraulic jump	... Completed

7. LIST OF PUBLICATIONS BY THE STAFF MEMBERS :

Name of the staff member	Title of the Publication	Journal in which published	Date of Publication
1. Dr. P. C. Varghese and Shri C.S. Krishnamurthy	Strength and Behaviour of Deep R. C. Beam	Indian Concrete Journal	March 1966

Name of the staff member	Title of the Publication	Journal in which published	Date Publication
2. Shri T. P. Ganesan and Shri V. Paramasivam	A rapid Iteration Method for the Analysis of symmetrical single Bay Frames	Cement and Concrete	January-March 1966
3. Shri R. Radhakrishnan	Bearings for Bridges	Indian Engineer	February 1965
4. Shri B. Ramanathan	A Critical study on Estimation of Bearing Capacity of soils	Journal of the Indian Roads Congress	August 1965
5. Shri B. Ramanathan	Earth Pressure in Open cuts in soft clays	Journal of the Indian National Society of Soil Mechanics and Foundation Engineering	January 1966
6. Shri R. Radhakrishnan	Effect of the Shape of the Aggregate on the Strength of concrete	Indian Engineer	August 1965
7. Dr. G. Rouve	Ein Überblick die Wasser Wirtschaft Indiens	Wasser und Wasser in irtschaft	
8. Dr. V. Sethuraman, Shri A. C. Radhakrishnan, and Dr. G. Rouve	Boundary Layer Control of spillways	Journal of the Institution of Engineers (India)	Under Publication

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|--|--|--|------------|
| 9. Shri M. V. Jagannatha Rao | Discontious free Surface flow in circular channel | Journal of the Central Board of Irrigation and Power | July 1965 |
| 10. Shri M. H. Abdul Khader | Spread of Swirling Jet on a Horizontal Plane | Paper presented at 10th Conference of ISTAM | |
| 11. Staff of Hydraulic Laboratory | Hydraulic Engineering Laboratory Description and lay out | I. I. T. Hydraulic Engineering Laboratory Publication No. 4 | 1966 |
| 12. Shri M. H. Abdul Khader | Mechanics of Sediment Transport | I. I. T. Hydraulic Engineering Laboratory Publication No. 3. | 1965 |
| 13. Dr. P. C. Varghese and Shri Asok Kumar | Results of some tests on ultimate strength of Brick Piers made from Hand mould-ed bricks | Institution of Engineers (India) | March 1966 |

8. DEPUTATION OF MEMBERS OF THE STAFF TO SEMINARS ETC :

<i>Sl. No.</i>	<i>Period of Deputation.</i>	<i>Seminar/Conference/ Convention/ Summer School</i>	<i>Member of Staff</i>
1.	International Congress on Irrigation and Drainage, New Delhi		Dr. G. Rouve
2.	Conference of IAAR, Moscow		Dr. G. Rouve

<i>Sl. No.</i>	<i>Period of Deputation</i>	<i>Seminar/Conference/Convention/Summer School</i>	<i>Member of Staff</i>
3.		Symposium sponsored by CWPC Research Station, Poona	Dr. V. Sethuraman and Dr. G. Rouve
4.	10-5-66 to 18-5-66	Special course on Prefabrication of concrete structures at the I. I. T. Kharagpur	Shri T. P. Ganesan
5.	13-6-66 to 2-7-66	Summer School on Numerical Analysis at the College of Engineering, Guindy.	Messrs. M. H. Abdul Khader and C. Ganapthy Chettiar
6.	10-6-66 to 12-7-66	Specialised Summer School Programme in Soil Mechanics and Foundation Engineering at the I.I. T. Delhi	Shri B. Ramanathan

9. RESEARCH SCHOLARS :

	<i>Name.</i>	<i>Research Topic</i>	<i>Date of Registration</i>
(a) Full time :	(i) N. Sukesan Nair	Stress Distribution in Frame Corners	4-1-1964
(b) Part time :	(i) R. Radhakrishnan	Studies on Vibration of R. C. Beams	3-6-1965
	(ii) T. P. Ganesan	Behaviour of Vierendeel Girders	11-2-1966
	(iii) P. K. Ninan	Shell Foundations	11-2-1966
	(iv) M. H. Abdul Khader	Application of Potential flow problems	11-2-1966

10. OTHER ACTIVITIES :

A training course on the Economical Design of Multistoreyed Buildings was organised in collaboration with the National Buildings Organisation. The course which was of 3 months duration was attended by 33 practising engineers from all over the country.

4. DEPARTMENT OF ELECTRICAL ENGINEERING

1. ACADAMIC STAFF :

Professors	...	2	(one abroad on a UNESCO assignment)
German Professor	...	1	
Assistant Professors	...	7	
Lecturers	...	13	
Associate Lecturers	...	9	

2. TEACHING FACILITIES :

(a) *Undergraduate courses :*

- (i) 5 year B. Tech. degree course (Heavy Current Engg. Light current Engg.)
- (ii) 3 year B. Tech. degree course do

(b) *Post-graduate course :*

M. Tech. (Electronics/Control Systems/Power Systems/Measurements)

- (c) Facilities for part-time research work by staff members for the Doctorate degree are available. Three staff members have been registered for the Ph. D. degree programme.

3. LABORATORY/WORKSHOP FACILITIES :

Laboratory facilities in Electrical Machines, Electrical Measurements, High Voltage Engineering, Electronics, and Analog Computation are available.

4. EDUCATIONAL TOURS :

The Final year students of the 3-year Degree Course and the pre-final year students of the 5-year degree course undertook an educational tour covering Neyveli, Trichy, Coimbatore, Kundah, Mysore and Bangalore and visited industries, laboratories, projects and educational institutions in and around these places.

7. (a) DEPUTATION OF STAFF MEMBERS TO SEMINARS, ETC :

Shri T. A. R. Bhat, Lecturer, was deputed to participate in the Summer School for 'Numerical Analysis' organised by the College of Engineering, Guindy, jointly with USAID.

(b) SPECIAL LECTURES DELIVERED BY STAFF-MEMBERS :

Dr. K. P. Rajappan, Assistant Professor, delivered a series of special lectures on 'Statistical Theory of communication', for the College of Engineering, Guindy, and another lecture on 'Telemetering Systems' at the Madras Institute of Technology, Chrompet.

Dr. V. G. K. Murti, Asst. Professor, delivered a lecture on 'Network Synthesis and Practicality' at the Madras Institute of Technology, Chrompet.

5. MAJOR EQUIPMENTS PROCURED :

A high voltage testing transformer of voltage upto 800kv has been received and is to be tested and commissioned in the coming year.

6. RESEARCH WORK DONE BY STAFF-MEMBERS :

Research work is in progress in the broad areas of Network Analysis and Synthesis, Electric Machines, Control Systems, Vacuum tube and Transistor Electronics ; Power Systems, Analysis and Protection.

7. RESEARCH SCHOLARS :

(a) Dr. K. Padmanabhan, Research-fellow, National Institute of Sciences, has been doing Post-Doctoral research work in the Department on Non-linear Aspects of Electrical Engineering.

(b) PART-TIME SCHOLARS :

<i>Sl. No.</i>	<i>Name</i>	<i>Topic of Research</i>	<i>Date of registration</i>
1.	Shri B. Ramaswamy (gone to U.S.A.)	Transformer Analogue Computers for use in servo-mechanisms	1-9-1963
2.	Shri S. S. Yegnanarayanan	Transient Analysis of Autodyne	26-11-1963

3. Shri V. Seshadri Certain Methods of 1- 1-1965
 Analysis and Synthesis
 for third order Linear
 Systems and their
 extended application
 to higher order systems

8. *General*: The third batch of the 5-year B. Tech. students and the First batch of the 3-year B. Tech. students are graduating this year.

The second batch of M. Tech. students have completed their Projects and Dissertation work.

5. DEPARTMENT OF MECHANICAL ENGINEERING

1. ACADEMIC STAFF :

Professors	...	...	6
Assistant Professors	...	...	4
Lecturers	...	...	20
Associate Lecturers	...	...	8

2. ORGANISATION :

The Department of Mechanical Engineering includes the following Sections/Laboratories :

1. Machine Design & Drawing
2. Production Engineering
3. Thermodynamics & Combustion
4. Steam Power
5. Internal Combustion Engines
6. Turbomachinery
7. Instrumentation and Control Systems
8. Central Workshops

3. TEACHING FACILITIES :

(a) *Under-graduate Courses* :

Engineering Drawing Classes for all branches of the first two undergraduate years are being handled.

Mechanical Engineering subjects for III, IV & V years for Mechanical Engineering students and also for allied branches are being offered by the Department. For the final year Mechanical Engineering students three electives are being offered :

- (i) Design (ii) Production (iii) Instrumentation leading them to a concentrated specialisation in the final stages of their training. Apart from the electives, the students are to complete a Project under one of the sections of the Department.

(b) *Post graduate Courses :*

The two year M. Tech. course in Machine Design continues to function satisfactorily. The students were engaged in research and developmental projects as a part of their M. Tech. Courses.

Projects taken up during 1965-66 investigated the following :

- (i) Eccentric Clamp (ii) Spiral Clamp
(iii) Ceramic Tools (iv) Shirvow Drill

- (c) The preparatory work for starting the M. Tech. course in Machine Tools during 1966 was taken up.

4. LABORATORIES/WORKSHOP FACILITIES :

- (a) The Steam Power Laboratory, Internal Combustion Laboratory and Machine Tools Laboratory have been commissioned and are functioning. The construction work on a Laboratory building to accommodate Thermodynamics Laboratory and some of the test cubicles of Internal Combustion Engines Laboratory is well under progress. Installation and commissioning of the Turbo-machines, Metrology, Machine Design and Instrumentation Laboratories are under progress.

