INDIAN INSTITUTE

OF

TECHNOLOGY, KHARAGPUR

ANNUAL REPORT

(1957—58)

PRINTED BY THE GOVERNMENT OF
INDIA PRESS, CALCUTTA, INDIA, 1959.

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1. BOARD OF GOVERNORS

Chairman.

Dr. B. C. Roy, Chief Minister, West Bengal.

Members.

Shri G. D. Birla, 8, Royal Exchange Place, Calcutta (upto 18th June, 1958).

Shri P. C. Bhanjadeo, Maharaja of Mayurbhanj, 7, Mayurbhanj Road, Calcutta-23 (from 19th June, 1958).

Sir Jehangir J. Ghandy, Tata Iron & Steel Co. Ltd. Jamshedpur.

Dr. C. D. Desmukh, Chairman, University Grants Commission, New Delhi.

Prof. M. S. Thackar, Director, Council of Scientific & Industrial Research, New Delhi.

Dr. S. R. Sen Gupta, Director, Indian Institute of Technology, Kharagpur.

Shri G. K. Chandiramani, Joint Educational Adviser (T). Ministry of Scientific Research & Cultural Affairs, New Delhi.

Shri D. S. Nakra, Financial Adviser, Ministry of Finance, Government of India, New Delhi (upto 18th June, 1958).

Shri A. V. Venkateswaran, Financial Adviser, Ministry of Finance, Govt. of India New Delhi (from 19th June, 1958).

Shri S. S. Khera, Secretary, Deptt. of Mines & Fuels, Min. of Steel, Mines, & Fuels, Govt. of India, New Delhi.

Shri S. N. Das, Member, Lok Sabha, 161, North Avenue, New Delhi.

Shri J. N. Lahiri, Member, Lok Sabha, 157, South Avenue, New Delhi.

Shri Chandulal P. Parikh, Member, Rajya Sabha, 28, Apollo Street, Bombay (upto 23rd May, 1958).

Shri A. N. Agarwal, Member, Rajya Sabha, New Delhi (from 24th May, 1958).

Secretary.

Prof. H. N. Bose, Registrar of the Institute ex-officio (upto 23-12-57).

Shri K. C. Chakravarty, Registrar of the Institute, ex-officio (from 24-12-57).

The Board of Governors met thrice in Calcutta during the period under report.

2. ACADEMIC COUNCIL

The Academic Council met regularly and held 11 meetings at the Institute during the period under report.

3. ACADEMIC SESSION

The Academic session for 1957-58 commenced on the 1st July 1957, and ended on the 30th June, 1958.

The session for the post-graduate courses commenced on the 2nd September, 1957.

4. CONVOCATION.

The Third Annual Convocation held on February, 22, 1958, with Dr. B. C. Roy, Chief Minister, West Bengal, in the Chair was attended by a gathering of about 3,000 including some distinguished guests. Dr. Roy paid a tribute to late Maulana Abul Kalam Azad, and the meeting stood in silence for a minute as a mark of respect to the departed soul. The alumni were addressed by Dr. S. R. Sen Gupta and Dr. B. C. Roy, and then the degrees were awarded. Dr. John Mathai, Vice-Chancellor, Kerala University gave the Convocation address.

Shri Ashoke Kumar Sen, who topped the list of the Civil Engineering graduates was adjudged the best graduate for the year, and awarded the President's Gold Medal.

The degrees awarded fell into 3 Sections :—

(i) Doctorate ;
(ii) Post-Graduate ;
(iii) Graduate.

Seven candidates were admitted to the Degree of Doctor of Philosophy (Ph. D.).

The number of students declared to have passed the Master of Technology (M. Tech.) Degree Examination, 1957, was as under :—

Course.	Number.
(1) Applied Botany	1
(2) Advanced Broadcast Engineering	4
(3) Applied Geology	4
(4) Combustion Engineering & Fuel Economy	4
(5) Design of Turbo machinery	2
(6) Electrical Machine Design	5
(7) Exploration Geophysics	3
(8) Hydraulics & Water Power Engineering	5
(9) Industrial Engineering	5
(10) Industrial Physics	1
(11) Machine Design	2
(12) Production Technology	5
(13) Regional Planning	4
Ditto—(Diploma Course)	3
(14) Structural Engineering	12
(15) Technical Gas Reaction & High Pressure Technology	2
(16) Transportation Engineering	2
Total	64

4. CONVOCATION—*contd.*

The number of students declared to have passed the Bachelor of Technology (B. Tech.) Degree examination, 1957, was as under :—

Course.	Number.
(*a*) Agricultural Engineering	29
(*b*) Civil Engineering	90
(*c*) Electrical Engineering	46
(*d*) Electrical Engineering (Electronics & Communication)	5
(*e*) Mechanical Engineering	54
(*f*) Naval Architecture	11

Nine students were declared to have passed the Bachelor of Architecture (B. Arch.) Degree Examination, 1957.

Nine students were declared to have passed the Bachelor of Science (B. Sc.) Degree Examination in Geology & Geophysics, 1957.

5. ADMISSION.

(*a*) Bachelor's Degree Courses.

Admission to the various Bachelor's degree courses at the Institute during the Session 1957-58 was made on the result of an Entrance Examination held at 25 different centres all over the country. The written examinations were held on the 3rd and 4th May, 1957 at the followtng centres :—

Serial No.	State	Centre of Examination	Location of Centre.
1.	Assam	Gauhati	Sudmerson Hall, Cotton College, Gauhati.
2.	Andhra	Kakinada	Engineering College, Kakinada.
		Secunderabad	Government Technical High School, Secunderabad.
3.	Bihar	Patna	Bihar College of Engg., Patna.
4.	Bombay	Bombay	Elphinstone Technical High School Building, Curickshank Road, Bombay.
5.	Delhi	Delhi	Delhi Polytechnic, Delhi.
6.	Kerala	Trivandrum	College of Engg., Trivandrum.
		Trichur	Maharaja's Technological Institute, Trichur.

5. ADMISSION—*contd.*

(*a*) Bachelor's Degree Courses—*contd.*

Serial No.	State	Centre of Examination	Location of Centre.
7.	Madhya Pradesh	Bhopal	Sardar Vallabha Bhai Polytechnic, Bhopal.
		Gwalior	Government Central Technical Institute, Gwalior,
		Nowgong	Government Polytechnic, Nowgong.
		Jabalpur	Government Polytechnic, Jabalpur.
8.	Manipur	Imphal	Johnstone High School, Imphal.
9.	Mysore	Bangalore	College of Engg., Bangalore.
10.	Madras	Madras	Hindu High School Building, Triplicane, Madras.
11.	Orissa	Cuttack	Orissa School of Engg., Cuttack.
		Hirakud	Industrial Training Institute, Hirakud.
12.	Punjab	Ambala City	D. A. V. College, Ambala City. A. S. High School, Ambala City.
13.	Rajasthan	Jaipur	Maharaja's College, Jaipur.
14.	Tripura	Agartala	Umakanta Academy, Agartala.
15.	Uttar Pradesh	Kanpur	Harcourt Butler Technological Institute, Kanpur.
		Varanasi	Government Central Weaving Institute, Varanasi.
		Agra	Technical College, Dayalbagh, Agra.
16.	West Bengal	Calcutta	B. E. College, Shibpur, Howrah.
		Kharagpur	Indian Institute of Technology, Main Building, Kharagpur.

In all the above states the examination was conducted by the State Government concerned on behalf of the Institute except in Delhi were the Principal of the Delhi Polytechnic conducted the examinations. The State Governments of Himachal Pradesh and Jammu and Kashmir expressed their inability to conduct the examination. As per decision of the Board of Governors the expenditure incurred by the State Governments in conducting the examination in their states was reimbursed by the Institute.

This year, the office responded to more than 17,500 requests for supply of prescribed application forms and particulars for admission. A total number of 5,565 properly filled in applications were received ; of this number 118 applicants were found not to fulfil the requirements for admission. Admit Cards to 5,447 candidates were issued to appear for the entrance examination at the centres of their choice. 4,379 candidates sat for the written examination at 25 different centres out of whom 4,100 completed the examination.

Candidates who had secured competitive marks in the entrance examination were called for Viva-voce examination at the Institute on the 20th, 21st, 22nd, 24th, 25th, 26th and 29th June, 1957. Altogether 591 candidates were called for Viva-voce and Medical examination at the Institute. The Viva-voce examination was conducted by four Boards comprising Senior Professors, Professors, Assistant Professors and Senior Lecturers representing different departments. The Boards met jointly before the Viva-voce examination and decided on the uniform standard of marking. The Chairmen of the Boards also met on each day of Viva-voce examination jointly along with the Chairman, Admission Committee to finalise the results of the Viva-voce examination. Out of 591 candidates 464 actually appeared for Viva-voce and medical examination. On the recommendation of the Boards 430 candidates

5. ADMISSION—*contd.*

were selected for admission to the various courses, details of which are given in the following statement. In addition, 6 foreign students as detailed below sponsored by the Government of India under the Colombo Plan were also selected.

As in the previous sessions a number of seats was kept reserved for the nominees of different foreign Governments sponsored by the Government of India under the Technical Co-operation Scheme of the Colombo Plan :

Details of reservation for 1957-58 were as under—

Government of Indonesia	2 seats in Mechanical Engg.
Government of Indonesia	1 seat in Architecture.
Government of Burma	1 seat in Mechanical Engg.
Government of Nepal	1 seat in Architecture.
Government of Nepal	1 seat in Mining Engg.

The States of Indonesia and Burma were the latest additions to the list of foreign countries deputing candidates for Undergraduate courses at this Institute. Nominee of the Government of Burma left immediately after joining and the nominees of the Government of Indonesia did not join.

ADMISSION POSITION, 1957-58

The total intake capacity remained the same, i. e. 407.

Courses.	Intake Capacity.	Number Selected.	Number admitted.
1. Civil Engineering	100	112	107
2. Mechanical Engg.	75	87	81
3. Electrical Engg.	75	86	83
4. Metallurgical Engg.	25	27	25
5. Agricultural Engg.	30	21	14
6. Architecture	30	27	17
7. Geology & Geophysics	20	19	15
8. Naval Architecture and Marine Engineering	12	11	9
9. Mining Engineering	25	29	27
10. Chemical Engineering	15	17	14
Total	407	436	392

Number of candidates selected for admission from States where adequate facilities for Engineering sudies do not exist 95

Number of candidates selected for admission from among the members of Scheduled Castes, Schedule Tribes and other Backward classes 29

Admission of students belonging to Scheduled Castes, Scheduled Tribes and other Backward classes :—

No. called for Viva-voce	35
No. appeared for Viva-voce	29
No. selected for admission	29
No. actually admitted	28

The salient feature of this year's admission was that seats in Mechanical, Electrical and Metallurgical Engineering Courses in particular were in great demand and due to the limited numbers of seats in those Courses a good many had to be admitted in alternative courses chosen by them. The number of candidates opting for the following courses was on the decline as would be evident from the statement given above :—

(a) Agricultural Engineering.
(b) Architecture.
(c) Geology and Geophysics.

SION—*contd.*

Indian Institute of Technology, Kharagpur.
1957-58.

No. of students acually admitted.	*Branchwise Admission.										**SC/ST /BC inclu-ded in the total admitted.	Abbreviations Remarks.
	CE	EE	ME	Met	ChE	Min	AgE	Ar	NA	Ge		
9	3	1	..	..	..	1	1	1	1	1	5	*CE=Civil Engg.
13	2	..	3	1	2	1	1	3	..	..	1	EE=Elect. Engg.
31	6	9	5	1	..	6	2	..	1	1	10	ME=Mech. Engg. Met=Metallurgica Engg. ChE=Chemical Engg.
14	4	2	4	1	..	..	1	..	2	..	1	Min=Mining Engg. AgE =Agricultoral Engg.
40	13	8	12	3	1	2	..	1	..	..	1	Ar.=Architecture.
7	3	..	..	1	2	..	..	1	..	..	..	NA=Naval Arch.
7	2	..	3	1	..	..	..	..	..	1	1	Ge=Geology & Geophysics.
..	..	..	..	..	..	..	..	..	..	..	..	**SC=Scheduled Caste.
7	..	4	..	..	1	..	..	1	..	1	1	ST=Scheduled Tribe.
15	2	3	5	..	..	3	..	1	1	..	..	BC=Backward Class.
7	..	1	1	..	..	1	1	..	..	3	..	
32	7	13	4	3	1	1	..	1	1	1	1	
14	7	2	..	..	..	2	1	1	..	1	..	
..	..	..	..	..	..	..	..	..	..	..	..	
101	26	28.	21	2	5	5	6	6	1	1	3	
92	32	12	22	12	2	4	1	..	2	5	4	
..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	
3	..	..	1	..	..	1	..	1	..	..	..	
392	107	83	81	25	14	27	14	17	9	15	28	

No. selected for admission	*No. actually took admission*
95	88
335	301
430+6 (Foreign)=436	389+3 (Foreign)=392
29	28

SION—*contd.*

Indian Institute of Technology, Kharagpur.