- (b) For the undergraduate students, training in the various laboratories are offered as under :

- (i) General Machines Laboratory course ;
(ii) Mechanical Engineering Laboratory course ; and
(iii) Project at the final year stage.

Most of the laboratories are equipped to enable research work to be undertaken.

5. EDUCATIONAL TOURS :

Apart from local visits, technical tours were planned for the December break, but had to be given up due to the emergency.

6. RESEARCH ACTIVITIES :

(a) Research activities of the Department cover the following fields :

Reaction kinetics of fuels.

High temperature phenomenon and its technical application.

Fundamental studies and technical combustion process under high altitude and high flow velocities.

Utilisation of solar energy.

Effect of turbulence on flame stability.

Pulsating combustion phenomena.

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

Prototype testing for detonation and torsional vibration characteristics of aircraft piston engine.

Effect of turbulence in flame stabilisation in gas turbine combustion chambers.

Basic investigations of matching carburettors.

Investigation of combustion process in I. C. Engines.

Cutting forces in machine tools.

Wear of H. S. S. Carbide and Ceramic tools.

Spiral and eccentric cam clamps.

Fitting of gears.

Oscillating tools

Friction in instrument bearings.

Pneumatic control components.

Fracture mechanics.

Interaction of creep and fatigue.

Design aspects of bolted joints in fatigue.

7. DEPUTATION OF STAFF MEMBERS TO SEMINARS, ETC.

(i) Shri S. Vaidyanathan attended the summer school at P. S. G. College of Technology, Coimbatore, on "Design and Production."

(ii) Shri M. Adithan attended the Summer School at P. S. G. College of Technology, Coimbatore on "Foundry and Welding Techniques."

(b) INDUSTRY-BIASED RESEARCH WORKS :

The following problems of interest to the industry have been undertaken by the Department :

1. Prototype tests were conducted at the request of Hindustan Aeronautics Limited (Aero Engines Division) Bangalore, on the H. A. L. PE 90 aero engine, with respect to
 - (a) Detonation characteristics
 - (b) Torsional vibration characteristics
 - (c) Water spray and backfire tests
2. At the request of M/s. India Filters Ltd., the following performance tests on their oil-bath air filters were completed :
 - (a) Pressure drop tests
 - (b) Filtering efficiency tests
3. Association with the Observatory at Kodaikanal for fabrication of mirrors and lenses.
4. Development of gas turbine combustion chambers for aircraft propulsion plants.
5. Investigation of frictional characteristics of sintered bearings of small diameters for M/s. Mahindra Sintered Products, Pimpri.

6. Machining characteristics of cylinder liners by ceramic tools for India Pistons, Madras.
7. Study of hydraulic taper-turning of taper shank twist drills for M/s. Addison Ltd., Madras.
8. Economics of machining at Binny Engineering Works.
9. Job Evaluation at M/s. T. I. Miller, Ambattur.
10. Independent S. Q. C. studies at M/s. India Pistons, India Forge and Standard Motors.
11. Standardisation at M/s. Hivelm Industries, Madras.

Further, the following research and development work in collaboration with the industry is contemplated in near future :

1. Matching of carburetors for optimum performance for M/s. India Carburetors Ltd. Madras.
2. Prototype testing of reduction gears for armoured vehicles for M/s. Heavy Vehicles, Avadi.
3. Problems referred by the Steam Utilisation Association, Madras.
4. Investigation of residual stresses in cold rolled strips for M/s. Tube Products, Avadi.
5. Investigation of gears production problems for M/s. Bharat Fritz Werner, Bangalore.
6. Investigation of the behaviour of Metal bellows for pneumatic control components for M/s. Garia Industries, Calcutta.
7. Machinability studies using ceramic tools on steel and cast iron.
8. Design and construction of eccentric and cam clamps.
9. Performance of the Russian "Shirow" drills.
10. Design of cams on automats for producing screws.
11. Design of indexing device for use on a milling machine.

8. RESEARCH SCHOLARS :

<i>Sl. No.</i>	<i>Name</i>	<i>Topic of research</i>	<i>Date of Registration</i>
1.	Shri M. C. Gupta, Staff member (gone abroad)	Quenching Post-Flame Reaction and Diabetic Effects in closed vessel combustion of propane- Air and Methene—Air Mixtures	25-11-1964
2.	Shri S. Padmanabhan (Staff member)	Friction in Sintered Bea- rings for Instrument appli- cation	12-7-1965
3.	Shri M. A. Veluswamy (Dept. of Applied Mechanics)	Deterioration of contact surfaces	1-1-1966
4.	Shri V. Radhakrishna (Staff member)	Tool wear	1-1-1966

9. CENTRAL WORKSHOPS :

(a) Organisation of various shops :

1. Carpentry
2. Fitting
3. Smithy
4. Electrical
5. Automobile
6. Foundry & Patternmaking
7. Machine Shop
8. Welding

(b) Staff :

Workshop Superintendent	...	1
German staff	...	5
Foreman	...	5
assisted by Supervisors and Mechanics of A. B. & C.		

(c) Training of students :

1. Intensive training of about half the total time is imparted to all the first year students in Carpentry, Fitting and Welding. All Second year students are trained in the Machine Shops, Electrical Shop, Smithy and Foundry.
2. Specialised training in Machine Shop is imparted to the Mechanical Engineering students beyond the second years also.

(d) Additional facilities :

Items for various laboratories and other Departments, which are to be made locally are fabricated in the Central Workshops under the system of Work Orders.

This forms a major contribution of the Central Workshops in the life of the I. I. T.

On a similar basis the maintenance of all I. I. T. motor vehicles is done in the Central Workshops.

Various test set-ups for research have been fabricated in the Central Workshops during 1965-66.

10. PLANNING FOR THE FUTURE :

- (a) Plans for expansion of research and teaching facilities in the various sections were prepared.
- (b) Plans for starting the M. Tech. Courses in Machine Tools from July 1966 were prepared.

6. DEPARTMENT OF METALLURGY**I. ACADEMIC STAFF :**

(a) Professor	...	1
(b) Asst. Professors	...	2
(c) Lecturers	...	3
(d) Associate Lecturers	...	4
(e) Senior Technical Assistants	...	4
(f) Junior Technical Assistant	...	1

2. TEACHING FACILITIES :

(a) *Under Graduate Classes :*

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

5-Year B. Tech. Degree Course :

- (i) II Year - All Branches - Engineering Materials (Metals)
- (ii) III Year - Chemical, Electrical and Mechanical Engineering Branches - Engineering Metallurgy.
Metallurgy Branch - Metallurgical Analysis.
- (iii) IV Year - Metallurgy Branch :
Refractories, Furnace Technology and Pyrometry.
Electro-metallurgy and Corrosion.
Metallurgical Thermodynamics.
Ferrous Production Metallurgy-I.
Physical Metallurgy-I.
Non-ferrous Extraction Metallurgy-I
Mechanical Metallurgy-I
Joining of Metals.
- (iv) V Year - Metallurgy Branch :
Foundry Technology.
Powder Metallurgy.
Metallurgical Plant Design.
Advanced Metallurgical Techniques.
Physical Metallurgy-II.
Ferrous Production Metallurgy-II.
Non-ferrous Extraction Metallurgy-II

Mechanical Metallurgy-II

Instrumentation.

**Mechanical Engineering Branch - Production
Engineering.**

3-Year B. Tech. Degree Course :

**(i) I Year - I Term - Metallurgy Branch - Materials of
Construction (Metals)**

(ii) II Year - Metallurgy Branch :

Metallurgical Analysis.

Metallurgical Thermodynamics.

**Refractories, Furnace Technology and
Pyrometry.**

(iii) II Year - II Term - Metallurgy Branch :

Electrometallurgy and Corrosion

Metallurgical Thermodynamics - II

Physical Metallurgy - I

Mechanical Metallurgy - I

Foundry Technology

Metal Physics

**(iv) II Year - II Term - Mechanical Engineering Branch :-
Engineering Metallurgy**

III Year - I Term - Metallurgy Branch :-

Physical Metallurgy - II

Mechanical Metallurgy - II

Ferrous Process Metallurgy - II

Non-ferrous Extraction Metallurgy - I

Advanced Metallurgical Techniques - I

(v) III Year - II Term - Metallurgy Branch :-

Ferrous Production Metallurgy - II
 Non-ferrous Extraction Metallurgy - II
 Instrumentation
 Advanced Metallurgical Techniques - II
 Metallurgical Plant Design
 Powder Metallurgy
 Physical Metallurgy - III
 Mechanical Metallurgy - III

(b) POST-GRADUATE CLASSES :

M. Tech. Degree Course :

Instruction in Materials Science and Technology for the students of all branches in the subjects assigned to this department were given.

(c) DOCTORATE CLASSES :

Ph. D. Degree Course :

No formal classes. However, one part-time candidate has been registered for his doctorate work and carried out some preliminary work in this regard.

3. LABORATORIES/WORKSHOP FACILITIES :

Regular laboratory has been carried out for both sets of undergraduate students. Installation of vertical pulsators and high frequency high vacuum furnace was completed and commissioning taken up.

4. EDUCATIONAL TOURS :

A special training programme for the final year undergraduate students with Messrs Tata Iron and Steel Company Ltd., 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. MAJOR EQUIPMENT PROCURED DURING THE YEAR UNDER REVIEW :

A few important items of equipment obtained during the period under review are the following :

- (i) Carbon and Sulphur estimation apparatus.
- (ii) Water Cooler 200 gallons.

6. (a) RESEARCH WORK DONE BY THE STAFF MEMBERS OF THE DEPARTMENT :

Apart from research by individual staff members on topics like stabilisation of sustenite, stacking faults, mechanical properties of thin metallic films, structure and properties of electro-deposited alloys, etc., research work has been undertaken by one staff member for his Ph. D. degree.

(b) INDUSTRY BIASED RESEARCH WORK :

Work carried out for industry by this department is described below :

1. Analysis of various types of metals and alloys.
2. Mechanical properties at room and elevated temperatures of various steels and non-ferrous alloys.
3. Working out suitable heat treatment schedules to ensure conformity with specifications.
4. Carrying out fatigue and service tests on finished mechanical components using special type of vertical pulsator.
5. Radiographic and non-destructive testing of castings, welded and heat treated structures, and
6. Metallographic and photomicrographic examinations of various metals and alloys.

Some of the leading industrial establishments to whom the above service has been rendered are (i) Bharat Heavy Electricals Ltd., Tiruchirappalli-14, (ii) Integral Coach Factory, Perambur, (iii) Hindustan Teleprinters, Madras, (iv) Indian Drugs & Pharmaceuticals Ltd., Surgical Instruments Project, Madras-16, (v) The India Radiators, Madras-52 and (vi) M/s. Asok Leyland, Ennore, Madras.

Arrangements are being made to have a regular programme of tests and development work in the above-mentioned fields, for which the Department is well-equipped, with the leading industrial establishments in and around Madras. Specific mention may be made of testing of springs and other mechanical components of heavy trucks and railway coaches using the vertical pulsator and tests for the soundness of several kilometres of welded pipes for a local fertilizer factory.

7. LIST OF PUBLICATIONS BY THE STAFF MEMBERS :

Name of the staff member	Title of the publication	Journal in which published	Date of publication
1. Dr. R. Vasudevan	Deformation Stacking Faults in Austenitic Fe-Cr-C-N Stainless Steels.	Transactions of Indian Institute of Metals.	Accepted for publication.
2. Dr. K. Srinivasa Raghavan	Evidence for the propagation of crystal defects from the substrate into an epitaxial overgrowth.	do	March 1966
3. Shri K. V. Nagarajan	Tempering of Steel containing Bainite.	do	December 1965

8. DEPUTATION OF MEMBERS OF THE STAFF TO SEMINARS, ETC.

Period of Deputation	Summer School	Member of staff
2nd July to 23rd July 1965.	Specialist course in Heat treatment of Metals at Roorkee University.	Sri B. Raghunatha Rao

9. RESEARCH SCHOLARS :

Part-time :

Name	Research topic	Date of registration
Sri K. V. Nagarajan Associate Lecturer.	Study of eutectoid and murtensite type of transformations in ferrous alloys.	3-8-1964

7. DEPARTMENT OF HUMANITIES

1. ACADEMIC STAFF :

Professors	...	...	...	3
Assistant Professors	...	...	...	2
Lecturers	...	...	...	3
Associate Lecturers	...	...	...	Nil
Senior Technical Assistants	...	...	...	2
Junior Technlcal Assistant	...	...	...	1

2. TEACHING FACILITIES :

UNDER GRADUATE CLASSES

I Year — English.

II Year — English and German.

III Year — History & Culture.

IV Year — Economics.

V Year — Industrial Economics, Planning, Cost and Book-keeping, General and Industrial Psychology and Industrial Management.

Post Graduate Classes :

Preparations were under way to start a Post Graduate Diploma Course in Industrial Engineering in collaboration with the Mechanical Engineering Department.

3. SEMINARS (COLLOQUIA) / SPECIAL LECTURES ATTENDED BY THE MEMBERS OF THE STAFF :

- (a) Prof. R. K. Gupta conducted a seminar on 'Reporting to top Management' at the Thiagaraya School of Management Studies, Madurai.
- (b) Dr. V. Anantaraman attended the Seminar Course on Research Methodology in Social Sciences organized by the USAID at Mussourie.

8. DEPARTMENT OF CHEMISTRY

1. ACADEMIC STAFF :

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

2. TEACHING FACILITIES :

The department provides instruction at the under-graduate, post-graduate, and doctoral levels as indicated below. This instruction includes theory and laboratory exercises.

(a) *Under-graduate.*

- i. First year of the 5 year B. Tech.
- ii. Third year of the 5 year B. Tech.—Chemical Engineering and Metallurgy Branches.
- iii. Fourth year of the 5 year B. Tech.—Chemical Engineering Branch.
- iv. First year of the 3 year B. Tech.
- v. Second year of the 3 year B. Tech.—Chemical Engineering Branch.

(b) *Post-graduate.*

- i. First year of M. Sc. (Physics).
- ii. First year of M. Tech. (Chemical Engineering).
- iii. First and Second years of M. Sc. (Chemistry).

(c) *Doctorate.*

Background and Orientation courses for all entrants to the Ph. D. degree during the first year.

3. LABORATORIES :

Facilities are available for the courses provided under 2 (a) and (b) above as also for research in Physical, Organic and Inorganic Chemistry.

4. MAJOR EQUIPMENT PROCURED DURING THE YEAR UNDER REPORT :

1. Aerograph Chromatograph.
2. Liquid-Nitrogen plant — Commissioned.
3. Electro-magnets for susceptibility measurements.
4. Nuclear detection instruments for tracer studies.
5. Thin layer chromatography equipment.
6. Janak Chromatograph.
7. Permutit water purification unit.
8. Ultra-violet irradiation equipment.
9. Strip-chart recorder.
10. Compressor for compressed air line.
11. Marconi Universal Bridge.

5. (a) RESEARCH WORK DONE BY THE STAFF MEMBERS OF THE DEPARTMENT :

Name of staff member	Field of research	Whether completed or in progress
1. Professor M. V. C. Sastri Shri S. R. Rajagopalan (Research Scholar)	Effect of adsorption on electro-chemical kinetics	In progress
2. Professor M. V. C. Sastri Dr. V. Srinivasan and Shri B. Viswanathan (Research Scholar)	Adsorption of gases on transition metals	do
3. Dr. V. Srinivasan Shri S. Chandrasekaran (Research Scholar)	Adsorption of gases on metal oxides	do
4. Dr. J. C. Kuriacose and Shri J. Rajaram	Mechanistic studies on the Halogenation of aromatic Compounds	do
5. Dr. J. C. Kuriacose and Shri R. Swaminathan (Research Scholar)	Mechanistic studies on the behaviour of chromia eatatysts	do
6. Dr. J. C. Kuriscose and Shri C. Daniel	Studies in the decomposition of metal hydrines	do
7. Dr. V. Ramakrishnan and Shri M. Santhanam (Research Scholar)	Photochemical Reactions	do
8. Dr. V. Ramakrishnan Shri K. Vasudevan	Charge Transfer Spectra	do
9. Dr. C. Kalidas	Electro Chemistry	do
10. Dr. C. N. Pillai and Shri K. Narayanan	Dehydration of alcohols over solid catalysts	do
11. Dr. S. R. Ramadas	Synthetic organic Chemistry	do

- | | | | |
|-----|---|---|-----------------------|
| 12. | Dr. G. Aravamudan and
Shri M. Ramakrishna
Udupa | Studies on Thiourea
Complexes of Zinc,
Cadmium, Mercury,
Cobalt and Nickel | In progress |
| 13. | Dr. C. N. Pillai and
Shri J. R. Jain | Mechanism of Cata-
lytic dehydration
reactions alumina | Nearing
Completion |
| 14. | Dr. C. N. Pillai and
Shri S. V. Kannan
(Research Scholar) | Stereochemistry of
dehydration of
alcohols over alumina | In progress |

(b) INDUSTRY - BIASED RESEARCH PROJECTS :

1. Study of industrially important catalysts for reactions like ammonia synthesis, Fischer-Tropsch reaction etc.
2. Study of industrially important reactions like the production of ethers and olefins from alcohols.
3. The mechanistic investigation of alkylation and isomerization reactions which are important in the petroleum industry.
4. Study of phase equilibria and high temperature solid state reactions in inorganic systems.

Work that may be taken up in the future :

1. Development and evaluation of catalysts for industrially important reactions.
2. Study of industrially important reactions under high pressure conditions.

6 LIST OF PUBLICATIONS BY THE STAFF MEMBERS :

Name of the Staff member	Title of the Publication	Journal in which published	Date of publication
1. Dr. J. C. Kuriacose & Prof. M. V. C. Sastri	The Polyfunctional behaviour of chro- mia catalysts in the decomposition of alcohols.	Proceedings of 3rd Interna- tional Con- gress on Cata- lysis, Amster- dam.	1965

Name of the Staff member	Title of the Publication	Journal in which Published	Date of Publication
2. Dr. C. S. Swamy	Dissociation of carbon-dioxide on a supported iron catalyst	Current Science 34, 505 (1965)	1965
3. Dr. C. S. Swamy	Differential thermal analysis of supported and unsupported iron oxide catalysts	Current Science	Accepted for Publication.
4. Dr. V. Ramakrishnan and S. P. McGlynn	Photolysis of cyclic disulphides	Photochemistry and Photobiology (Pergamon Press) London, 4, 907 (1965)	1965
5. Dr. V. Ramakrishnan R. Sunseri and S. P. McGlynn	External heavy atom spin orbital coupling-Equilibrium Investigations	J. Chemical Physics	In Press
6. Dr. C. Kalidas	Extimation of Benzedine by non-aqueous Titration	Z. Anal Chem.	Accepted-for Publication.
7. Dr. G. Aravamudan & Shri V. Krishnan	A new titrimetric method for determination of perchlorates	Talanta 14,522 (1966)	1966
8. Shri J. R. Jain and Dr. C. N. Pillai	An adsorbed phase substitution elimination mechanism for catalytic dehydration of alcohols to ethers and to olefins over alumina	Tetrahedron letters 11, 675 (1965)	1965

Name of the Staff member	Title of the Publication	Journal in which Published	Date of Publication
9. Dr. J. C. Kuriacose & Shri J. Rajaram	A kinetic study of the bromination of p-bromophenol in CCl_4	Accepted for publication in Current Science	—