1957-58.

No. of students acually admitted.	*Branchwise Admission.										**SC/ST /BC inclu-ded in the total admitted.	Abbreviations Remarks.
	CE	EE	ME	Met	ChE	Min	AgE	Ar	NA	Ge		
9	3	1	..	..	..	1	1	1	1	1	5	*CE=Civil Engg.
13	2	..	3	1	2	1	1	3	..	..	1	EE=Elect. Engg.
31	6	9	5	1	..	6	2	..	1	1	10	ME=Mech. Engg. Met=Metallurgica Engg. ChE=Chemical Engg.
14	4	2	4	1	..	..	1	..	2	..	1	Min=Mining Engg. AgE =Agricultural Engg.
40	13	8	12	3	1	2	..	1	..	..	1	Ar.=Architecture.
7	3	..	..	1	2	..	..	1	..	..	..	NA=Naval Arch.
7	2	..	3	1	..	..	..	..	..	1	1	Ge=Geology & Geophysics.
..	..	..	..	..	..	..	..	..	..	..	..	**SC=Scheduled Caste.
7	..	4	..	..	1	..	..	1	..	1	1	ST=Scheduled Tribe.
15	2	3	5	..	..	3	..	1	1	..	..	BC=Backward Class.
7	..	1	1	..	..	1	1	..	..	3	..	
32	7	13	4	3	1	1	..	1	1	1	1	
14	7	2	..	..	..	2	1	1	..	1	..	
..	..	..	..	..	..	..	..	..	..	..	..	
101	26	28.	21	2	5	5	6	6	1	1	3	
92	32	12	22	12	2	4	1	..	2	5	4	
..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	
3	..	..	1	..	..	1	..	1	..	..	..	
392	107	83	81	25	14	27	14	17	9	15	28	

No. selected for admission	*No. actually took admission*
95	88
335	301
430+6 (Foreign)=436	389+3 (Foreign)=392
29	28

5. ADMISSION—*contd.*

For admission to the Bachelor's Degree Course during the session 1958-59, the Entrance Examination was held on 1st and 2nd May, 1958 at 26 different centres *viz.*; Agartala, Agra, Bangalore, Berhampur, Bhopal, Bombay, Calcutta, Cuttack, Delhi, Gauhati, Gwalior, Hirakud, Imphal, Jabalpur, Jaipur, Jullundur, Kakinada, Kanpur, Kharagpur, Madras, Patna, Raipur, Secunderabad, Trivandrum, Trichur and Varanasi.

The candidates who qualified themselves in written examination were called for medical and viva-voce examination at this Institute during the month of June, 1958 for final selection for admission;

(i) No. of candidates applied for admission .	6,464+6	Foreign/Sponsored by Government of India.
(ii) No. found eligible for appearing at the Entrance Examination.	6,342	
(iii) No. appeared in the Entrance Examination .	4,963	
(iv) No. called for Viva-voce Examination .	757	
(v) No. appeared for Viva-voce Examination .	648	
(vi) No. finally selected for admission . .	541+6	Foreign/Sponsored by Government of India. (Nepal =2 Bhutan =2 Sikkim =1 Naga Hills Area 1.)

(*b*) Post-Graduate Courses.

Department	Course of studies	No. of candidates applied	No. of candidates selected	No. of students actually admitted
1. Agricultural Engineering.	(a) Applied Botany .	8	1	1
	(b) Farm Machinery and Power.	9	2	2
	(c) Soil & water Conservation.	14	—	—(Course not started).
2. Applied Chemistry	(a) Technical Gas Reaction & High Pressure Technology.	11	7	5
3. Chemical Engineering.	(a) Combustion Engg. & Fuel Economy.	24	8	8
	(b) Chemical Plant Design.	38	9	9
4. Geology & Geophysics.	(a) Exploration Geophysics.	16	6	3
	(b) Applied Geology .	12	6	5
5. Physics & Meteorology.	(a) Meteorology .	4	2	2

5. ADMISSION—*concld.*

(*b*) Post-Graduate Courses—*contd.*

Department	Course of studies.	No. of candidates applied	No. of candidates selected	No. of students actually admitted
6. Mechanical Engineering.	(a) Production Technology.	75	9	9
	(b) Machine Design	14	5	5
	(c) Refrigeration & Air-Conditioning Plant.	8	2	1
	(d) Turbo Machinery	5	—	—(Course not started).
	(e) Industrial Engineering.	23	7	6
7. Civil Engineering	(a) Structural Engineering.	61	8	6
	(b) Highway Engineering.	6	—	—(Course not started).
	(c) Soil Mechanics & Foundation Engineering.	4	—	—(Course not started).
	(d) Dam Construction & Water Power Engineering.	19	5	5
	(e) Harbour Engineering.	1	—	—(Course not started).
8. Electrical Communication Engineering.	(a) Radio Broadcast Engineering.	17	7	5
	(b) Ultra High Frequency & Microwave Engineering.	18	7	4
9. Electrical Engineering.	(a) Electrical Machine Design.	49	10	6
10. Architecture & Regional Planning.	(a) Regional Planning	16	5	4
11. Mathematics	(a) Non-linear Mechanics.	8	2	2
	TOTAL	460	108	88

Three Post-graduate Courses *viz.*, (i) High Polymer and Rubber Technology, (ii) Industria Physics and (iii) Meta lPhysics were advertised for admission of students but no application was received for those courses during 1957-58.

6. RESIDENTIAL STUDY COURSES.

1. Industrial Management study course for "Higher Productivity" was held for two weeks in February 1958. 17 representatives were deputed by different Government Departments and 32 Nos. were sent by Industry.

2. Special course on 'Shell Structures' was held for 10 days in May 1958, 8 representatives were deputed by different Government Departments and 7 Nos. were sent by Industries.

7. SPECIALISED COURSE IN METALLURGY.

Seven engineering graduates deputed by the Hindusthan Steel (Private) Ltd., joined the one year special study course in Metallurgy in January 1958. This training was financed by the Hindusthan Steel (Private) Ltd., for training Chemical and Mechanical Engineering graduates by the Metallurgical Engineering Department of this Institute.

8. APPRENTICES TRAINING FACILITIES.

Fourteen Apprentices of the batch of 1955 completed their training in January 1958, 20 Nos. each of the year 1956/57 took training during the year under report. Further 20 Nos. joined the Apprentices training in February 1958.

9. STUDENT POPULATION.

The number of students in the various courses during the year 1957-58 was as below :—

Bachelor's Degree Courses, Session 1957-58.

Year	Course	No. of students on Roll in the beginning of the session 1957-58	No. of students at the end of the academic Year *i.e.*, June 1958.	No. of students who did not join or dropped out till June, 1958.
FIRST	Civil Engineering	107	94	13
	Elect. ,,	83	70	13
	Mech ,,	81	73	8
	Met. ,,	25	23	2
	Agri. ,,	14	9	5
	Chem. ,,	14	13	1
	Min. ,,	27	22	5
	Naval Arch.	9	8	1
	Architecture	17	12	5
	Geo. & Geoph.	15	12	3
	TOTAL	392	336	56

9. STUDENT POPULATION—*contd.*

Bachelor's Degree Courses, Session 1957-58—*contd.*

Year	Course	No. of students on roll in the beginning of the session 1957-58	No. of students at the end of the academic Year *i. e.*, June 1958.	No. of students who did not join or dropped out till June, 1958.
SECOND	Civil Engineering	100 *plus* 1	101	..
	Elect. ,,	64	64	..
	Mech. ,,	73	73	..
	Met. ,,	27	27	..
	Agri. ,,	22	21	1
	Chem. ,,	13	13	..
	Min. ,,	22	21	1
	Naval Arch.	8	8	..
	Architecture	20	20	..
	Geo. & Geophysics	18	18	..
	TOTAL	368	366	2
THIRD	Civil Engineering	96	95	1
	Elect. ,,	68	68	..
	Mech. ,,	74	73	1
	Met. ,,	19	19	..
	Agri. Engg.	17	17	..
	Naval Arch.	11	11	..
	Architecture	13	13	..
	Geo. & Geophysics	6	6	(6 passed in 1958)
	TOTAL	304	302	2

9. STUDENT POPULATION—*contd.*

Bachelor's Degree Courses, Session 1957-58—*concld.*

Year	Course	No. of stunents on Roll in the beginning of the session 1957-58.	No. of students at the end of the academic Year *i.e.*, June 1958	No. of students who did not join or dropped out till June, 1958.
FOURTH	Civil Engineering . . .	101	101	(100 passed in 1958 and one debarred from appearing in exam).
	Elect. ,, ...	54	54	54 passed in 1958
	Mech. ,, ...	65	65	65 ,, ,,
	Met. ,, ...	10	10	10 ,, ,,
	Agri. ,, ...	13	13	13 ,, ,,
	Naval Arch.	9	9	—
	Architecture	22	22	—
	TOTAL .	274	274	
FIFTH	Naval Arch.	11	11	11 passed out in 1958.
	Architecture	17	17	17 passed out in 1958.
		28	28	

9. STUDENT POPULATION—*contd.*

Post-Graduate Courses, Session 1957-58.

Department	Course of studies	No. of students on Roll in the beginning of the session	No. of students at the end of the academic Year *i.e.*, June, 1958.	No. of students who did not join or dropped out till 30-6-58.
1. Agricultural Engineering.	(a) Applied Botany .	1	1	—
	(b) Farm Machinery and Power.	2	2 *plus* 1 of 1956-57	—
2. Applied Chemistry .	(a) Technical Gas Reaction & High Pressure Technology.	5	5	—
3. Chemical Engineering.	(a) Combustion Engg. & Fuel Economy.	8	8	—
	(b) Chemical Plant Design.	9	8	1
4. Geology & Geophysics.	(a) Exploration Geophysics.	3	3 *plus* 2 of 1956-57	—
	(b) Applied Geology .	5	2 *plus* 3 of 1956-57	3
5. Physics & Meteorology.	(a) Meteorology .	2	1	1
6. Mechanical Engineering.	(a) Production Technology.	9	9	—
	(b) Machine Design .	5	4	1
	(c) Refrigeration & Air Conditioning Plant.	1	1	—
	(d) Industrial Engineering.	6	5	1
7. Civil Engineering .	(a) Structural Engineering.	6	4	2
	(b) Dam Construction & Water power Engineering.	5	5	—
8. Electrical Communication Engineering.	(a) Radio Broadcast Engineering.	5	3	2
	(b) Ultra High Frequency & Microwave Engineering.	4	3	1
9. Electrical Engineering.	(a) Electrical Machine Design.	6	6	—
10. Architecture . .	(a) Regional Planning	4	3 *plus* 1 of 1956-57	1
11. Mathematics . .	(a) Non-linear Mechanics.	2	2	—
	TOTAL	88	75 *plus* 7 of 1956-57	13

9. STUDENT POPULATION— *concld.*

Research Scholars, Post Doctoral Fellows, 1957-58.

Department—	No. of Research Scholar on Roll in July 1957 @ Rs. 200 p.m.	No. of Research Scholar on Roll in June 1958 @ Rs. 200 p.m.	Post Doctoral Fellows on Roll @ Rs. 350 p.m.	
			July, 57.	June, 58
1. Agricultural Engg. . . .	3	5	..	..
2. Arch. & Regl. Planning . .	..	..	..	..
3. Applied Chemistry . . .	10+1 unpaid	10+1 unpaid	1	1
4. Civil Engg.	..	..	..	..
5. Chemical Engg. . . .	8	7	..	..
6. Electrical Engg. . . .	1	..	1	..
7. Elect. Comm. Engg. . .	1	3	..	..
8. Geology & Geophysics . .	5	4	..	..
9. Humanities & Social Sc. .	1	2	..	..
10. Mathematics	5	8	..	..
11. Metallurgical Engg. . .	..	1	..	..
12. Mechanical Engg. . . .	..	..	..	..
13. Mining Engg.	..	..	..	..
14. Naval Architecture & Marine Engg.	..	1	..	..
15. Physics & Mateorology . .	8	4	1	..
Total .	42+1 unpaid	45+1 unpaid	3	1

10. EXAMINATION RESULTS.

Summary of Results of the Institute Examinations for the Undergraduate Courses for Session 1957-58.