7. DEPUTATION OF MEMBERS OF THE STAFF TO SEMINARS ETC.

Sl. No.	Period of Deputation	Seminar/Conferences/Conventions/Summer Schools	Member of Staff
1.	3 days	Seminar (Annamalai University)	Dr. V. Ramakrishnan
2.	2 days	Symposium (A. C. College, Madras)	Dr. J. C. Kuriacose Dr. C. N. Pillai Dr. C. Swamy Dr. C. Kalidas

8. RESEARCH SCHOLARS

Name	Research topic	Date of registration
1. Shri K. Narayanan Associate Lecturer	"Mechanism of the Dehydration of alcohols oxide on catalysts".	19-10-62
2. Shri J. Rajaram Associate Lecturer	"Kinetics and Mechanism of Catalytic reaction".	19-10-62
3. Shri M. Ramakrishna Udupa, Associate Lecturer	"Heterogeneous equilibria in Aqueous and Anhydrous salt systems".	2-11-63
4. Shri J. R. Jain Junior Technical Asst.	"Study of Catalytic Alkylation".	4-10-63
5. Shri S. R. Rajagopalan	"Physico - chemical study of Interfaces and Interfacial Processes".	16-12-63
6. Shri S. V. Kannan	"Stereochemistry of dehydration of alcohols over alumina".	27-7-64

Name	Research topic	Date of registration
7. Shri B. Viswanathan	“ Adsorption studies in relation to Heterogeneous Catalysis ”.	1-8-64
8. Shri R. Swaminathan	“ Mechanistic investigation of Heterogeneous Catalytic Reactions.	1-8-64
9. Shri N. Chandrasekharan	“ Studies on adsorption of gasses in relation to heterogeneous Catalysis ”.	1-9-65
10. Shri C. Daniel	“ Studies in the decomposition of metal hydrides ”.	8-9-65
11. Shri M. Santhanam	“ Photochemistry o reactions involving charge transfer complexes ”.	1-9-65
12. Shri D. Venkappayya	“ Coordination Chemistry and Heterogeneous equilibria ”.	1-9-65
13. Shri N. Chattanathan	Electrochemistry	11-5-66

9. DEPARTMENT OF MATHEMATICS

1. ACADEMIC STAFF :

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

2. TEACHING FACILITIES :

The Department imparts instruction in Mathematics at the various levels as follows :—

(a) Under-Graduate Courses :

- (i) Five-Year B. Tech. (for all Branches)

(ii) Three-Year B. Tech. (for all Branches)

(b) *Post-Graduate Courses :*

(i) M. Tech. (for all Branches)

(ii) M. Sc. (for Chemistry, Mathematics and Physics Branches)

(c) *Doctorate Course :*

Special lectures for Ph. D. scholars

3. LABORATORIES/WORKSHOP FACILITIES :

Computation laboratories offer facilities for numerical work.

4. RESEARCH WORK DONE BY THE STAFF MEMBERS OF THE DEPARTMENT :

Research work is in progress in the following fields.

<i>Name of Staff Members</i>	<i>Field of research</i>
1. Prof. S. D. Nigam Dr. L. V. K. V. Sarma Shri V. Subba Rao Shri U. N. Srivastava Shri C. V. Raghava Rao Shri S. N. Venkatarangan	} Fluid Mechanics, Magneto-hydrodynamics
2. Dr. S. K. Srinivasan Shri N. V. Koteswara Rao	} Non-Markovian Processes- Dams and Storage Systems
3. do	} Cascade Theory of Cosmic Ray Showers
4. Dr. S. K. Srinivasan	} Kinetic Theory of Gases and Turbulence
5. I. I. T.—Matscience collabora- tion	} Stochastic Point Processes and its Application to Particle Statistics
6. Dr. S. K. Srinivasan Dr. R. Vasudevan	} Intensity Fluctuations and Distribution of Photo-elec- tric Counts
7. Dr. S. K. Srinivasan Shri P. Achuthan	} Fundamental Particles- Photo and Pionic Produc- tion Processes

- | | | | |
|-----|---|---|---|
| 8. | Dr. S. K. Srinivasan
Dr. R. Subramanian
Shri S. Kumaraswamy | } | Stochastic Differential
Equations |
| 9. | Dr. S. C. Das
Dr. R. Subramanian
Dr. H. S. Paul | } | Elasticity, Plasticity and
Piezo-electricity |
| 10. | Shri D. S. Subramanyan | | Differential-Difference
Equations |
| 11. | Dr. K. R. Parthasarathy | | Graph Theory |
| 12. | Dr. V. Pitchaiah | | Numerical Analysis |

5. LIST OF PUBLICATIONS BY THE STAFF-MEMBERS :

Prof. S. D. Nigam and Shri U. N. Srivastava :

Group-theoretic considerations in boundary layers on rotating spheres (under publication)

Prof. S. D. Nigam and Shri V. Vidyanidhi :

Secondary Flow in a Straight Channel (sent for publication)

Dr. S. K. Srinivasan :

1. Random processes associated with random points on a line (Zast. Math. 8 (1965) 221)
2. On a class of Markovian processes associated with correlated pulse trains and their application to Barkhausen noise (with R. Vasudevan) (Nuovo Cimento 41 (1966) 101)
3. Sequent correlation functions. (Proceedings Matscience Symposium. Vol. 4 (1966))
4. On some recent mathematical development in cascade theory. (Proceedings Matscience Symposium Vol. 2 (1965))
5. A novel approach to kinetic theory and hydrodynamic turbulence (Zeit fur Physik, 193 394 (1966))
6. Generalised Boltzmann equation and kinetic theory of gases (I.I.T. Report No. 12, Feb. (1966))

7. A novel approach to kinetic theory of fluids-II Onset of turbulent motion. (Zeit fur Physik) (to be published)
8. Scattering phase shifts in stochastic fields (with R. Vasudevan and Alladi Ramakrishnan) (Nuovo Cimento) (to be published)

Dr. S. K. Srinivasan, Dr. R. Vasudevan and Shri N. V. Koteswara Rao :

Sequent correlations in stochastic point processes-II (II Nuovo Cimento) (under publication)

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

1. Oscillation of Axisymmetric bodies in electrically conducting rotating fluid. Journal of Science and Engineering (to be published)
2. Generalized Hartman Flow. Journal of Science and Engineering (to be published)

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

1. On the stresses in twisted composite orthotropic spheroids (Acta Technical CsAV-Voenikio No. 6 (1965))
2. Rigid spherical inclusion in semi-infinite solid. (Mech. Appl. Tome 10, No. 4 (1965))
3. Composite Spheroids under concentrated loads (Rozprawy Inzynierskie Vol. 13, No. 3 (1965))
4. On an aeolotropic solid with spherical inclusion (Accepted for publication in Indian Journal of Mechanics and Mathematics)
5. On a spherically isotropic composite truncated cone. (submitted to Arch. Mech, Stos.)

Dr. S. K. Srinivasan, Dr. R. Subramanian and Shri S. Kumaraswamy :

Flow through pipes under random conditions. (completed)

Dr. S. K. Srinivasan and Shri P. Achuthan :

Photo-production of Vector Mesons (Nuclear Physics 76, 638-57 (1966)).

Dr. S. K. Srinivasan, Shri V. Ramabhadran and Shri P. Achuthan :

Charge Dependent Corrections in Photo-production of Positive Pions. (II Nuovo Cimento) (in press).

Dr. H. S. Paul :

1. Axisymmetric Vibration of Electrostrictive Barium Titanate Ceramic. (Revue Ronmaine des Sciences Techniques—Mechanique Applique No. 2, 1966).
2. Vibrations of Circular Cylindrical Shells of Piezo-electric Silver-Iodide crystal. (under publication).

Dr. V. Subba Rao :

1. On slow motion of a sphere in a viscous liquid (Journal of the Indian Academy of Sciences) (under publication).
2. Surface waves in rotating liquids. (Presented at the ISTAM Conference 1965)

Dr. K. R. Parthasarathy :

Enumeration of graphs with given partition. (Canadian Journal of Mathematics) (sent for publication).

Shri U. N. Srivastava :

Growth of laminar boundary layers on a rotating blade—motion started (Presented at the ISTAM Conference 1965).

Shri S. N. Venkatarangan :

On the non-linear mechanics of magneto-hydrodynamic stability (Presented at the ISTAM Conference in December 1965).

Dr. V. Pitchaiah :

1. An estimate of the truncation error in the numerical solutions of the Laplace's equation with mixed boundary conditions in a rectangular domain (under publication).
2. Vector-matrix form of the numerical solution for the Neumann problem in a rectangular domain. (under publication).

6. DEPUTATION OF STAFF-MEMBERS TO SEMINARS, ETC.

Members of the Department participated in the ISTAM Conference.

Dr. S. K. Srinivasan :

- (i) Participated in the Matscience Summer School at Bangalore in August 1965 and delivered lectures on Fluctuating Density Fields.
- (ii) Participated in the Matscience Anniversary Symposium at Madras in January 1966 and delivered a one-hour address on Random Integration and Differential Equation.

Shri N. V. Koteswara Rao :

Attended a course of lectures on Fortran Programming at I.I.T., Kharagpur in August—September 1965.

Shri P. Achuthan :

Participated in the Matscience Summer School at Bangalore in August—September 1965 and Matscience Anniversary Symposium at Madras in January 1966.

7. OTHER ACTIVITIES :

During the year under report, thirty-five Seminar lectures were given under the following broad headings :—

Fluid Mechanics
 Stochastic Processes
 Elasticity
 Fundamental Particles
 Differential Equations
 Graph Theory
 Numerical Analysis
 Functional Analysis

The I. I. T.—Matscience Seminars were continued to be held once in every fortnight. Fluid Mechanics, Fundamental Particles, Stochastic Processes, Statistical Mechanics, Graph Theory were among the subjects dealt with in the lectures.

Eleven research reports have been completed and circulated.

The staff-members, research scholars and postgraduate students attended special lectures delivered by eminent mathematicians and scientists at the Matscience and other Departments of the Institute.

The Department organised the Tenth Conference of the Indian Society of Theoretical and Applied Mechanics (ISTAM) in the Institute in December 1965. The research papers presented at the Conference from the Department were well received.

8. RESEARCH SCHOLARS :

(a) *Full-time*

<i>Sl. No.</i>	<i>Name</i>	<i>Topic of Research</i>	<i>Date of registration</i>
1.	Shri A. V. Gopalakrishna	Relativistic Fluid Mechanics	11-8-1964
2.	Shri K. Krishna Rao	Thermo Elasticity	8-9-1964
3.	Shri V. P. Muthuswamy	Plasticity	25-8-1964
4.	Shri R. N. Sarkar	Elementary Particle Physics	26-8-1965
5.	Shri D. V. Krishna	Fluid Mechanics	2-9-1965
6.	Shri S. N. Majhi	Fluid Mechanics	23-9-1965
7.	Shri G. Rajamannar	Stochastic Processes	25-8-1965
8.	Shri R. Seetharamaswamy	Fluid Mechanics	27-4-1965
9.	Shri A. Ramachandra Rao	Wave Propagation	6-8-1964
10.	Kumari S. Vijayalakshmi	Fluid Mechanics	10-8-1964

(b) *Part-time*

1.	Shri S. N. Venkatarangam	Stability in Hydrodynamics	4-8-1964
2.	Shri C. V. Raghava Rao	Rotating Fluids	4-8-1964
3.	Shri N. V. Koteswara Rao	Stochastic Processes	30-10-1962
4.	Shri P. Achuthan	Fundamental Particle Interaction	7-10-1963
5.	Shri U. N. Srivastava	Fluid Mechanics	4-8-1964
6.	Shri S. Kumaraswamy	Differential Equations	1-1-1966

9. FOLLOWING WERE AMONG THE DISTINGUISHED SCIENTISTS WHO VISITED THE DEPARTMENT DURING THE YEAR :

- Prof. Grossman (U.S.A.)
- Prof. A. Narasinga Rao
- Prof. Kichenasamy (France)
- Prof. N. Ray
- Prof. Alladi Ramakrishnan
- Prof. Gheorgita (Rumania)
- Prof. B. R. Seth
- Prof. Kawaguchi (Japan)
- Prof. I. I. Graduck (U.S.S.R.)
- Prof. G. Kallen (Sweden)
- Prof. W. K. Hayman (U.K.)
- Prof. A. Mercier (France)
- Prof. J. Rzewuski (Poland)
- Prof. Picman (U.S.A.)
- Prof. H. Ruegg (Switzerland)

10. DEPARTMENT OF PHYSICS

1. ACCADAMIC STAFF :

Professors	...	2
Honorary Professor	...	1
Assistant Professors	...	4
Lecturers	...	6
Associate Lecturers	...	10
Senior Technical Assistants	...	8
Junior Technical Assistants	...	4

2. TEACHING FACILITIES :

(a) *Undergraduate* :

The department gives the lectures and practical training to all the 5 years of 5 year B. Tech Degree course and 3 year B. Tech Degree course in the 1st and 3rd years in all branches of Physics including Atomic, Solid State and Nuclear Physics.

(b) *Postgraduate* :

The department is running a 2 year Master's Degree course in Physics with the subjects X ray crystallography, Transistor Physics, and Microwave Physics as electives.

Lectures on special aspects of Molecular, Atomic, Nuclear and Solid State Physics are given to the M. Sc. Chemistry and Mathematics students.

Courses on Material Science and Measurements and Instrumentation are given by the Department to the students of the M. Tech Degree classes of this Institute.

3. LABORATORY AND WORKSHOP FACILITIES :

For the undergraduate and post graduate students separate laboratories for the experiments in Mechanics, Heat, Optics and electricity are available. Facilities for advanced experiments in Solid State Physics, Atomic Physics, and Electronics are provided in the post graduate laboratories in the Department.

A small workshop with basic machines is attached to the department for the fabrication and repairs.

4. The following major equipments were procured during this year.
 1. Polariser and Analyser
 2. PH Meter
 3. Marconic powermeter, Universal bridge and VTVM.
 4. Two Baby Quartz Spectrographs
 5. Constant deviation spectroscope
 6. New Facit Calculators
 7. Air Compressor
 8. Phillips Board band millivoltmeter and Frequency generator
 9. Vernier potentiometers

5 (a) The following are the full time research scholars working in the department :

Scholar	Subject	Date of Registration
A- K. Singh (C. S. I. R. Fellow)	X-ray Crystallography	Submitted thesis
S. Vijayalakshmi	Magnetohydrodynamics	10-8-1964
L. Annapoorni	X-ray crystallography	10-8-1964
N. Harihara Iyer	Electron Paramagnetic Resonance	13-8-1964
K. Mallikarjuna Rao	Molecular Spectroscopy	14-8-1964
C. S. Sastry	Studies in Radioactivity and Nuclear Physics	do
G. D. Nigam	X-ray Crystallography	10-9-1964
S. Natarajan	X-ray Crystallography	13-9-1965
T. P. Srinivasan	Crystal Physics	9-9-1965
B. Anjaneya Sastry	Solid State Physics	22-9-1965
R. N. Sreenath	do	27-9-1965
V. Subramanyamurthy	do	27-9-1965
J. Majhi	Semi conductor physics	29-9-1965
K. Venkataramani	Instrumentation	30-10-1965
Y. Vsweswara Rao	do	12-10-1965

5. (b) Shri T. V. P. R. Subbarao, Lecturer, Vivekavardhini College, Hyderabad, has been given permission to work in the Department as part time scholar during the Summer vacation.

6. (a) Research work is being carried out in the Department in the following fields :

- a. Crystal structure analysis of organic and inorganic crystals at low and high temperatures phase transformation and thermal expansion studies.
- b. Semiconductor Physics.
- c. Electrical, magnetic, optical and thermal properties of crystals.
- d. Radiation damage and colour centre studies.
- e. Studies in Radioactivity and Tracer techniques.

(b) *Industry biased research.*

1. Low temperature X-ray crystallography.

The object of this project is to study the properties on matter in low temperatures and hence it may prove of interest in the materials construction of substances that have to be produced on low temperatures.

2. Testing of optical components.

6. LIST OF PUBLICATIONS BY STAFF MEMBERS .

Name of the staff member	Title of the publication	Journals in which published	Date of publication
1. A. K. Singh	The Exposure time of photographs recorded on integrating Weissenberg goniometer	Z. Kristallogr	1966
2. A. K. Singh and S. Ramaseshan	The determination of heavy atom position in protein derivatives	Acta Crystallographica (accepted for publication)	

Name of the staff member	Title of the publication	Journal in which published	Date of publication
3. A. K. Singh	The variation of reflection spot size in upper level Weissenberg photographs	Acta Crystallographica (Accepted for publication)	1965
4. E. M. Gopalkrishna	X-ray Structure analysis of meta chloronitrobenzene	Z. Kristallogr (1965) 378-384	do
5. S. Ramaseshan	The use of anomalous scattering of neutrons in the solution of crystal structures containing large molecules	Curr. Sci. (1966) 20. 87 - 91	1966
6. S. Rameseshan & A. K. Singh	Application of neutron anomalous scattering to Phase determination	Paper presented at the Solid State Physics Symposium held at Bombay, 1966	1966

STATEMENT No. 1

APPENDIX I

JOINT ENTRANCE EXAMINATION, 1965

Statement showing the number of applications received for admission to the I-Year Classes (pertaining to Centres located in the Southern Zone) giving State-wise distribution and first choice of Institute.

S. No.	State	First Choice of Institute					Total
		Bombay	Delhi	Kanpur	Kharagpur	Madras	
1	Andhra	99	9	32	394	801	1335
2	Assam	—	—	—	—	1	1
3	Bihar	—	—	—	—	—	—
4	Delhi	—	2	—	1	1	4
5	Goa	2	—	—	—	—	2
6	Gujarat	—	—	—	—	2	2
7	Himachal Pradesh	—	—	—	—	—	—
8	Jammu and Kashmir	—	—	—	—	—	—
9	Kerala	29	6	15	42	282	374
10	Madhya Pradesh	—	—	—	1	—	1

11	Madras	...	24	14	24	79	1571	1712
12	Maharashtra	...	6	—	1	—	1	8
13	Manipur	...	—	—	—	—	—	—
4	Mysore	...	231	9	16	61	325	642
15	Nagaland	...	—	—	—	—	—	—
16	Orissa	...	—	—	—	2	1	3
17	Pondicherry	...	—	—	—	—	12	12
18	Punjab	...	1	5	—	2	3	11
19	Rajasthan	...	1	—	1	—	4	6
20	Tripura	...	—	—	—	—	—	—
21	Uttar Pradesh	...	—	2	1	3	—	6
22	West Bengal	...	—	1	1	2	2	6
23	Andaman (Union Territory)	...	—	—	—	—	1	1
24	Displaced Persons.	...	—	1	—	—	—	1
25	Foreign Countries.	...	—	—	—	—	—	—
Total		...	393	49	91	587	3007	4127

STATEMENT No. 2.

Statement showing the number of applications registered for the examination (pertaining to Centres located in the Southern Zone) given State-wise distribution and first choice of Institute.