PRELIMINARY EXAMINATION (1957-58)

Undergraduate course	No. on the roll	No. appeared	No. promoted	No. passed with 65% or more marks in aggregate	No. passed with less than 65% marks in aggregate	No. allowed to pass by the Academic Council	No. allowed to pass conditionally by the Acad. Council	No. failed and permitted to repeat	No. failed and asked to leave the Inst.	Remarks
1	2	3	4	5	6	7	8	9	10	11
I/Ar . . .	12	12	12	7	4	..	1	..	..	..
I/NA . . .	8	8	8	4	3	..	1	..	..	..
FIRST EXAMINATION (1957-58)										
I/Common Engg. .	304	304	303	129	154	10	10	..	1	..
I/Ge . . .	12	12	12	4	7	..	1	..	..	..
II/Ar . . .	20	20	20	12	7	..	1	..	..	..
II/NA . . .	8	8	8	5	3	..	..	..	..	..
INTERMEDIATE EXAMINATION (1957-58)										
II/AgE . . .	21	21	21	7	12	1	1	..	..	..
II/ChE . . .	13	13	13	4	9	..	..	..	..	..
II/CE . . .	101	101	101	77	18	1	5	..	..	..
II/EE . . .	64	63	62	46	13	1	2	..	1	(One was debarred from taking End-sess. Exam.)
II/Ge . . .	18	17	17	5	9	1	2	..	..	do.
II/ME . . .	73	73	73	50	21	..	2	..	..	..
II/Met . . .	27	26	26	8	14	2	2	..	..	(One was debarred from taking End-sess. Exam.)
II/Min . . .	21	21	21	11	9	..	1	..	..	..
III/Ar . . .	13	13	13	2	10	1	..	..	..	..
III/NA . . .	11	11	11	2	4	2	3	..	..	..

10. EXAMINATION RESULTS—*contd.*

Summary of Results of the Institute Examinations for the Undergraduate Courses for Session 1957-58—*contd.*

THIRD EXAMINATION (1957-58)

Undergraduate course	No. on the roll	No. appeared	No. promoted	No. passed with 65% or more marks in aggregate	No. passed with less than 65% marks in aggregate	No. allowed to pass by the Academic Council	No. allowed to pass conditionally by the Acad. Council	No. failed and permitted to repeat	No. failed and asked to leave the Inst.	Remarks
1	2	3	4	5	6	7	8	9	10	11
III/AgE . . .	17	17	17	8	7	2	..	..	..	..
III/CE . . .	95	95	95	80	15	..	..	..	..	..
III/EE . . .	68	68	67	40	19	7	1	1	..	..
III/ME . . .	73	73	72	42	26	..	4	1	..	..
III/Met . . .	19	19	19	6	11	1	1	..	..	..
IV/Ar . . .	22	22	22	15	7	..	..	..	..	..
IV/NA . . .	9	9	9	7	2	..	..	..	..	..

10. EXAMINATION RESULTS—*contd.*

Summary of the Results of the Final B.Tech. B.Sc. & B.Arch. Examinations, 1957-58.

Degree	Course	No. on the roll.	No. appeared	No. Passed	No. placed in 1st Class	No. placed in 2nd Class	No. failed	Remarks
B. TECH	Agricultural Engg.	13	13	13	9	4	..	..
	Civil Engineering	101	100	100	85	15	..	One student was debarred from appearing at the End-Sess. Exam.
	Electrical Engg.	50	50	50	40	10	..	..
	Electrical Engg. (Electronics and Communication).	4	4	4	4	..	..	..
	Mechanical Engg.	65	65	65	58	7	..	..
	Metallurgical Engg.	10	10	10	6	4	..	..
	Naval Architecture	11	11	11	8	3	..	..
B.Sc.	Geology & Geophysics	6	6	5	3	2	1	..
B.Arch.	Architecture	17	17	17	11	6	..	..
	Total	277	276	275	224	51	1	

10. EXAMINATION RESULTS—*contd.*

Results of the Final Postgraduate (M.Tech.) Examination for the year 1957.

Department	Course of Study	No. of students on Roll	No. of students appeared	No. of students passed out	Remarks
1. Agri. Engg.	Applied Botany	1	1	1	..
	Farm Machinery	1 (Prereq)	..	..	..
2. Arch. Reg. Plng.	Regional Planning	5 +7 of 1955-56	..	4 (Degree) 3 (Diploma)	
3. App. Chem.	Tech. Gas Reaction and High Pressure Tech.	2	3 (1 casual)	2	1 failed
4. Chem. Engg.	Comb. Engg. & Fuel Economy	4	4	4	
5. Civil Engg.	Structural Engg.	12	12	12	..
	Hydraulics & Water Power Engg.	5	5	5	..
	Transportation (Highway) Engineering	2	2	2	..
6. Elect. Engg.	Design of Elect. Machinery	5	5	5	..
7. Elec. Comm Engg.	Advanced Broadcast Engg.	5	4	4	..
8. Geology and Geophysics	Applied Geology	4 + 5 of '55-56	5	4	1 failed
	Exploration Geophysics	5 + 4 of '55-56	3	3	
9. Mech. Engg.	Production Technology	6	5	5	..
	Industrial Engg.	5	5	5	..
	Design of Turbo Machinery	3	2	2	..
	Machine Design	2	2	2	..
10. Physics and Meteorology	Industrial Physics	1	1	1	..
	Total	68 + 16 of 1955-56	66	64	2 failed

Total	68 + 16 of 1955-56	66	64	2 failed			

11. RESULTS OF THE I. I. T. STUDENTS AND STAFF IN ENGG. SERVICES EXAMINATIONS HELD BY U. P. S. C. IN SEPTEMBER, 1957.

RANK IN U.P.S.C. ENGINEERING SERVICES EXAMINATION, 1957.

Sl. No.	Name of Competitor	Course pursued	Degree obtained	Year of passing	Class/Rank in I.I.T. Exam. or other Inst Exam.	IRSE	CES(I)	CES(II)	MES(I) Bldg. Rds.	Mech. Engg. Trans. (Power) Sup. Rev. Estt.
1.	Shri P. Srinivasa Rao	Civil Engg. P.G. Student in Str. Engg.	B. Tech. (Hons.) I.I.T.	1957	I/3rd	1st	1st	1st	1st	—
2.	Shri Shanker Prasad	,,	do	1957	I/2nd	3rd	3rd	—	—	—
3.	Shri Kul Bhusan Kumar	Civil Engg.	do	1957	I/3rd	7th	7th	3rd	10th	—
4.	Shri G. L. Narasimhan	do do	do]	1955	I/7th	18th	18th	13th	—	—
5.	Shri Prannath Bhatla	do do	do]	1956	I/2nd	21st	21st	—	5th	—
6.	Shri S. Venkataramani	P.G. student in Str. Engg.	B. E. (Poona)	1957	I/1st	22nd	22nd	15th	—	—
7.	Shri K. L. N.P. Patnaik	Asstt. Lec. Civil Engg. Deptt. and part-time P. G. student in Dam Contruc.]	B.E. (Andhra)	1956	I/3rd	9th	9th	5th	—	—
8.	Shri Hari Prakash Mital	Mech. Engg.	B. Tech. (Hons.) I.I.T.	1957	I/2nd]	—	—	—	—	1st

12. PRIZE DISTRIBUTION.

The Fourth Annual Prize Distribution of the Institute was held on 22nd February 1958. Dr. S. R. Sen Gupta, Director of the Indian Institute of Technology, Kharagpur, presided and gave away the prizes. The following were the recipients of the prizes :—

LIST OF PRIZE WINNERS FOR THE SESSION 1956-57.

(A) *General Proficiency Prizes.*

Name.	Roll No.	Position.
V Year Architecture (1956-57)—		
1. Shri P.K. Chakraborty	Ar/271/52	1st
V Year Naval Architecture (1956-57)—		
1. Shri S.D. Sharma	NA/264/52	1st
IV Year Mechanical Engineering (1956-57)—		
1. Shri R. S. Misra	ME/85/53	1st
2. Shri H. P. Mital	ME/86/53	2nd
3. Shri N. K. Paul	ME/100/53	3rd
IV Year Electrical (Power) Engineering (1956-57)—		
1. Shri C. P. Karunakaran	EE/66/53	1st
2. Shri S. N. Agarwal	EE/4/53	2nd
IV Year Electrical Engineering (Electronics and Comm.) (1956-57)—		
1. Shri K. Ramalingasarma	EE/111/53	1st
IV Year Civil Engineering (1956-57)—		
1. Shri A.K. Sen	CE/139/53	1st
2. Shri S. Prasad	CE/103/53	2nd
3. Shri P. Srinivasan	CE/121/53	3rd
4. Shri K. B. Kumar	CE/194/53	3rd
IV Year Agricultural Engineering (1956-57)—		
1. Shri J. Sundaraman	AgE/262/53	1st
2. Shri A. C. Goswami	AgE/236/53	2nd
III Year Geology and Geophysics (1956-57)—		
1. Shri K. C. Mishra	Ge/250/54	1st
IV Year Architecture (1956-57)—		
1. Shri U. C. Jain	Ar/220/53	1st
IV Year Naval Architecture (1956-57)—		
1. Shri N. S. Mohan Ram	NA/285/53	1st
III Year Agricultural Engineering (1956-57)—		
1. Shri Pirthi Singh	AgE/243/54	1st
III Year Civil Engineering (1956-57)—		
1. Shri K. J. Singh	CE/164/54	1st
2. Shri D. B. Gupta	CE/74/54	2nd
3. Shri D. C. Debnath	CE/56/54	3rd

12. PRIZE DISTRIBUTION—*contd.*

LIST OF PRIZE WINNERS FOR THE SESSION 1956-57—*contd.*

(A) *General Proficiency Prizes*—contd.

Name.	Roll No.	Position.
III Year Electrical Engineering (1956-57)—		
1. Shri R. K. Sharma	EE/189/54	1st
2. Shri H. N. Ghosh	EE/70/54	2nd
3. Shri V. Subbarai	EE/196/54	3rd
III Year Mechanical Engineering (1956-57)—		
1. Shri M. K. Ghosh	ME/71/54	1st
2. Shri K. Mani	ME/122/54	2nd
3. Shri B. S. Rally	ME/154/54	3rd
III Year Metallurgical Engineering (1956-57)—		
1. Shri D.R. Bhattacharyya	Met/26/54	1st
III Year Architecture (1956-57)—		
1. Shri A. V. Garde	Ar/259/54	1st
III Year Naval Architecture (1956-57)—		
1. Shri J. P. Ghose	NA/271/54	1st
II Year Geology and Geophysics (1956-57)—		
1. Shri S. Jain	Ge/289/55	1st
II Year Civil Engineering (1956-57)—		
1. Shri S. K. Gupta	CE/32/55	1st
2. Shri Y. P. Gulati	CE/37/55	2nd
3. Shri M. Kumar	CE/47/55	3rd
II Year Electrical Engineering (1956-57)—		
1. Shri P.K. Sen	EE/157/55	1st
2. Shri R. K. Pattanayak	EE/140/55	2nd
3. Shri S. C. Agarwal	EE/98/55	3rd
II Year Mechanical Engineering (1956-57)—		
1. Shri P. N. Kapoor	ME/228/55	1st
2. Shri S. S. Sethi	ME/250/55	2nd
3. Shri M. D. Joshi	ME/224/55	3rd
II Year Agricultural Engineering (1956-57)—		
1. Shri S. D. Sharma	AgE/281/55	1st
II Year Metallurgiacal Engineering (1956-57)—		
1. Shri K.V. Pai	Met/190/55	1st
II Year Architecture (1956-57)—		
1. Shri S. S. Kanade	Ar/311/55	1st
II Year Naval Architecture (1956-57)—		
1. Shri P. K. Datta	NA/293/55	1st
I Year Geology and Geogphysics (1956-57)—		
1. Shri R. N. Gupta	Ge/365/56	1st

12. PRIZE DISTRIBUTION—*contd.*

LIST OF PRIZE WINNERS FOR THE SESSION 1956-57—*contd*

(A) *General Proficiency Prizes*—concld.

Name.	Roll No.	Position.
I Year Civil Engineering (1956-57)—		
1. Shri S. K. Aggarwal	CE 1/56	1st
2. Shri R. K. Jain	CE 44/56	2nd
3. Shri D. R. Sircar	CE 86/56	3rd
I Year Mechanical Engineering (1956-57)—		
1. Shri S. Chandrasekharan	ME 219/56	1st
2. Shri J. P. Gupta	ME 229/56	2nd
3. Shri Satish Kumar	ME 240/56	3rd
I Year Electrical Engineering (1956-57)—		
1. Shri N. V. Balasubramanian	EE 103/56	1st
2. Shri J. S. Grover	EE 124/56	2nd
3. Shri S. Virmani	EE 169/56	3rd
I Year Agricultural Engineering (1956-57)—		
1. Shri C. P. Gupta	AgE 310/56	1st
I Year Metallurgical Engineering (1956-57)—		
1. Shri Ashok Khosla	Met 183/56	1st
2. Shri R. C. Bharadwaj	Met 172/56	2nd
I Year Mining Engineering (1956-57)—		
1. Shri R. R. Bahl	Min 283/56	1st
I Year Chemical Engineering (1956-57)—		
1. Shri K.D. Kiri	ChE 200/56	1st
I Year Architecture (1956-57)—		
1. Shri A.R.K. Sheorey	Ar 344/56	1st
I Year Naval Architecture (1956-57)—		
1. Shri S. B. S. Uberoi	NA 359/56	1st

(B) *Prizes for Proficiency in Workshop Practice.*

I Year (1956-57)—		
1. Shri G. B. Singh	CE 79/56	1st
II Year (1956-57)—		
1. Shri S. K. Gupta	CE 32/55	1st
2. Shri J. P. Gulati	CE 47/55	1st

(C) *Prizes for Optional Subjects (1956-57).*

(i) *Optics and Acoustics—I Year*—		
1. Shri J. S. Grover	EE 124/56	1st
(ii) *Organic Chemistry—I Year*—		
1. Shri S. R. Bhowmick	CE/13/56	1st
(iii) *History of India—I Year*—		
1. Shri C. V. Ramanathan	EE/156/56	1st

12. PRIZE DISTRIBUTION—*contd.*

LIST OF PRIZE WINNERS FOR THE SESSION 1956-57—*contd.*

(C) *Prizes for Optional Subjects (1956-57)*—contd.