S. No.	State	First Choice of Institute					Total
		Bombay	Delhi	Kanpur	Kharagpur	Madras	
1	Andhra	94	9	32	383	783	1,301
2	Assam	—	—	—	—	1	1
3	Bihar	—	—	—	—	—	—
4	Delhi	—	2	—	1	1	4
5	Goa	2	—	—	—	—	2
6	Gujarat	—	—	—	—	2	2
7	Himachal Pradesh	—	—	—	—	—	—
8	Jammu & Kashmir	—	—	—	—	—	—
9	Kerala	26	5	15	36	255	337
10	Madhya Pradesh	—	—	—	1	—	1
11	Madras	22	13	23	77	1,536	1,671

12	Maharashtra	...	5	—	1	—	1	7
13	Manipur	...	—	—	—	—	—	—
14	Mysore	...	225	9	14	57	311	616
15	Nagaland	...	—	—	—	—	—	—
16	Orissa	...	—	—	—	2	1	3
17	Pondicherry	...	—	—	—	—	9	9
18	Punjab	...	1	5	—	2	3	11
19	Rajasthan	...	1	—	1	—	4	6
20	Tripura	...	—	—	—	—	—	—
21	Uttar Pradesh	...	—	2	1	3	—	6
22	West Bengal	...	—	1	1	2	1	5
23	Andaman (Union Territory)	...	—	—	—	—	1	1
24	Displaced Persons	...	—	1	—	—	—	1
25	Foreign Countries	...	—	—	—	—	—	—
Total		...	376	47	88	564	2,909	3,984

STATEMENT No. 3

Statement showing the number of candidates who actually took the examination at the various Centres in the Southern Zone.

S. No.	Examination Centre	State	Mathe- matics	English	GROUP-A		GROUP-B	
					Physics	Chemistry	Phy. & Chem.	Drawing
1	Anantapur	... Andhra	60	59	44	43	14	14
2	Hyderabad	... "	211	209	183	179	23	22
3	Kakinada	... "	235	228	219	212	7	7
4	Secunderabad	... "	181	181	177	168	1	1
5	Tirupati	... "	108	107	96	92	9	9
6	Waltair	... "	129	128	118	115	9	9
7	Warangal	... "	57	56	52	52	4	2
8	Calicut	... Kerala	30	30	30	28	—	—
9	Trichur	... "	69	67	61	59	4	4
10	Trivandrum	... "	142	139	132	131	6	6
11	Chidambaram	... Madras	56	56	53	53	3	3

12	Coimbatore	...	97	97	92	92	4	4
13	Madras (A. M. Jain College)	...	207	205	193	188	10	10
14	Madras (Pachaiyappa's College)	...	358	355	325	317	27	28
15	Madras (Vivekananda College)	...	421	417	365	362	47	45
16	Madurai	...	173	172	161	159	5	4
17	Salem	...	60	59	58	57	1	1
18	Tiruchirappalli	...	205	194	184	180	7	7
19	Bangalore	...	Mysore	263	260	249	8	8
20	Dharwar	...	126	115	110	107	5	5
21	Mangalore	...	111	111	106	106	5	5
22	Mysore	...	41	40	38	38	2	2
Total			3,340	3,285	3,047	2,987	201	196

STATEMENT No. 3-A.

DISTRIBUTION OF MARKS IN VARIOUS SUBJECTS

	Mathematics	English	Physics Group 'A'	Chemistry Group 'A'	Physics Group 'B'	Chemistry Group 'B'	Drawing Group 'B'
Total No. of candidates who took the examination ...	3340	3285	3047	2987	201	201	196
No. of candidates getting 80% and above ...	6 (0.2%)	99 (3%)	39 (1.3%)	23 (0.8%)	3 (1.5%)	5 (2.5%)	3 (1.5%)
No. of candidates getting 60% and above ...	61 (1.8%)	583 (18%)	245 (8%)	118 (4%)	25 (12.5%)	12 (6%)	39 (20%)
No. of candidates getting 50% and above ...	115 (3.4%)	1078 (33%)	559 (18%)	221 (7.4%)	44 (22%)	18 (9%)	64 (33%)
No. of candidates getting 30% and above ...	558 (17%)	2365 (72%)	1467 (48%)	896 (29%)	107 (53%)	70 (35%)	142 (72%)

STATEMENT NO. 4

Statement showing the number of Scheduled Caste and Scheduled Tribe candidates registered for the examination (State-wise) in the Southern Zone

S. No.	State		Scheduled Caste	Scheduled Tribe	Total
1	Andhra	...	20	1	21
2	Madras	...	22	3	25
3	Mysore	...	2	—	2
4	Kerala	...	—	—	—
5	Pondicherry	...	—	—	—
			44	4	48

STATEMENT No. 5

No. of candidates who qualified in the written examination and were called for interview at I. I. T. Madras for admission to the 5-year B. Tech. Course. (Distribution shown State-wise)

Sl. No.	State	First choice of Institute (I-Year)						Total	
		Bombay	Delhi	Kanpur	Kharagpur	Madras			
1	Andhra Pradesh	...	3	—	—	—	8*	15	26
2	Assam	...	—	—	—	—	—	1	1
3	Bihar	...	—	—	—	—	—	—	—
4	Delhi	...	—	1	—	—	1	—	2
5	Goa	...	—	—	—	—	—	—	—
6	Gujarat	...	—	—	—	—	—	—	—
7	Himachal Pradesh	...	—	—	—	—	—	—	—
8	Jammu & Kashmir	...	—	—	—	—	—	—	—
9	Kerala	...	1	—	—	—	2	12	15
10	Madhya Pradesh	...	—	—	—	—	1	—	1
11	Madras	...	4	1	2	6	88*	88*	101

12	Maharashtra	...	2	—	—	—	—	—	—	2
13	Manipur	...	—	—	—	—	—	—	—	—
14	Mysore	...	13	1	2	4	29	49	—	—
15	Nagaland	...	—	—	—	—	—	—	—	—
16	Orissa	...	—	—	—	—	—	—	—	—
17	Pondicherry	...	—	—	—	—	—	—	—	—
18	Punjab	...	1	1	—	—	—	2	—	—
19	Rajasthan	...	—	—	—	—	—	—	—	—
20	Tripura	...	—	—	—	—	—	—	—	—
21	Uttar Pradesh	...	—	1	—	2	—	3	—	—
22	West Bengal	...	—	—	—	1	—	1	—	—
23	Displaced Persons	...	—	—	—	—	—	—	—	—
24	Foreign Countries	...	—	—	—	—	—	—	—	—
Total		...	24	5	4	25	145	203	—	—

* Includes one Scheduled Caste candidate (total No. 2.)

STATEMENT No. 6

Total number of students offered admission to the I-Year of the 5-Year Integrated Courses at I.I.T., Madras for the session 1965-66 after interview at the 5 I.I.Ts. (Distribution shown State-wise)

S. No.	State	Interviewed at I. I. T.					Total
		Bombay	Delhi	Kanpur	Kharagpur	Madras	
1	Andhra Pradesh	...	1	3	—	—	15
2	Assam	...	—	—	—	—	1
3	Bihar	...	—	—	—	3	—
4	Delhi	...	—	20	—	1	1
5	Goa	...	—	—	—	—	—
6	Gujarat	...	1	—	1	—	—
7	Himachal Pradesh	...	—	—	—	—	—
8	Jammu and Kshmir	...	—	—	—	1	—
9	Kerala	...	2	2	—	1	12
10	Madhya Pradesh	...	1	—	—	—	1
11	Madras	...	3	18	—	2	88*

12	Maharashtra	...	13	—	—	—	1	14
13	Manipur	...	—	1	—	—	—	1
14	Mysore	...	—	—	—	30	—	30
15	Nagaland	...	—	3	—	—	—	3
16	Orissa	...	—	—	—	—	2	2
17	Pondicherry	...	—	—	—	—	—	—
18	Punjab	...	—	8	—	—	1	9
19	Rajasthan	...	—	—	2	—	—	2
20	Tripura	...	—	—	—	—	—	—
21	Uttar Pradesh	...	—	3	6	—	—	9
22	West Bengal	...	—	—	—	18	—	18
23	Displaced Persons	...	—	—	—	—	—	—
24	Foreign Countries	...	—	—	—	—	—	—
Total		...	21	58	9	—	149	266

* Includes one Scheduled Caste candidate.

STATEMENT No. 7

Total number of students who actually joined the I-year of the 5-year Integrated Courses at I. I. T.

Madras for the session 1965-66 after the interviews at the 5 I. I. Ts. (Distribution shown

State-wise and Course-wise) (As on 13-8-1965)

Sl. No.	State	COURSE							Total	
		Mech. Eng.	Aeronautical Eng.	Electrical Eng.	Chemical Eng.	Metallurgical Eng.	Civil Eng.			
		H. C.	L. C.	H. C.	L. C.	H. C.	L. C.	H. C.	L. C.	
1	Andhra Pradesh	...	5	2	3	2	3	3	—	18
2	Assam	...	—	1	—	—	—	—	—	1
3	Bihar	...	1	—	—	—	—	—	—	1
4	Delhi	...	4	3	4	2	—	1	4	18
5	Goa	...	—	—	—	—	—	—	—	...
6	Gujarat	...	1	—	—	—	—	—	1	2
7	Himachal Pradesh	...	—	—	—	—	—	—	—	...
8	Jammu & Kashmir	...	—	—	—	—	—	—	—	...
9	Kerala	...	—	1	3	—	5	2	5	16

STATEMENT No. 8

Consolidated statement relating to candidates from the Southern Zone for admission to the I-Year of the 5-year Integrated Courses (Session 1965-66)

S. No.	State	No. of applications Received	Registered for Exam.	No. qualified for inter-view at	No. offered admission to	No. actually joined (as on (31-8-65)		Branch					
						I. I. T. Madras		Mech. Aero.	EE (HC)	EE (LC)	Chem. M.et.	Civil	
1	Andhra	...	1,301	26	19	18	5	2	3	2	3	3	—
2	Assam	...	1	1	1	1	—	1	—	—	—	—	—
3	Bihar	...	—	—	3	1	1	—	—	—	—	—	78
4	Delhi	...	4	4	22	18	4	3	4	2	—	1	4
5	Goa	...	2	2	—	—	—	—	—	—	—	—	—
6	Gujarat	...	2	2	2	2	1	—	—	—	—	—	1
7	Himachal Pradesh	...	—	—	—	—	—	—	—	—	—	—	—
8	Jammu & Kashmir	...	—	—	1	—	—	—	—	—	—	—	—
9	Kerala	...	374	15	17	16	—	1	3	—	5	2	5
10	Madhya Pradesh	...	1	1	2	0	—	—	—	—	—	—	—
11	Madras	...	1,712	16,71	111	108	27	8	5	8	13	17	30

12	Maharashtra	...	8	7	2	14	13	4	1	2	—	3	3	—
13	Manipur	...	—	—	—	1	—	—	—	—	—	—	—	—
14	Mysore	...	642	616	49	30	31	10	2	4	7	4	1	3
15	Nagaland	...	—	—	—	3	—	—	—	—	—	—	—	—
16	Orissa	...	3	3	—	2	2	1	—	—	—	—	1	—
17	Pondicherry	...	12	9	—	—	—	—	—	—	—	—	—	—
18	Punjab	...	11	11	2	9	8	2	5	—	—	—	1	—
19	Rajasthan	...	6	6	—	2	1	—	—	—	—	—	1	—
20	Tripura	...	—	—	—	—	—	—	—	—	—	—	—	—
21	Uttar Pradesh	...	6	6	3	9	8	3	—	2	—	—	—	3
22	West Bengal	...	6	5	1	18	13	2	—	3	—	1	2	5
23	Andaman (Union Territory)	... }	1	1	—	—	—	—	—	—	—	—	—	—
24	Displaced Persons.	...	1	1	—	—	—	—	—	—	—	—	—	—
25	Foreign Countries	...	—	—	—	—	—	—	—	—	—	—	—	—
Total		...	4,127	3,984	203	266	240	60	23	26	19	29	31	52

APPENDIX II

STRENGTH OF STUDENTS ON THE ROLLS

5-year B. Tech. Degree Course

CLASS		1964-65	1965-66
I year	... ..	214	236
II year	... ..	230	212
III year—			
	Civil Engineering	33+2*	27
	Mechanical Engineering	60	70
	Electrical Engineering	40+1*	41
	Chemical Engineering	41	44
	Metallurgy	20+1*	26
	Aeronautical	—	15
IV year—			
	Civil Engineering	18	33
	Mechanical Engineering	40	58+1*
	Electrical Engineering	36	36+2*
	Chemical Engineering	18	37+1*
	Metallurgy	23	19
V year—			
	Civil Engineering	16	18
	Mechanical Engineering	35	37
	Electrical Engineering	32	34
	Chemical Engineering	20	17
	Metallurgy	19	23

- * External Students. (Students who have failed in one or two subjects and permitted to undergo practical training for 30 weeks in recognised factories/workshops and appear for the final examination in these subjects).

3-year B. Tech. Degree Course

Class	1963-64		1964-65	
	<i>I Term</i>	<i>II Term</i>	<i>I Term</i>	<i>II Term</i>
I year	77	74	92	98
II year	108	108	96	91
III year	77	77	74	73
M.Sc. Physics I year	8	9	5	5
II year	8	7	9	9
M.Sc. Chemistry I year	6	6	6	6
II year	3	3	6	6
M.Sc. Mathematics I year	8	6	10	8
II year	—	—	6	6
<i>M. Tech. Degree Chemical</i>				
I year	8	6	11	10
II year	6	6	6	6
<i>M. Tech. Degree Civil Engg.</i>				
I year	10	9	10	8
II year	10	10	8	7
<i>M. Tech. Degree Electrical Engg.</i>				
I year	10	8	16	7
II year	10	10	8	8
<i>M. Tech. Degree Mechanical Engg.</i>				
I year	4	4	4	3
II year	4	4	4	4

APPENDIX III

Results of Examinations at the end of 1965—66
Academic Session

Class	Branch	No. of students on rolls	No. permitted to take final Examination.	Total passed	Total Failed	Percentage
5 year B. Tech. Degree Course						
I year	All	236	235	226	9	96%
II year	All	212	206	203	3	98%
III year						
	Civil Engineering	27	26	25	1	97%
	Mechanical Engineering	70	69	65	4	94%
	Electrical Engineering	41	40	37	3	93%
	Chemical Engineering	44	43*	41	1	98%
	Metallurgy	26	26	26	Nil	100%
	Aeronautical	15	15	15	Nil	100%
IV year						
	Civil Engineering	33	33	32	1	96%
	Mechanical Engineering	59	57	53	4	93%
	Electrical Engineering	37	37	35	2	95%
	Chemical Engineering	38	37	37	Nil	100%
	Metallurgy	19	19	17	2	86%
V year						
	Civill Engineering	18	18@	16	1	94%
	Mechanical Engineering	37	37	37	Nil	100%
	Electrical Engineering	34	34	34	Nil	100%
	Chemical Engineering	17	17	17	Nil	100%
	Metallurgy	23	23	22	1	96%

* One student did not appear for final examination, permitted to go to IV year and appear for III B. Tech. Final examination later.

@ One student did not appear for V B. Tech Final Examination and yet to complete the course.

Course	No. Appeared		No. Passed		No. Failed		Percentage of Pass	
	I Term	II Term	I Term	II Term	I Term	II Term	I Term	II Term
	I	II	I	II	I	II	I	II
3-year B. Tech. Degree Course								
I year	92	98	87	95	5	3	94.5%	97%
II year	96	91	87	88	9	3	90.6%	96.7%
III year	74	73	71	72	3	1	96%	98.6%
M.Sc. Degree Course								
I year								
Chemistry	6	6	6	5	—	1	100%	83.3%
Mathematics	8	8	8	8	—	—	100%	100%
Physics	5	5	5	5	—	—	100%	100%
II year								
Chemistry	6	6	6	6	—	—	100%	100%
Mathematics	6	6	6	6	—	—	100%	100%
Physics	9	9	8	8	1	1	88.9%	88.9%
M. Tech. Degree Course								
I year								
<i>Civil Engg.</i>								
(a) Hydraulics	2	2	2	2	—	—	100%	100%
(b) Soil Mechanics & Foundation Engg.	2	2	2	2	—	—	100%	100%
(c) Structural Engg.	4	4	4	4	—	—	100%	100%
<i>Mechanical Engg.</i>	3	3	3	3	—	—	100%	100%
<i>Electrical Engg.</i>								
(a) Electronics	1	1	1	—	—	—	100%	—
(b) Measurements	2	2	2	2	—	—	100%	100%
(c) Power System	4	4	4	4	—	—	100%	100%
<i>Chemical Engg.</i>	11	10	11	10	—	—	100%	100%
II year								
<i>Civil Engg.</i>								
(a) Hydraulics	1	1	1	1	—	—	100%	100%
(b) Soil Mechanics & Foundation Engg.	3	3	3	3	—	—	100%	100%
(c) Structural Engg.	5	4	5	4	—	—	100%	100%
<i>Mechanical Engg.</i>	4	4	4	4	—	—	100%	100%
<i>Electrical Engg.</i>								
(a) Control System	3	3	3	3	—	—	100%	100%
(b) Electronics	2	2	2	2	—	—	100%	100%
(c) Power System	3	3	3	3	—	—	100%	100%
<i>Chemical Engg.</i>	6	6	6	6	—	—	100%	100%

APPENDIX IV

Scholarships and Loans

I. Institute Scholarships :

(a) *Under-graduate Course :*

(i) 5 year B. Tech. Degree Course :

Merit Scholarships	69
Merit-cum-Means Scholarships	174
Free-studentships	66

(ii) 3 year B. Tech. Degree Course :

Merit Scholarships	19
Merit-cum-Means Scholarships	53
Free-studentships	30

(b) *Post-graduate Degree Courses :*

(i) M. Sc. Degree Course :

Merit Scholarships	6
Merit-cum-Means Scholarships	6
Free-studentships	6

(ii) M. Tech. Degree Course :

Chemical Engineering	17
Civil Engineering	16
Electrical Engineering	21
Mechanical Engineering	7

(c) *Ph. D. Degree Course :* 36

INDIAN INSTITUTE OF TECHNOLOGY, MADRAS

II External Scholarships and Loans

Sl. No.	Name of the Sanctioning Authority	Nature of Scholarships	No. of students awarded	Value per annum per student Rs.
1	Ministry of Education, Government of India New Delhi	Post Matric Merit-scholarship	1	1,200
2	Director of Higher Education, Andhra Pradesh, Hyderabad	National Scholarships	9	1,320
3	-do-	Government of India Merit Scholarship to children of primary/secondary school Teachers	1	1,100
4	-do-	Special Merit Scholarship	2	1,500
5	-do-	State scholarship	1	900
6	Director of Technical Education, Assam, Shillong	Engineering scholarship	1	900
7	Director of Education, Gujarat, Ahmedabad	National scholarship	1	660
8	Director of Education, Himachal Pradesh Admn., Simla	Engineering scholarship	1	725

9	-do-	Government of India scholarship (Decentralized)	1	1,127
10	Director of Collegiate Education, Kerala, Trivandrum	National scholarship	1	1,320
11	Director of Technical Education, M. P. Bhopal	Engineering Scholarship	1	1,000
12	Director of Harijan Welfare, Madras	Government of India (Decentralized) scholarship	1	907
12 (a)	-do-	-do-	1	977
13	-do-	State scholarship for Backward class	1	900
14	-do-	-do-	1	800 ⁸⁶
15	Director of Higher Education, Madras	National scholarship	52	1,300
16	-do-	Government of India Merit scholarship to children of primary school/secondary school Teachers	3	1,100
17	Director of Education, Maharashtra, Poona	National scholarship	3	1,320
18	Director of Social Welfare, Maharashtra, Poona	Government of India (Decentralized) scholarship	1	1,100
19	Director of Collegiate Education, Mysore, Bangalore	National scholarship	12	1,320
20	Education Department, Government of Orissa, Bhubaneswar	Loan Stipend	10	1,375

INDIAN INSTITUTE OF TECHNOLOGY, MADRAS

II External Scholarships and Loans (Contd.)