Name.	Roll No.	Position.
(iv) *Rural and Community Development—I Year—*		
1. Shri M. L. Singhal	CE/77/56	1st
(v) *Numerical Methods and Curve Fittings—II Year—*		
1. Shri S. K. Gupta	CE/32/55	1st
(vi) *Atomic Physics—II Year—*		
1. Shri Sat Pal	CE/80/55	1st
(vii) *Nuclear Physics—III Year—*		
1. Shri V. P. Kumar	EE/96/54	1st
(viii) *Soil Chemistry—III and IV Year—*		
1. Shri A. G. Rao	ME/155/54	1st
(ix) *General Mechanics—III and IV Year—*		
1. Shri Harihar Dey	CE/37/53	1st
(x) *Advanced Indian Economics—III and IV Year—*		
1. Shri K.C. Sahu	ME/128/53	1st
(xi) *Statistics—I (III, IV and V Year)—*		
1. Shri R.K. Sharma	EE/189/54	1st
(xii) *Statistics—II (IV Year)—*		
1. Shri K. B. Kumar	CE/194/53	1st
(xiii) *Hydrodynamics—I (IV Year)—*		
1. Shri S. K. Gupta	NA/281/53	1st
(xiv) *Hydrodynamics—II (V Year)—*		
1. Shri S. D. Sharma	NA/264/52	1st
(xv) *Prime Movers—(IV Year)—*		
1. Shri A. K. Sen	CE/139/53	1st
(xvi) *Advanced Mathematics—(IV Year)—*		
1. Shri Ramesh Chandra	EE/26/53	1st

(D) *Prizes for Humanities Subjects (1956-57).*

1. Shri U. C. Das Gupta	Ar/216/53	1st

(E) *Prizes for Design, Project Work, Thesis and Sessional Work (1956-57).*

(a) *Mechanical Engineering—*		
1. Shri R. S. Misra	ME/85/53	1st
(b) *Electrical Engineering (P)—*		
1. Shri C. P. Karunakaran	EEP/66/53	1st
(c) *Electrical Engineering (Commn.)—*		
1. Shri M. C. Mohanta	EEC/81/53	1st

12. PRIZE DISTRIBUTION—*concld.*

LIST OF PRIZE WINNERS FOR THE SESSION 1956-57—*concld.*

(E) *Prizes for Design, Project Work, Thesis and Sessional Work (1956-57)*—contd.

Name.	Roll No.	Position.
(d) *Civil Engineering*—		
1. Shri A. K. Sen	CE/139/53	1st
(e) *Agricultural Engineering*—		
1. Shri J. Sundaraman	AgE/262/53	1st
(f) *Geology and Geophysics*—		
1. Shri K. C. Mishra	Ge/250/54	1st
(g) *Architecture*—		
1. Shri P. K. Chakraborty	Ar/271/52	1st
(h) *Naval Architecture*—		
1. Shri K. Sarkar	NA/263/52	1st
(F) *President's Gold Medal (1956-57)*—		
1. Shri Asoke Kumar Sen . . .	CE/139/53 (Civil)	1st

13. SCHOLARSHIPS/STIPENDS.

(UNDER-GRADUATE COURSES)

Name of the sanctioning authority.	Nature of Sch./stipends.	No. of students getting Sch., etc.	Value.	Total amount per annum.
(1)	(2)	(3)	(4)	(5)
			Rs.	Rs.
1. I. I. T. Kharagpur .	Merit Scholarship .	129	75 p.m.	1,16,100
do .	Merit-cum-Poverty Scholarship .	27	75 ,,	24,300
		83	60 ,,	59,760
		10	55 ,,	6,600
		87	50 ,,	52,200
		5	45 ,,	2,700
		28	40 ,,	13,440
		6	35 ,,	2,520
		30	30 ,,	10,800
		12	25 ,,	3,600
		2	20 ,,	480
2. Ministry of Education, New Delhi.		1	200 ,,	2,400
3. *Central Govt. Sch.* Colombo Plan.		11	180 ,,	23,760
4. *Ministry of Education* Post Matriculation.		3	100 ,,	3,600
5. *Ministry of Education*, SC/ST/BC.		47	1,122 p.a.	52,734
		13	922 ,,	11,986
		5	982 ,,	4,910
		3	782 ,,	2,346

13. SCHOLARSHIPS/STIPENDS—*contd.*

(UNDER-GRADUATE COURSES)

Name of the sanctioning authority.	Nature of Sch./stipends.	No. of students getting Sch., etc.	Value.	Total amount per annum.
(1)	(2)	(3)	(4)	(5)
			Rs.	Rs.
		2	972 p.a.	1,944
		2	702 ,,	1,404
		1	772 ,,	772
		1	722 ,,	722
		1	732 ,,	732
6. Ministry of External Affairs		1	200 p.m.	2,400
7. D.P.I. Shillong.	Merit Scholarship	36	75 ,,	32,400
		2	60 ,,	1,440
8. *D.P.I. Assam* (Special)		2	30 ,,	720
		2	40 ,,	960
		2	22/8/-	540
		1	150 ,,	1,800
9. D.P.I., West Bengal		5	15 ,,	900
10. R. R. Commr. W. B. Refugee stipn.		6	50 ,,	3,600
		4	44 ,,	2,112
11. D.P.I., Orissa		4	30 ,,	1,440
12. Govt. of Orissa Political service Dept.	Loan Scholarship	43	1,000 p.a.	43,000
		1	900 ,,	900
		1	600 ,,	600
13. D. P. I., Assam		1	60 p.m.	720
14. D. P. I., M. P. Eastern Sec., Rewa		2	125 ,,	3,000
15. Govt. of Rajasthan Edn. Dept., Bhopal		6	50 ,, (for 10 months)	3,000
16. ,, ,,	Loan	2	800 p.a.	1,600
17. D. P. I., M.P.	Merit Sch.	1	75 p.m.	900
18. Tripura Admin. Edn. Dept.	,,	4	80 ,,	3,840
19. R. R. Dte, Agartala	Refugee stipend	1	50 (for 3 months)	150
20. Social Welfare Rehab. Dte., Delhi.		1	270 L.S.	270
		1	440 ,,	440
		2	240 ,,	480
21. Govt. of Mysore		2	50 p.m.	1,200
22. *Govt. of Mysore*— Kolar Gold Mining undertaking		3	75 ,,	2,700
23. Director of Industries, U. P.	Stipend	2	50 ,,	1,200

13. SCHOLARSHIPS/STIPENDS—*contd.*

Name of the sanctioning authority.	Nature of Sch./stipends.	No. of students getting Sch. etc.	Value.	Total amount per annum.
(1)	(2)	(3)	(4)	(5)
			Rs.	Rs.
24. Govt. of U.P.	Loan Stipend	1	2,400 p.a.	2,400
		1	2,000 ,,	2,000
		3	2,250 ,,	6,750
		1	3,000 ,,	3,000
		2	1,800 ,,	3,600
		3	1,500 ,,	4,500
25. R. R. Commr., U.P.	Refugee stipend	9	60 p.m.	6,480
26. Govt. of U.P., Lucknow		1	175 L.S.	175
27. Govt. of Bihar co-operative & Ind. Dept.		2	60 p.m.	1,440
28. Govt. of Bihar, Commerce Dept.	Loan	1	100 ,,	100
29. Govt. of Bombay, Tech. Edn. Dept.		4	60 ,,	2,880
30. Govt. of Jammu & Kashmir	Loan.	2	2,000 p.a.	4,000
31. Director of Industries, Punjab.	Merit Scholarship	3	50 p.m.	1,800
32. Chief Engineer, P.W.D. Punjab.	Refugee Stipend	9	60 ,,	6,480
		9	40 ,,	4,320
		1	30 ,,	360
33. D.P.I. Punjab		2	20 ,,	480
Other Agencies—				
1. Sir Dorabji Tata Trust, Bombay.	Merit Scholarship	5	40 p.m.	2,400
2. Calcutta University	,,	1	25 ,,	300
3. Sahu Jain Trust	,,	1	35 ,,	420
		1	30 ,,	360
		2	20 ,,	480
		1	15 ,,	180
4. Punjab University	,,	13	22 ,,	3,432
5. Hindustan Charity Trust.	Stipend	1	35 ,,	420
6. Anglo Indian Association, Nainital, U.P.		2	30 ,,	720
8. Dist. Board, Darjeeling		1	33 ,,	396
9. Dist. Board, Midnapur		3	20 ,,	720
10. All Indian Gurkha *Ex.* servicemen Asso., New Delhi.		1	25 ,,	300

13. SCHOLARSHIPS/STIPENDS—*concld.*

Name of the sanctioning authority.	Nature of Sch./stipends.	No. of students getting Sch. etc.	Vatue.	Total amount per annum.
(1)	(2)	(3)	(4)	(5)
			Rs.	Rs.
11. Central Rly. Staff Benefit Fund . . .		1	40 p. m.	480
12. Western Rly. Women Social Service Committee		1	360 L.S.	360
13. Tea Board, Calcutta		1	Full tution fees and actual Boarding charges.	
Under Graduate Course—				
I.I.T. Kharagpur	*Free Studentships* (1957-58)			
1. Free studentship on the Results of University Examinations.		30	200 p.a.	6,000
Free studentship to students belonging Sc. & St. .		21	200 ,,	4,200

POST GRADUATE COURSES.

Sanctioning authority.	No. of scholarships awarded.	Value.	Amount. per annum.
		Rs.	Rs.
1. Indian Institute of Technology, Kharagpur.	47	150 p.m.	84,600
2. Government of Punjab . . .	1	100 ,,	1,200

RESEARCH SCHOLARSHIPS, 1957-58.

1. Indian Institute of Technology, Kharagpur.	45	200 p.m.	1,08,000

POST DOCTORAL FELLOWSHIPS, 1957-58.

1. Indian Institute of Technology, Kharagpur.	3	350 ,,	350 for 1 month. 4,200 for 12 months. 700 for 2 months.

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14. TRAINING & PLACEMENT SECTION.

The Training and Placement Section was reconstituted during the year under report with the Representatives from the following Departments and was placed under the direct charge of the newly appointed Deputy Director :—

(1) Agricultural Engineering.

(2) Architecture and Regional Planning.

(3) Chemical Engineering.

(4) Civil Engineering.

(5) Electrical Engineering.

(6) Electronics and Electrical Commn. Engineering.

14. TRAINING & PLACEMENT SECTION—*contd.*

(7) Geology and Geophysics.
(8) Mechanical Engineering.
(9) Metallurgical Engineering.
(10) Naval Architecture and Marine Engineering.

The Section arranged for the practical training of the Third Year under-graduate students as detailed below :—

Civil Engineering.

Name of Organisation.	No. of students received practical training.
1. Hindustan Steel Project, Rourkela	7
2. Bhakra Dam	11
3. P.W.D. Rajasthan, Ajmer	1
4. Chambal Barrage Project, Kota	1
5. B. & R., Rewa Circle, Rewa, M.P.	1
6. Hindustan Steel Project, Durgapur	13
7. Assam P.W.D., E.C.C. Divn., Gauhati	3
8. Kakinada Engg. College, P.W.D., S.D.O., Andhra	2
9. Hindustan Shipyard	1
10. Executive Engineer, Cuttack	1
11. Executive Engineer, Constn. Divn., Calcutta	1
12. Martin Burn & Co., Calcutta	3
13. P.W.D. (B. & R), Chandigarh	2
14. P.W.D. (B. & R), Jullundur.	2
15. C.E., P.W.D., Orissa, Cuttack	1
16. C.E., W. & B. Deptt., Calcutta	1
17. C.E., Roads, West Bengal, Calcutta	4
18. C.E., Association Banihal Tunnel, Kashmir	1
19. Nagpur Improvement Trust	1
20. McKennis Co., Bombay	1
21. E.E., W. & B., Burdwan	1
22. C.P.W.D., New Dehhi	15
23. C.E., Capital Project, Chandigarh	5
24. Rihand Dam Project	6
25. E.E., Neyyar Irrigation Project, Trivandrum, Kerala	1
26. Thannirmukkan Regulators, Irrign. Div., Alleppey	1
27. Cauvary Bridge Project, Madras	1
28. Mariahun Const. Div., Jaunpur, U.P.	2
29. P.W.D., U.P.	4
30. C.E. (B. & R), Patiala	1
31. C.E., M.P. Irrigation, Dudhual Dam Project	1

Electrical Engineering.

1. Kanpur Electric Supply Corpn.	3
2. Govt. Steam Power Station, Hydel Divn., Aligarh	1
3. Punjab, P.W.D. (E. B.), Patiala	1
4. Delhi Div. (P.B.P.W.D., E.B.), Delhi Grid	2
5. Indian Telephone Industries, Bangalore	2

14. TRAINING & PLACEMENT SECTION—*contd.*

Electrical Engineering—contd.

Name of Organisation.	No. of students received practical training
6. Jay Engg. Works, Calcutta	2
7. Associated Electrical Inds., Calcutta	1
8. West Bengal State Elec. Board, Shamnagar	2
9. Delhi State Electricity Board	5
10. Shiliong Hydro Electric Project	1
11. British India Elec. Cons. Co., Calcutta	5
12. Joginder Nagar Powar House, Amritsar, P.B.P.W.D. (E.B.)	1
13. Bombay Suburban Elec. Supply Ltd., Bombay	3
14. Andhra Electricity Deptt, Simhachalam & Gunadala	3
15. Punjab P.W.D. Elec. Branch	11
16. U.P. Electricity Supply Co., Allahabad	2
17. Hirakud Dam Project	3
18. Kharagpur Rly. Workshops	1
19. Darjeeling Municipality	1
20. English Elec. Co., Calcutta	2
21. Delhi Chemical Laboratory	1
22. U.P. Elec. Board, Khatima Hydel Power Stn.	1
23. Calcutta Elec. Supply Corpn., Cossipore	2
24. Electric Circle, Cuttack & Berhampore	3
25. B.E.S.T., Bombay	3
26. Crompton Parkinson Ltd., Bombay	1
27. Bihar State Electric Supply Co. Ltd., Ranchi	1
28. Railway Power House, Lucknow	1
29. Tata Hydro Electric Works, Bombay	1
30. Mysore Elec. Industries Ltd., Bangalore	1
Mechanical Engg. Deptt.	
1. Metal Box Co. of India Ltd., Calcutta-23	2
2. Textile Machinery Corpn., Belgharia, Calcutta	3
3. Union Co. (Accessories) Ltd., Mount Road, Madras-2	1
4. Guest, Keen & Williams Ltd., Calcutta	4
5. Kamani Metals & Alloy Ltd., Bombay	4
6. Tata Locomotive & Engg. Co., Jamshedpur-4	4
7. Jessop & Co., Ltd., 63, Netaji Subhas Road, Calcutta	2
8. Indian Telephone Inds. Ltd., Bangalore	2
9. Integral Coach Factory, Perambur	1
10. Charbagh Rly. Workshop, Lucknow, U.P.	1
11. Hindustan Shipyard P. Ltd., Visakhapatnam	2
12. Dy. Chief Mech. Engr. (s), S. E. Rly., Kharagpur	6
13. Amritsar Rly. Workshop, Amritsar	2
14. Chittaranjan Locomotive Works, Chittaranjan	4
15. Hindustan Aircraft (P) Ltd., Bangalore	2
16. Godrej & Boyce Mfg. Co. Ltd., Bombay-12	4
17. Saxby & Farmer (India) Ltd., Calcutta-14	4

14. TRAINING & PLACEMENT SECTION—*contd.*

Mechanical Engg. Deptt.—contd.

	Name of Organisation	No. of students received practical training
18	D C M Chemical Works, Delhi	2
19	Tin Plate Co. of India P. Ltd., Singhbhum	2
20	Assam Oil Co. Ltd., Digboi	1
21	Praga Tools Corpn. Ltd., Secunderabad Dn.	4
22	Jamshedpur Tech. Inst., T.I.S. Co., Jamshedpur	3
23	Mukund Iron & Steel Works Ltd., Bombay	4
24	U. P. Roadways Central Workshop, Kanpur	4

Metallurgical Engineering.

1	Indian Iron & Steel Co., Burnpur	4
2	Messrs Kalinga Tubes, Cuttack	3
3	Messrs Guest, Keen & Williams, Howrah	1
4	Messrs Metal Corpn. of India, Tundoo	1
5	Messrs Mukand Iron & Steel Works, Bombay.	3
6	Metal & Steel Factory, Ichapore	2
7	T I S C O., Jamshedpur	2
8	Messrs Mysore Iron & Steel Works, Bhadravati	2
9	Messrs Burn & Co., Howrah	1

Agricultural Engg. Department.

1.	Deptt. of Agriculture, Kerala State	5
2.	Deptt. of Agriculture, Andhra Pradesh	3
3.	Chief Engineer, Irrigation, Himachal Pradesh	1
4.	Massey-Harris-Fergusson, Bangalore	5
5.	Chief Engineer, Kosi Project, Patna	3

In addition the training of Second Year Naval Architecture students was arranged in the Calcutta Shipyards and that of the Fourth Year under-graduate students of Naval Architecture in Bombay and Vishnapatnam Shipyards.

Practical training in factories which form part of the curriculum of the Post-graduate students in Chemical Engineering and Applied Chemistry subjects was also arranged.

The students of the Second Year Mining Engineering course were also sent for practical training in the different Mines of India during the summer vacation of 1957-58 session.

Placement.

Civil Engineering Department.

1	Deshbandhu Gupta	C. W. P. C., New Delhi.
2	D. C. Debnath	Tripura Administration, Works and Buildings Department, Agartala.
3	Sajit Datta Roy	Brait hwaite and Co. (India) Ltd., Hide Road, Calcutta-23.
4	M. P. Jain	C. W. P. C., New Delhi.
5	Rajendra Pal	Ditto.
6	Y. V. Dharma Rao	Engg. Asstt., Hindustan Steel, Rourkela.
7	Rabindranath Ojha	Ditto.
8	Subhas Chander	C.W.P.C., New Delhi.

14. TRAINING & PLACEMENT SECTION—*contd.*

Placement—*contd.*

Civil Engineering Department—contd.

9. Girdhari Lall	J. K. Chowdhury, Chandigarh.
10. Dinendra Narayan Sil	Hindustan Steel, Rourkela.
11. Satya Prakash Keshava	Ditto.
12. Dharamvir Mallick	C.W.P.C,, New Delhi.
13. Om Prakash	Chambal Hydel and Irrigation Scheme.
14. Tarun Kanti Sen	Council of Scientific and Industrial Reasearch, Sr. Research Assistant.
15. Subimal Basu	Gillanders, Arbuthnot and Co., Calcutta.
16. Nitai Charan Karforma	Hindustan Steel P. Ltd., Rourkela.
17. Harigopal Garg	C.W.P.C., New Delhi.
18. P.M.K., Gandhi	Ditto.
19. Prabhat Kumar Saha	Chambal Hydel and Irrgn. Scheme.
20. Madanlal Kansil	C.W.P.C., New Delhi.
21. M. M. Bhurchandi	P.W.D., Madhya Pradesh.
22. Amarjit Singh Mongia	Military Engg. College, Dehra Dun.
23. Bishnupada Kapat	Martin Burn Ltd., Calcutta-1.
24. Mriganka Mouli Ghosh	Hindusthan Steel P. Ltd., Rourkela.
25. Gour Chattopadhyay	Ditto.
26. Rana Pratap Ahuja	Gillanders Arbuthonot and Co., Calcutta-1.
27. T. Rama Seshadri	Hindusthan Steel P. Ltd., Rourkela.
28. G. Chandra Mitra	P.W.D., Orissa.
29. Pritam Prakash Goyal	C.W.P.C., New Delhi
30. P. K. Ghosh	Hindusthan Steel P. Ltd., Rourkela.
31. K. Singh Bains	P.W.D., Punjab.
32. R. K. Kundu	Hindustan Steel P. Ltd., Rourkela.
33. D. K. Roy	Ditto.
34. P. K. Roychowdhury	Ditto.
35. M. Chauduri	Ditto.
36. K. G. Chatterjee	Ditto.
37. Parshuram Singh	Bihar Irrigation Department.
38. U. H. Varyani	J. K. Chowdhury, Chandigarh.
39. Baldev Raj Dua	C.W.P.C., New Delhi.
40. Debeswar Sen	Hindustan Steel P, Ltd., Rourkela.
41. Amal Kumar Mishra	U. P. Irrigation Deptt.
42. Ramani Mohan Das	Assam State Service.
43. J. Singh Ruhela	U. P. Irrigation Deptt.
44. Subhas Ch. Das	Assam State Service.
45. B. K. Puri	C.W.P.C., New Delhi.
46. B. C. Khataniar	Assam State Service.
47. K. C. Panda	P.W.D., Orissa.
48. K. Kurma Rao	P.W.D., Andhra Pradesh.
49. S. C. Misra	P. W. D., U. P.
50. S. Phukan	Assam State Service.
51. Indarjit Singh	C.W.P.C., New Delhi.
52. N. P. Setty	Hindustan Steel P. Ltd., Rourkela.
53. Balkrishna Tripathi	U. P. Irrigation Deptt.
54. T. V. Narasimha Rao	Hindustan Steel P. Ltd., Rourkela.
55. Y. A. Mhatre	Hindustan Cons. Co. Ltd., Bombay-1.

14. TRAINING & PLACEMENT SECTION—*contd.*

Placement—*contd.*

Civil Engineering Department—contd.

56. S. K. Srivastava	Chambel Hydel and Irrigation Scheme.
57. P. P. Kalra	Hindustan Steel P. Ltd,, Rourkela.
58. K. Singh Bhasin	Government of India Stipendary Trainee.
59. S. K. Chowdhury	Hindustan Steel P. Ltd., Rourkela.
60. M. G. Bhowmick	Ditto
61. S.V.K, Sarma	Ditto
62. P. V. Ananda Rao	C.W.P.C., New Delhi,
63. S. C. Sharda	Ditto
64. B. Sengupta	Hindustan Steel P. Ltd., Rourkela.
65. D. K. Das	Ditto
66. Anoop Singh	Kashmir State Service.
67. Chinmoy Mozumder	Hindustan Steel P. Ltd., Rourkela.
68. M. V. P. Ranga Rao	C.W.P.C., New Delhi.
69. Krishnapada Maity	Hindustan Steel P. Ltd., Rourkela.
70. B. B. Singh	U. P. Irrigation Department.
71. S. K. Seal	Assam State Service.
72. L. Dav Hada	Nepal Government Service.
73. Kartar Chand	C.W.P.C., New Delhi.
74. K. V. S. Surya Subba Rao	Hindustan Steel P. Ltd., Rourkela.
75. H. K. Goswami	Assam State Service.
76. A. K. Dasgupta	Assam State Service.
77. Baldev Sarma	Assam State Service.
78. B. P. Sinha	C.W.P.C., New Delhi.
79. C. M. Srivastava	Ditto
80. H. K. Barthakur	Assam State Service.
81. Indrajit Barua	Assam State Service.
82. Kalp Nath Singh	U. P. Irrigation Deptt.
83. Monoranjan Basu	Jalpaiguri Polytechnic.
84. N. K. Majumder	Ditto
85. Pradip Kumar Bhuyan.	Assam State Service.
86. P. J. Porwal	Ditto
87. R. K. Dasgupta	Jalpaiguri Polytechnic Inst.
88. S. Ayyaswamy	C.P.W.D., Delhi.
89. V. V. Sarma	C.W.P.C., Orgn., Hyderabad.

Mechanical Engineering Department.

1. Sudhanshu Sekhar Pan	Hind Motors Ltd.
2. S. C. Srivastava	Hindustan Construction Co.
3. A. K. Padmapati	Lecturer, Tech. Inst., Assam.
4. A. Lakshminarayan	Enfield Ltd.
5. P. K. Chatterjee	Jay Engg. Works.
6. J. Nayar	Ditto
7. J. K. Anand	Ditto
8. R. T. Varghese	Allwyn Metal Box Co.
9. S. K. Bhaduri	Andrew Yule and Co. Ltd.
10. N. Subramanian	Enfield Ltd.

14. TRAINING & PLACEMENT SECTION—*concld.*

Placement—*concld.*

Mechanical Engineering Department—concld.

1. A. K. Bhargava	Texmaco, Gwalior.
2. S. K. Mukherjee	Lecturer, Vishnupur Tech. Inst., Bankura.
3. V. K. Narang	Andrew Yule Co. Ltd.
4. S. N. Sen Gupta.	Sr. Res. Asstt. I.I.T.

Naval Architecture Department.

1. M. C. Bhatia	Hindustan Shipyard P. Ltd., Visakhapatnam.
2. S. K. Gupta	Ditto
3. S. A. Khirwadkar	Ditto
4. C. V. G. Rao	Ditto
5. A. K. Chopra	Ditto
6. R. N. Prasad	Ditto
7. S. R. Roy	Ditto
8. B. P. Ghosh	Garden Reach Workshops Ltd., Calcutta.
9. M. K. Mukherjee	Indian Navy.
10. N. S. Mohan Ram	Naval Arch. Deptt. I.I.T., Asstt. Lecturer.