Sl. No.	Name of the Sanctioning Authority	Nature of Scholarships	No. of students awarded	Value per annum per student Rs.
21	Director of Public Instruction, Pondicherry	State Merit Scholarship	1	600
22	-do-	National Scholarship		1,320
23	Director of Public Instruction, Punjab Government, Chandigarh	Government of India (Decentralized) scholarship	2	1,127
24	Director of Technical Education, Chandigarh	Loan Stipend for Engineering studies	2	600
25	-do-	Loan Stipend for Engg. studies	2	450
26	Director of Harijan & Social Welfare, Uttar Pradesh, Lucknow	Government of India (Decentralized) scholarships	1	1,052
27	Director of Education, Uttar Pradesh, Allahabad	National Scholarship	1	1,210
28	Director of Technical Education, U. P., Kanpur	U. P. Government Scholarship	1	500
29	Director of Tribal Welfare, Government of West Bengal, Calcutta	Government of India (Decentralized) Scholarship	1	842

30	Director of Public Instruction, West Bengal, National Scholarship Calcutta	2	1,320
31	-do-	1	990
32	Department of Atomic Energy, AEET, Bombay	1	18,00
	Undergraduate Scholarship for Metallurgical Engineering		
33	Messrs. Tata Iron & Steel Co. Ltd., Jamshedpur	4	1,500
	Jubilee Scholarships		
34	-do-	1	960
	Scholarships to children of TISCO Workers		
35	Hindustan Steel Limited, Ranchi	4	900
	In-Plant trainee's Scholarships		
36	Prime Minister's Relief Fund, New Delhi	3	1,020
	Financial Aid		
37	Lala Santram Tirathram Public Charitable Trust, Amritsar	1	600 ⁸⁸
	Educational Stipend		
38	Smt. Mahadevi Piramal Charitable Trust, Bombay	1	500
	Stipend		

APPENDIX IV-A
STUDENTS' AID FUND

The Students' Aid Fund Committee during the year was as detailed below :—

- | | | |
|---|--|-------------------------|
| 1 | Prof. B. Sengupto,
Director | ... Chairman |
| 2 | Shri C. V. Sethunathan,
Registrar | ... Member (Ex-officio) |
| 3 | Prof. P. C. Varghese,
(Head of the Department of Civil
Engineering) | ... Secretary |
| 4 | Dr. M. Venugopal,
(Associate Professor, Department
of Electrical Engineering) | ... Member |
| 5 | Dr. M. S. Vairanapillai,
(Asst. Professor, Department of
Humanities) | ... Treasurer |
| 6 | Dr. B. V. A. Rao,
(Asst. Professor, Department of
Aeronautics and Applied Mechanics) | ... Member |
| 7 | Shri Lionel Paul,
Secretary, Institute Gymkhana | ... Member |

The year commenced with an opening balance of Rs. 14,942.17. During the year a sum of Rs. 11,647 was received as contribution from the students of the Institute through their respective hostels. A sum of Rs. 680/- was repaid by the students who had been given aid out of the fund. Financial assistance amounting to Rs. 8,200/- was rendered to 17 students.

The following is the statement of receipts and charges for the year.

<i>Receipts</i>		<i>Charges</i>	
Opening Balance	14,942.17	Financial assistance given	
Contributions by students	11,647.00	Sri M. Narayana Rao	400.00
		Sri S. Nagender	400.00
Repayment of loans	680.00	Sri M. Krishnamurthy	500.00
		Sri B. Sitarama Rao	500.00
		Sri M. Muralidhara Rao	400.00
		Sri Bandyopadhyay	500.00
		Sri Vijayagopal	500.00
		Sri Prem Inder Singh	500.00
		Sri D. Justus	500.00
		Sri D. Jayaraman	500.00
		Sri M. R. Krishnan	500.00
		Sri N. Dhandapani	500.00
		Sri K. Sreedhara Bhat	500.00
		Sri Y. Gopal Rao	500.00
		Sri H. C. Mohan	500.00
		Sri S. Ramachandramurthy	500.00
		Sri C. V. Prabarakara Rao	500.00
			8,200.00
		Honoraium paid to the clerk	100.00
			8,300.00
		Closing Balance	18,969.17
Total ...	<u>27,269.17</u>	Total	<u>27,269.17</u>

APPENDIX V

PRIZES FOR ACADEMIC DISTINCTION AT THE END OF
1965-66 ACADEMIC SESSION

(a) ^{to be} Prizes awarded at the Third Convocation :

PRESIDENT'S PRIZE : For the student of the B. Tech. Degree course with the best academic record.

~~Shri V. Srinivasan~~ ^{Shri Gunsharan S. Sidhu}

~~Shri V. Srinivasan~~—Mechanical Engineering—5 year
B. Tech.

GOVERNOR'S PRIZE : For all round proficiency in the B. Tech. Degree Course (Curricular and extra curricular).

~~Shri Lionel Paul~~ ^{Thomas Victor}
Shri ~~Lionel Paul~~—Mechanical Engineering—5 year
B. Tech.

INSTITUTE SPECIAL MERIT PRIZE : For the student of the 3 year B. Tech. Degree Course with the best academic record.

~~Shri L. Padmanabhan~~ ^{Nareoh Puri}
Shri ~~L. Padmanabhan~~—Chemical Engineering—3 year
B. Tech.

MERIT PRIZES : For the student with the best academic record in each discipline of each course.

5-year B. Tech. Degree Course :

- Shri N. Sekhar—Chemical Engineering
- Shri K. V. Natarajan—Civil Engineering
- Shri K. Radhakrishna Rao—Electrical Engineering
- Shri V. Srinivasan—Mechanical Engineering
- Shri C. Devadas Kamath—Metallurgy

3-year B. Tech. Degree Course :

- Shri L. Padmanabhan—Chemical Engineering
- Shri B. V. Subramanian—Civil Engineering

Shri P. Niranjana Reddy—Electrical Engineering

Shri A. S. Rangan—Mechanical Engineering

Shri S. Ramaswamy—Metallurgy

M. Tech. Degree Course (1965) :

Shri T. S. Sridhar—Chemical Engineering

Shri S. Akshayakumar—Civil Engineering

Shri S. Pasupathy—Electrical Engineering

Shri R. Rajagopal—Mechanical Engineering

M. Tech. Degree Course (1966) :

Shri C. P. Vijayan—Chemical Engineering

Shri M. G. Srinivasan—Civil Engineering

Shri K. Raman Nair—Electrical Engineering

Shri Sohan Prakash Kellog—Mechanical Engineering

M.Sc. Degree Course (1965). ;

Shri T. P. Srinivasan—Physics

M.Sc. Degree Course (1966) :

Shri S. Santhanagopalan—Chemistry

Shri V. Sundaresan—Mathematics

Shri B. Sudheer Nanda—Physics

SIEMENS PRIZES : For the student with the best academic records in Electrical Engineering Branch of the 5 year B. Tech. and M. Tech. Degree Courses.

5-year B. Tech. Degree Course :

Shri V. Padmanabhan—Electrical Engineering (H. C.)

M. Tech. Degree Course (1965) :

Shri V. Pasupathy

M. Tech. Degree Course (1966) :

Shri K. Raman Nayar

(b) INSTITUTE MERIT PRIZES : (For each class)

Name of students & year	Prize awarded	Value of Prize Rs.
<i>5-Year B. Tech Degree Course :</i>		
FIRST YEAR :		
Shri T. T. Jagannathan	I	50
Shri Vinod Chandra	II	25
SECOND YEAR :		
Shri J. Srinivasan	I	50
Shri C. V. Avadhani	II	25
THIRD YEAR :		
Mechanical Engineering Shri Mihir Sen	I	50
Civil Engineering Shri Pawan Kumar Jain	I	50
Electrical Engineering Shri V. Muralidhar	I	50
Chemical Engineering Shri S. Sivaramakrishnan	I	50
Metallurgy Shri Dilip Bhandarkar	I	50
Aeronautical Engineering Shri Dan Dayal Bansal	I	50
FOURTH YEAR :		
Mechanical Engineering Shri Gursharan Singh Sidhu	I	50
Civil Engineering Shri P. S. Govindarajan	I	50
Electrical Engineering Shri R. Kalyanakrishnan	I	50
Chemical Engineering Shri P. Neelamegham	I	50
Metallurgy Shri N. Panduranga Prabhu	I	50

3-Year B. Tech. Degree Course :

FIRST YEAR :

Shri G. Raghavan	I	50
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SECOND YEAR :

Mechanical Engineering		
Shri P. Surya Prakasa Rao	I	50

Civil Engineering		
Shri K. Janakiram	I	50

Electrical Engineering		
Shri Naresh Puri	I	50

Chemical Engineering		
Shri Gopalakrishna Chandran	I	50

Metallurgy		
Shri P. S. A. Narayanan	I	50

M Sc Degree Course :

FIRST YEAR :

Physics		
Shri M. V. Krishnan	I	50

Chemistry		
Sri B. R. Ramachandaran	I	50

Mathematics		
Kum. V. Vatsala	I	50

M Tech Degree Course :

FIRST YEAR :

Mechanical Engineering		
Shri R. R. Raman	I	50

Civil Engineering		
Shri G. Seethapathi Rao	I	50

Electrical Engineering		
Shri K. Surendran	I	50

Chemical Engineering		
Shri N. R. Neelakantan	I	50