Architecture.

1. K. K. Anand	Messrs. Chowdhury and Gulzarsingh, Chandigarh, E. Punjab.
2. J. P. Bhargava	Town and Village Planner, Government of U.P., Lucknow.
3. B. B. Malik	Architect's Office, C.S.I.R., New Delhi.
4. Surendra Prasad	Architectural Asstt., Improvement Trust, Patna, Bihar.
5. H. K. Rajpal	Architectural Asstt., Tribhuvan University Project, Katmandu, Nepal.
6. P. J. J. Raju	Asstt. Architect, Office of the Government Architect, Hyderabad, Deccan.
7. H. Sharma	Office of the Town and Village Planner, Government of Uttar Pradesh, Lucknow.
8. P. S. Thapa	Office of Messrs. Chowdhury and Gulzarsingh, Architects and Engrs., Chandigarh, E. Punjab.
9. A. Banerjee	Asstt. Architect, Lees and Dhawan, Calcutta,
10. A. K. Sarma	Lecturer in Architecture, Jadavpur University, Calcutta.
11. Digambar Jha	Architectural Asstt., Office of the Government, Architect, P.W.D. Patna, Bihar.

15. HALLS OF RESIDENCES.

(*A*) *Patel Hall*

Two quiz contests were organised, one inter Block and the other inter-Year. English essay contest, English short story contest, Hindi debate and English debate featured in the cultural programme. All of them were held as usual in the year under review and prizes were awarded on each item.

A wall-paper, captioned "Patel Hall Calling" appeared every 10th day containing photographic exhibitions, paintings, cartoons, Hindi and English articles of general interest. During the sports week, a wall-paper appeared daily, covering all the high-lights of the sporting events day to day.

An annual "Patel Hall To-Day" was published under the auspices of the Hall comprising two sections Hindi and English and was tastefully furnished with some painting and photo blocks.

15. HALLS OF RESIDENCES—*contd.*

(*A*) *Patel Hall*—contd.

The students of the Hall figured as winners in the majority of events—cultural, athletic, and sports—in the inter-hall competitions held during the year. Shri Jaswant Singh of IVth year won the Bhandarkar Cup. The team prize in the inter-hall debates was won by the Boarders of the Hall.

In the quiz competitions, the Patelians made a very goods showing for themselves and just missed the trophy.

The Hall teams were champions in the Cricket and Basket Ball.

In group singing the hall became runners-up.

The Hall won the Inter-hall swimming and the Inter-hall Gymnastics championship.

Sri Kanwarjit Singh, a Boarder of the Hall had been declared winner of the President's Gold Medal as the most distinguished graduate of the year.

(*B*) *Nehru Hall*

During the year new Warden and one Assistant Warden joined the Hall.

A committee consisting of a General Secretary and four regional student representatives was elected to help the administration in the management of the Hall Mess and the general conduct of the student activities.

The Hall participated in all the Social, Cultural and Athletic activities of the Gymkhana and won several team championships and individual awards.

Two issues of the Halls printed magazine, the *Nehru hall Reporter*, were brought out during the year.

Independence Day, Holi and Twin-Halls Day were celebrated with the usual pomp and gusto.

Two farewell functions were arranged. The first of these was held on 1st. September 1957, to bid farewell to Dr. B. V. Gokhale, the Warden, and the second at the end of the session to bid farewell to the outgoing final year students.

The students of the Hall were "*At Home*" to Dean Everitt of the University of Illinois on the occasion of his visit to the Institute.

(*C*) *Azad Hall*

The activities of the Hall were kept at all-high level in fields of curricular and extra-curricular activities. The members of the Hall students advisory committee were assisted and encouraged to take the lead and initiative in matters concerning the general administration of the Hall, in organizing several debates, lectures by distinguished people and in conducting the Hall tournaments in all athletics in games.

The mess committee actively assisted the wardens in matters connected with the mess and accounts.

In the inter-hall field games, athletics, debates, recitations and elocution competitions—several trophies, team as well as individual, were won by the Hall and high standards were maintained throughout.

The Azad Hall Wall Paper continued to be very popular with the students and staff alike.

The Hall Day was celebrated with great pomp and splendour. Several meetings of the Board of Health, Residence and Tuition of the Hall were held during the year.

The general level of health of the residents continued to be excellent throughout the year.

(*D*) *Rajendra Prasad Hall*

During the year under report one new Assistant Warden joined the Hall.

The annual Hall Day was celebrated with the usual festivities.

The Hall started its own Magazine "Arpian" and the first volume came out during the year.

The achievement of the hall in the field of extra-curricular activities was very commendable.

15. HALLS OF RESIDENCES—*contd.*

(E) Radhakrishnan Hall

Two remaining blocks of the Hall were completed during the year.

The Hall, besides accommodating a number of undergraduate students provided accommodation to the Post-graduate students of the Institute. The Hall housed the candidates for the Residential study course in management studies. The Hall also arranged for the board and lodging of about 650 candidates who came to this Institute for *Viva-voce* and Medical Test for admission to the Bachelor's Degree courses at the Institute during the session 1958-59.

The Hall, though new, arranged for various types of games, both outdoor and indoor, for the boarders.

(F) Bidhan Roy Hall

The hall accommodated Research Scholars and Post Doctoral fellows of the Institute, Graduate trainees deputed by the Hindusthan Steel (Private) Limited for a specialised course in Metallurgy and a number of staff members.

The Hall celebrated its first 'Hall Day' with great pomp and splendour.

The Hall provided facilities for board and lodging to the candidates who came here for interview for admission to the Post-graduate courses.

16. HEALTH AND SANITATION.

Technology Hospital.

The hospital continued to have 20 beds in the detention ward.

Hospital Staff

Medical Officer	1
House-Surgeon-*cum*-Pathologist	1
Compounder	2
Hospital Attendants	4
Sweeper	1
Part-time Eye Specialist	1
Part-time Dentist	1

The dental and eye sections worked for three days a week as usual. These two sections continued to render very useful service to the staff and students.

There were a good number of cases of Influenza in the campus but timely precautionery measures prevented spreading of the disease in an epidemic form.

Prophylactic Treatment against Cholera, Typhoid and Small Pox was given to the members of staff and their families and the students as usual. No case of Small Pox was detected in the campus.

Medical Officer and his staff conducted the medical examination of about 650 candidates who were called for *Viva-voce* and medical test for admission to the Bachelor's degree courses.

Routine check of all hostel foodstuff was regularly done by the Medical Officer.

Total number of patients attended in the outdoor section was 41,011, monthly details of which are given below :—

July, 1957	4,927
August, 1957	3,820
September, 1957	3,301
October, 1957	3,092
November, 1957	4,150
December, 1957	3,243
January, 1958	3,223
February, 1958	3,878
March, 1958	3,519
April, 1958	2,760
May, 1958	2,178
June, 1958	2,920
Total	41,011

Total number of patients treated in the indoor section of the hospital was 166.

16. HEALTH AND SANITATION—*contd.*

Sanitation

The general sanitation of the campus was looked after by a group of specially appointed staff under the supervision of an Assistant Professor of the Civil Engineering Department with Post-graduate degree in Public Health.

The Malaria control work in the campus was undertaken by the staff deputed by the South Eastern Railway.

17. BUILDINGS.

During the period under report the following construction works were undertaken through the C.P.W.D. :—

(i) Construction of 20 Nos. G-type qrs. for staff ;
(ii) Construction of 14 Nos. 'C1' type qrs. for staff ;
(iii) Construction of 16 Nos. 'H1' type qrs. for staff ;
(iv) Construction of building for Foundry Training Centre ;

The work was expected to be completed by the end of July, 1958 ;

(v) Construction of new building for the Agricultural Engg. Deptt ;
(vi) Construction of a Hostel for 350 U.G. students (second stage) ;

The construction of this Hostel was started in 1956 and completed in March, 1958 ;

(vii) Extension of main Institute building (Central Wing) ;

The work was expected to be completed by the end of July, 1958 ;

(viii) Construction of a 100 seat Post-graduate Hostel.

The work was in progress during the year under report and was expected to be completed by March, 1959.

18. LANDS & GARDENS COMMITTEE.

The following work was carried out by the Committee during the year under report :—

(i) Cleaning, levelling and dressing of the front area of the Radhakrishnan Hall of Residence ;
(ii) Planting of about 250 trees on the road sides and in the open spaces around the F. C. and A type quarters as well as on the main Salua road ;
(iii) Planting of shrubs in the Hostel areas and in the main Institute compound ;
(iv) The children's play ground was completed and formally opened on the Dewali Day. This proved to be the most important work done by the Committee for the children in the Campus ;
(v) A part of the Horticultural Nursery was converted into a garden which was named as "Technology Garden" for the use of the residents of the Campus ;
(vi) "Information Centre" with a large size Blue Print of the Campus and a list of residence with their quarter Nos. was opened at the Security Gate of the main Institute building ;
(vii) Maintenance of Horticultural Nursery for propagation of plants and raising of seedlings and maintenance of decorative pot plant ;
(viii) Providing permanent fencing around 40 B-type and 6 A-type quarters, A number of staff quarters were provided with temporary fencing to enable the residents to have gardens around their quarters ;
(ix) Maintenance of all gardens, roadsides, trees, and open area in the Campus.

19. LIBRARY.

The total stock of the library on 30th June, 1958, stood at 36,863.

Besides these the library had over 5,000 pamphlets and re-prints of publications and equipment catalogues.

Binding Work.

The total number of volumes bound during the year under review was 1753.

19. LIBRARY—*contd.*

Library Stock.

Books

The number of books added during the period from 1st July, 1957 to 30th June, 1958.	4,923
The Number of microfilms added during the period from 1st July, 1957 to 30th June 1958.	232

Journals.

The total number of journals received during 1957-58 was 562. The number of journals arranged departmentwise was given below :—

Agricultural Engg.	45
A.R.P.	20
Civil Engg.	51
Applied Chemistry	39
Chemical Engg.	34
Electrical Engg.	30
Elec. Comm. Engg.	21
Geology and Geophysics	37
Humanities	46
Mechanical Engg.	80
Metallurgy	20
Naval Architecture	12
Physics	39
Mathematics	54
Library	5
Science General	29
Total	562

Besides these about 22 journals were received as gift.

The library also organised exchange of Journals, research publications, pamphlets, bulletins, etc. with Indian and foreign universities.

Thirty journals were being received on exchange.

Gift.

A good number of books and other reading materials, bulletins, pamphlets and circulars of number of organizations had been received, of which the following deserved special mention :—

Irrigation and Research Institute, Roorkee ;
National Physical Laboratory, London ;
CIBA Ltd ;
USIS, Calcutta ;
Standard Vaccum Oil Company ;
Central Works and Power Research Station, Poona ;
Ministry of Education, New Delhi ;
National Research Council, Canada, through the courtesy of Prof. S. C. Mitra ;
Modi Brothers, Bombay ;
National Research Council, London ;
Society of Naval Architecture, Japan ;
Rubber Research Institute, Bangalore ;
Mond Nickel Company ;
University of Illinois, Engg. Experimental Station Bulletin ;
Central Road Research Institute, New Delhi.
Bibliothak der Technischen Hochschule, Hannover ;
French Consulate, Calcutta ;
German Consulate, Calcutta.

19. LIBRARY—*contd.*

T. C. M. Gift.

The library received 998 volumes through the courtesy of T.C.M.

Library Cooperation.

Inter-library loan of books and journals was being organized as part of routin library work.

This had been arranged with the following Libraries :

National Library, Calcutta ;
Bengal Engg. College, Shibpur, Howrah ;
Jadavpur University Library, Calcutta ;
Calcutta University Library, Calcutta ;
C.B.R.I. Library, Roorkee ;
Roorkee University Library, Roorkee ;
National Metallurgical Lab. Library, Jamshedpur ;
Geological Survey of India Library, Calcutta.

Expenditure.

Library expenditure under different headings during the year under review was as under :—

	Rs.
Books	59,604·58
*Current Journals	1,912·68
Microfilms and Reprints	950·37
Back volumes of journals	5,103·87
Binding Materials for Books	695·07
Cataloguing Cards	294·89
Total	68,561·46

*Commitment of the Library for current journals stood at Rs. 26,925·50 but payment could not be made during the year as Book Debit Bill was not received.

Equipment.

The library has received through the courtesy of T.C.M. Model AH Library Reader for 35 mm. microfilms.

Wheat Loan.

869 books and 192 volumes of different periodicals were received out of the stock ordered under Wheat Loan Educational Exchange Programme.

Back Volumes of Journals.

The library continued to acquire back volumes of important journals for the benefit of research workers and others. A list of such Journals was as under. The items marked (*) had already been received and the other items were expected to be received soon ;

Agriculture Engineering	
*Trans. of Am. Society of Agr. Enginrs.	1920-1935
*Proc. of Soil Science Society of America	1910-1928 with some gaps ;
*Agronomy Journal	1936-1950
American Journal of Botany	1940-1953
Chemical Engg.	1940-1953
*Proc. of the American Concrete Institute	1940-1950
*Proc. of the Asphalt Technologists	1920, 1947, 1949, 1950, 1951, 1953, Vols. 10, 11, 12, 15-19.

19. LIBRARY—*contd.*

Back Volumes of Journals—contd.

*Journal of Boston Society of Civil Engineers	1943-1952 with some gaps.
*Journal of American Water Works Association	1945-1956 with some gaps.
Sewage and Industrial Waste	1945-1952
*Journal of the New England Water Works Association	1950-1956
Trans. of American Institute of Electrical Engineers	Vol. 26 to 51
Electronics	Vol. 1 to 23
Bell System Technical Journal	1935-1950
Journal of Palæontology	1941-1954
American Journal of Science (in Micro-cards)	1920-1929
*Trans. of S. A. E.	1946, 1953-1956
Journal of Aeronautical Sciences	1940-1956
Trans. of American Society of Metals	1939-1951
Metal Progress	1939-1950
Trans. of American Inst. of Mining and Metallurgical engineers (Metals Divn.)	1930-1952
Ditto—(Mining and Minerals Ec. Divn.)	1930-1952
Mining Congress Journal	1937-1956
Coal Age	1937-1950
Engineering and Mining Journal	1937-1950, 1955-1956
Physical Review	1930-1939
Journal of Optical Society of America	1930-1951
Review of Scientific Instruments	1930-1948
Review of Modern Physics	1930-1939
Journal of Applied Physics	1930-1950
American Journal of Physics	1930-1956
*Journal of Meteorology	1930-1956, 1944-1956 with some gaps.
*Trans. of the Society of Naval Architects and Marine Engineers	1930-1948, 1952-56.
*Astrophysical Journal	1954-56 with some gaps.
Trans. of American Math. Society	1935-1951
*Communication on Pure and Applied Maths.	1948-1950
Journal of Mathematics and Physics	1940-1950
*American Journal of Mathematics	1940-1950 with some gaps.
Proc. of American Mathematical Soc.	1940-1950
*Annals of Mathematics	1920-1956 with some gaps.
*Journal of the Society for Inds. and Appl. Mathematics	Vol. 1, 2, 3
Journal of Operations Research	Vol. I-IV
Management Science	Vol. I and II
*Journal of Symbolic Logic	1936-1956 with some gaps.
*British Post Office Electrical Engineers Journal	1920-1952
*Journal of the Inst. of Metals	1929-1950 with some gaps.
*Proc. of the Cambridge Philosophical Soc.	1931-1950.

19. LIBRARY—*concld.*

Back Volumes of Journals—concld.

Science Abstrafts, Sec. A	1930-1939.
*Proc. of the Physical Society	1930-1939.
Proc. of the Royal Society, Sr. A	1926-1st issue of Vol. 205-1951.
Trans. of the Am. Institute of Elec. Engg.	1925-Vol. 69, 1951.
*Proc. of the Physical Society, Sr. A. & B.	1951.
*Philosophical Magazine	1947 (Vol. 38).
*Science Abstrafts, Sec. A	1951 (Vol. 54).
*Journal of the Chemical Society (London)	1939-40, 1942, 1947, 1950.
*Proc. of the Inst. of Elecl. Engrs.	1949-1954.
*Trans. of Faraday Society	1939 (Vol. 35).
*Chemical Engg. Progress	1947, 1949, 1950.
*Mineralogical Magazine	1942-1949.
*Quarterly Journal of the Geological Society of London	1941-1951.
*Helvetica Physica Acta	1929-1955.
Quarterly Journal of Melt. Soc.	1944-1956.
*Proc. of the Royal Society, Sr. B	1928-1951 with some gaps.
*Philosophical Transactions of the Royal Society (A)	1935-1953.
*Philosophical Transactions of the Royal Society (B)	1935-1952.
*Journal of Royal Statistical Soc (B)	1934-1956.
*Annals of Human Genetics	1925-1956.
*Aeronautical Quarterly	1949-1956.
*British Journal of Applied Physics	1950-52, 1954.
*Journal of Scientific Instruments	1945-1950.
*Proc. of the Institute of Elec. Enggs., Pt. III	1940, 1944, 1946-1950.
*British Journal of Edl. Psychology	1950-1956.
*Metal Industry	1935-1952 with some gaps.
*Industrial Quality Control	Vol. 1, No. 4.
*Naval Research Logistics Qly.	Vol. 1, No. 4. Vol. 2, Nos. 1 & 2 Vol. 2, Nos. 4 Vol. 3, Nos. 4.

ISSUE.

As an outcome of the facilities offered by the liberal library rules and long library hours, issue figures showed increasing trend. Figures were as under :—

No. of Books issued during the period.	1956-1957.	1957-1958.
Staff	35,565	41,239
Students	23,895	32,032

No. of Journals Issued during the period.

1956-1957.	1957-1958.
8,525	9,867

20. TECHNOLOGY STUDENTS' GYMKHANA.

The year 1957-58 was an eventful one in the annals of the Technology Students' Gymkhana. During the session, the Gymkhana Constitution was amended, giving it the status of an autonomous body.

The general elections held in early August, 1957, were efficiently conducted by the Election Officer. About 98 per cent of the total electorate cast their votes.

The Session started with a farewell to Prof. and Mrs. Aner. The introduction of the newly elected office bearers of the Gymkhana and the First Year students to the Rector was held on 16th August, '57, along with Foundation Day celebrations. The Russian and American Guest Professors were given a hearty farewell on the eve of their departure from this Institute. Institute ties and crests were presented to the outgoing Professors on behalf of the Gymkhana as a token of love and gratitude.

The Republic Day dinner was held on 26th January, '58, and the Reunion Dinner during the Convocation week. The final years students were entertained to farewell tea.

Activities organised by different Sub-Committees of Gymkhana were as given below.

1. **Entertainments Sub-Committee.**—The tableau depicting the struggle for independence in 1857, was enjoyed by all present. A musical soiree was arranged with some prominent Radio Artistes from Calcutta.

Diwali illuminations were held with usual grandeur including Inter-Hall illumination contest and a display of fire-works.

Guru Nanak's Birth-Day, Saraswati Puja and the Spring Festival were celebrated Inter Hall Drama and Inter Hall Music Competitions evoked great response. Holi celebrations were observed with restraint and dignity.

2. **Library and Reading Room.**—Newspapers, periodicals and journals in English and the major Indian languages were subscribed for at all the six Hall of Residence.

3. **Magazine.**—The annual issue of the 'Udyoga' was brought out on the eve of the Convocation. The Souvenir issue was in the Press and was expected to come out shortly after the close of the year under report.

4. **Literary.**—The All India Inter-Collegiate Debate was successfully held. Inter-Hall Debate and Quiz Competitions were held as usual. It was highly gratifying that the Institute teams participating for the first time in an inter-University competition made a promising start by securing the first places in Inter-University Radio discussions in English and Hindi in the Eastern Zone. Mr. Taffey of the U.S.I.S. was kind enough to organise an Inter-Hall quiz.

5. **Photographic Society.**—The annual photographic exhibition was highly appreciated for the fine exhibits produced by the students. Mr. Ahmed Ali, the well known photographer and critic, inaugurated the exhibition.

6. **Film Society.**—The Film Society did a fine job by arranging regular films shows in the Campus.

7. **Arts Society.**—The Arts Society could not arrange anything worth mentioning.

Regular activities in the following games and sports were conducted.

8. **Football.**—Inter-Hall and Inter-Department Tournaments were conducted with usual enthusiasm. The football team went on a short tour to Santiniketan and Sibpore B. E. College, Calcutta. A number of friendly matches with outside teams were played at the Institute which helped in assessing the strength of the Institute team.

9. **Cricket.**—Besides regular net practice, the Institute team, played a number of friendly matches with outside teams and the results were quite satisfactory. The team went on a short tour to Calcutta and played several matches with some prominent teams of Calcutta It retained the District championship in Cricket for the third year in succession. Institute Blue was awarded to Shri V. K. Narang.

10. **Hockey.**—The Inter-Hall and Inter-Department matches were held as usual and some matches were played with out-station teams. The Institute team went on a tour to Calcutta and Santiniketan.

11. **Tennis.**—The Sub-Committee was proud to add one more pair of Tennis Courts. The Exhibition match with Naresh Kumar, Akhtar Ali, Premjit Lall and P. Kohli was the first of its kind on this Campus. In District Championship, the Institute team retained the doubles title. To get the students more tennis-minded, an Inter-Hall Tennis Competition had been started during the year.

20. TECHNOLOGY STUDENTS' GYMKHANA—*contd.*

12. **Small Area Games.**—Of all the games organised, Basketball and Volleyball deserved special mention. The game with the Secundrabad Y.M.C.A. Basketball team was of a very high standard. The Institute had in its ranks Shri C. Srinivasan, an All India player, in Basketball.

Our Volleyball team retained the District Championship for the third year in succession.
Inter-Hall Badminton Tournament was conducted with great enthusiasm.
Inter-Hall Woollen Ball Tournament had been started this year.

Sarvashri C. Srinivasan and D. V. Aggarwal were awarded Blues for Basketball and Volleyball respectively.

13. **Indoor Games.**—In all the six Halls of Residence, better facilities were provided for all the members in almost all the branches of Indoor Games.

An exhibition Table Tennis match was arranged in which some of the National and State players took part.

Institute Blue in Table Tennis was awarded to Shri A. V. Garde.

Inter-Hall and also individual competitions were held in Carrom, Chess, Draught and cards.

14. **Gymnastics and Boxing.**—On the R. P. Hall premises one more open air Gymnasium had been started for the convenience of the students of the eastern wing.

The annual Gymnastics, Boxing and Weight lifting competitions were well attended. Shri Monotosh Roy and his party from Calcutta gave an exhibition of Physical feats.

15. **Athletics and Aquatic**—The Annual sports meet was successfully conducted. This year the march past of athletes was an added attraction. The standard of performance was satisfactory and some new records were set up.

Our athletes took part in some of the local and District Sports Association Tournaments, Midnapore. But the annual aquatic sports meet could not be held due to rains.

21. NATIONAL CADET CORPS

The Institute's N. C. C. cadets held the annual training camp at Kirkee (Poona) during the Puja holidays. During the training camp the Cadets besides taking part in the prescribed N. C. C. activities attended the following subjects of interest as part of their training :—

(i) A Defence installation where Cadets got an opportunity to see various types of armoured fighting tanks, etc.;
(ii) National Chemical Laboratories, Poona;
(iii) National Defence Academy, Khadakavasla;
(iv) Kirlosker Oil Engine Factory, Poona;
(v) Mahindra & Mahindra Works, Pimpri (Poona).

During the year under report there were 2 ceremonial parades—one on the Independence Day and the other on the N. C. C. Day.

The Cadets provided a guard of honour to Dr. John Mathai, Vice-Chancellor, Kerala University, who attended this Institute on the 22nd February, 1958, to address the Third Annual Convocation of the Institute.

Cadet A. K. Sen, a Civil Engineering graduate was awarded President's Gold Medal for the year 1957. ' C ' certificate examination was held during the year under report and all *the 9 Cadet N. C. Os*, who appeared in the test, came out successful.

22. INCOME AND EXPENDITURE

Income	Rs.	Expenditure	Rs.
A. Institute receipts from various sources.	7,97,312	A. Pay and Allowances . .	27,80,041
B. Grant-in aid received from the Govt. of India during the period.	52,00,000	B. Contingencies—other charges	14,74,604
		C. Equipment, furniture and Fittings.	10,55,404
		*D. Construction of Buildings, Maintenance & Estate, minor works.	23,23,984
GRAND TOTAL .	59,97,312		76,34,033

* NOTE.—Expenditure for constructions of Buildings was met from a separate budget provision made for the purpose and allotted to Central P.W.D.

23. DISTINGUISHED VISITORS TO THIS INSTITUTE

Date.	Name.	Designation.
6-7-57	Prof. Nihar Ranjan Roy	Prof. Calcutta University.
6-8-57	Mr. Gerald Breeze	Ford Foundation, New Delhi.
27-8-57	Mr. N. Macedeo	Consultant of Lime Field, National Bldg. Organisation.
28-8-57	Mr. R. H. Wimble	First Secretary, U. K., Deputy High Commissioner's Office, Calcutta,
29-8-57	Dr. R. R. Hattiangadi	Technical Director, A. C. C. Ltd. Bombay.
29-8-7	Dr. K. L. Rao,	Member, C. W. P. C., New Delhi.
26-9-57	Prof. M. S. Thacker	Secretary, Dept. of Technical Education and Scientific Research, Ministry of Education and Scientific Research, New Delhi.
14-10-57	Sri A. Mitra, I.C.S.	Secretary, Govt. of West Bengal, Deptt. of Commerce & Industries, Calcutta.
27-10-57	Sri J. N. Lahiri	Member, Lok Sabha.
4-11-57	Jaban Ahmed Mohiuddin	Ditto.
,,	Sri D. N. Tewari	Ditto.
,,	Sri G. B. Khedkar	Ditto.
,,	Sri V. P. Nayar	Ditto.
,,	Sri D. Thimmaya	Ditto.
,,	Sri H. N. Trivedi	Dy. Secy. Lok Sabha, Secretariat, New Delhi.
9-12-57	Mr. P. Amado	Cultural Attache, French Consulate General, Calcutta.
,,	Mr. M. Masquilair	French Engineer.
7-1-58	Dr. O. A. Hougen	Prof. of Chemical Engg., Univ. of Wisconsin, U. S. A.
8-1-58	Dr. B. V. Keskar	Union Minister for Information & Broadcasting, New Delhi.
15-1-58	Dr. W. Railstone	Scientific Adviser, Colombo Plan, London.
,,	Sri. A. K. Chanda	Union Dy. Minister for Works, Housing & Supply.
16-1-58	Prof. F. O. Rossini	Carnegie Inst. of Technology U. S. A.
18-1-58	Prof. Dr. Jerzy Litwinszyn	Correspondence Member, Polish Academy of Sciences & Prof. of Coal & Steel Mining Academy, Cracow, Poland.
29-1-58	Dr. H. Leaderman	Physicist. N. B. S. Washington, U. S. A.
4-2-58	Mr. P. M. Twiss	Australian Scientist.
6-2-58	Prof. J. B. S. Haldane	Indian Statistical Inst., Calcutta.
7-2-58	Sri P. G. Krishnayya	Fuel Oil Expert, Burma Shell, Bombay.
,,	Dr. H. Pohris	Consul of Federal Republic of Germany, Calcutta.
8-2-58	Dr. N. Das, I.C.S.	Secretary to the Govt. of West Bengal, Home (Anti-Corruption) Department, Calcutta.
9-2-58	Mr. John G. Holm	American Consul General Calcutta.
10-2-58	Sri S. Guruswamy	President, All India Railwaymen's Federation, New Delhi.
11-2-58	Mr. J. C. Jones	Technical Adviser to the Colonial Office in UK-on Technical Education.
12-2-58	Sri J. M. Shrinagesh	General Manager, Hindustan Aircraft Ltd., Bangalore.

23. DISTINGUISHED VISITORS TO THIS INSTITUTE—*contd.*

13-2-58	Sir B. P. Singh Roy . . .	President, India Steam Navigation Co., Ltd., Calcutta.
,,	Sri G. Basu	President, Institute of Cost & Works Accountants, Calcutta.
13-3-58	Dr. William L. Everitt . .	Dean of Engg. University of Illinois, U.S.A.
11-4-58	Mr. O. Debune	U. N. Technical Assistance Board, New Delhi.
22-4-58	Prof. N. R. Sen	Sir Rash Behari Ghosh Professor of Applied Mathematics, Calcutta University.
13-5-58	Mr. Morganrath	Delegate Engineer, M/S. A. E. G. & Co.
20-5-58	Sri J. K. Chowdhury . . .	Consulting Architect & Town Planner Chandigar.
26-6-58	Sri Jainarain Vyas . . .	Member, Rajya Sabha.
,,	Sri Ajit Singh	Member, Lok Sabha.
,,	Sri Manek Bhai Agarwal . .	Ditto.
,,	Sri Rajaram Misra . . .	Ditto.
,,	Sri Sardar Amar Singh Saigal .	Ditto.
,,	Sri Ramdhani Das . . .	Ditto.
,,	Sri Ajit Singh Sarhadi . . .	Ditto.
,,	Sri K. C. Sharma	Ditto.
,,	Sm. Krishna Mehta . . .	Member, Lok Sabha.
,,	Sri S. Basu	Director General of Observatories, Indian Meteorological Department.

24. STAFF APPOINTMENTS AND RESIGNATIONS, ETC.

(*a*) Appointment.

ACADEMIC

1. Prof. B. M. Belgaumkar, B.Sc. (Engg.) Professor, Dept. of Mech. Engg.
2. Prof. K. G. Chandiramani, B. Engg. Asstt. Prof., Dept. of Mech. Engg.
3. Prof. S. K. Siddhanta, M. Sc., M.S. Asstt. Prof., Geology & Geophysics.
4. Prof. N. Roy, B. E., M.S, Asstt. Prof., Civil Engineering.
5. Prof. G. M. Mandalia, K. D. Arch., A.I.I.A. (Lond.), M.S. (U.K.), M. Arch (IIT) Asstt. Prof., Architecture.
6. Prof. P. K. Sen, B. E., M. E. (Met. Engg.), Asstt. Prof., Metallurgical Engg.
7. Dr. D. E. N. Mitra, M.A., D. Phil., Asstt. Prof., Mathematics.
8. Prof. N. K. Dutta, B.E., M.S., Asstt. Prof., Mechanical Engg.
9. Prof. D. P. Ghosh, B.E., CE., Asstt. Prof., Mechanical Engg.
10. Prof. B. N. Chatterjee, M.Sc., Asstt. Prof., Electronics & Electrical Communication Engg.
11. Prof. P. Banerjee, B. Met, A.M.I.E., Asstt. Prof., Metallurgical Engg.
12. Prof. D. K. Sen, B.Sc., A.S.I.M., Astt. Prof., Mining Engineering.
13. Prof. H. N. Dutta, B.Sc., A.S.I.M., Asstt. Prof., Mining Engineering.
14. Prof. D. Sinha, M.A. (Pat.), M.Sc., (Cantab.), Asstt. Prof., Humanities & Social Science.
15. Shri H. K. Rakhra, B. Arch., Lecturer, Architecture.
16. Shri A. N. Sen Gupta, B. Arch., Lecturer, Architecture.
17. Dr. B. B. S. Singhal, D.Sc, (Belgrade), Lecturer, Geology & Geophysics.
18. Shri K. S. Jadav, B.Sc. (Agri)., Lecturer, Agricultural Engg.
19. Shri Tan Lee, M. Tech. (IIT), Lecturer, Architecture.

24. STAFF APPOINTMENTS AND RESIGNATIONS, ETC.—*contd.*

20. Shri Ratan Kumar, B. Arch., M. Tech., Lecturer, Architecture.
21. Dr. B. G. Chatterjee, D. Phil. Lecturer, Applied Chemistry.
22. Dr. S. Banerjee, Ph. D. (IIT) Lecturer, Applied Chemistry.
23. Shri P. K. Rajagopalan, B.E., Lecturer, Electrical Engg.
24. Shri P. C. Ghosh, B. M. E., Lecturer, Mechanical Engg.
25. Shri D. K. Guha, B. ChE., M. Tech., Lecturer Chemical Engg.
26. Shri S. Roy, B. Sc., B. Met., Lecturer, Metallurgical Engg.
27. Shri B. N. Kar, B.M.E., Lecturer, Mechanical Engg.
28. Shri S. C. Das, M.Sc., A.M.I.E., A.M.I. Prod. E. Lecturer, Mechanical Engg.
29. Shri S. V. L. N. Rao, M.Sc., Lecturer, Geology & Geophysics.
30. Shri S. V. Kulkarni, B.E., M. Tech., Lecturer, Mechanical Engg.
31. Shri K. M. Naha, M.Sc. Lecturer, Geology & Geophysics.
32. Shri B. K. Sen Gupta, M.Sc., Lecturer, Geology & Geophyiscs.
33. Shri B. Bhattacharyya, M.A., Lecturer, Architecture.
34. Shri R. S. Aiyer, B. E., Lecturer, Civil Engineering.
35. Dr. N. K. Bhattacharyya, D. Phil. Lecturer, Applied Chemistry.
36. Dr. J. C. Kuriacose, D.Sc., Lecturer, Applied Chemistry.
37. Dr. T. Rausch. D. Phil., Lecturer, Humanities & Social Science.
38. Shri A. K. Banerjee, B. Arch., Lecturer, Architecture.
39. Shri B. N. Das, M. Sc. (Tech.), Lecturer, Electronics & Electrical Communication Engineering.
40. Shri R. N. Sen, B. E., Lecturer, Civil Engineering.
41. Shri D. K. Lahiri, B. E. (Met. Engg.), Lecturer, Metallurgical Engg..
42. Shri J. N. Kar, B. E., Lecturer, Civil Engineering.
43. Dr. Sisir Sen, M.Sc., Ph. D., Lecturer, Geology & Geophysics.
44. Shri B. G. Ghosh, B. M. E., Lecturer, Mechanical Engg.
45. Shri T. Ram Mohan, B. Tech., Lecturer, Mechanical Engg.
46. Shri M. N. Sarkar, B.M.E., A.M.I. Prod E. Lecturer, Mechanical Engg.
47. Shri K. K. Sarkar, B.Sc. (Met, Engg.), Assistant Lecturer, Metallurgical Engg,
48. Shri S. Koteswara Rao, B. E., Assistant Lecturer, Civil Engineering.
49. Shri V. V. Jayaraman, B. E., Assistant Lecturer, Civil Engineering.
50. Shri K. L. N. P. Patnaik, B. E., Assistant Lecturer, Civil Engineering.
51. Shri A. B. L. Srivastava, M.Sc, Assistant Lecturer, Mathematics.
52. Shri S. K. Sharma, M.A., Assistant Lecturer, Mathematics.
53. Shri D. K. Sen Gupta, M.Sc., Assistant Lecturer, Geology & Geophysics.
54. Shri D. S. Bhattacharyya, M.Sc., Assistant Lecturer, Geology & Geophysics.
55. Shri A. K. Paul, B.M.E., A.M. I.E., Assistant Lecturer, Mechanical Engg.
56. Shri V. R. Rao, B. E., Assistant Lecturer, Civil Engineering.
57. Shri C. S. Sastry B. E., Assistant Lecturer, Civil Engineering.
58. Shri K. V. G. K. Gokhale, M. Tech., Assistant Lecturer, Geology & Geophysics.
59. Dr. B. C. Dutta, M. Tech., Ph. D. (IIT), Assistant Lecturer, Chemical Engineering.
60. Shri M. L. Bhowmick, M.Sc, Assistant Lecturer, Physics & Meteorology.
61. Shri G. K. Suri, M.A., Assistant Lecturer, Humanities & Social Science.
62. Dr. Dharam Vir, Ph. D. (IIT), Assistant Lecturer, Applied Chemistry.
63. Shri N. R. Chatterjee, M.Sc. Assistant Lecturer, Humanities & Social Science.
64. Shri H. Rao, M.Sc. S. R. A., Geology & Geophysics.
65. Shri E. M. Gopal, S. R. A., Electrical Engineering.
66. Shri V. K. M. Sharma, S. R. A., Civil Engineering.
67. Shri S. K. Mitra, S. R. A., Metallurgical Engg.
68. Shri M. A. Faruqui, B. Tech. S. R. A., Electronics & Electrical Communication Engg.
69. Shri B. N. Ghosh Mazumder, M.Sc. S. R. A., Applied Chemistry.
70. Dr. D. K. Nandi, M.Sc., Ph. D., S. R. A., Applied Chemistry.
71. Shri J. V. S. Mani, S. R. A., Chemical Engineering.

24. STAFF APPOINTMENTS AND RESIGNATIONS, ETC.—*contd.*

72. Shri K. J. R. Sharma, S. R. A., Chemical Engineering.
73. Shri D. K. J. Talati, J. R. A., Geology & Geophysics.
74. Shri S. P. Mukherjee, J. R. A., Chemical Engineering.
75. Shri P. Sen Gupta, J. R. A., Chemical Engineering.
76. Shri M. K. Sharma, J. R. A., Physics & Meteorology.
77. Shri M. S. Sikand, J. R. A., Physics & Meteorology.
78. Shri U. K. Barua, J. R. A., Physics & Meteorology.
79. Shri H. S. Virdi, B. Arch. Instructor, Architecture.
80. Shri A. N. Dutta, M.A., Instructor, Architecture.
81. Shri T. K. Ghosh, Farm Superintendent, Agricultural Engineering.

ADMINISTRATIVE-CUM-ACADEMIC.

1. Prof. V. N. Prasad	Deputy Director (Part-time).

ADMINISTRATIVE.

1. Shri K. C. Chakravarty, M.Sc. . .	Registrar.
2. Shri A. N. Mitra, M.A. . . .	Assistant Registrar (Personnel).
3. Shri S. K. Guha, M.A. . . .	Audit Officer.

TECHNICAL.

1. Shri R. K. Banerjee	Supervisor,	Workshops.
2. Shri A. S. Bhagar	,,	Ditto.
3. Shri M. Singh	Technical Assistant.	Geology & Geophysics.
4. Shri B. B. Hazari	,,	Ditto.
5. Shri A. Maity	,,	Electronics & Elec. Communication Engg,
6. Shri S. C. Sengupta	,,	Electrical Engineering.
7. Shri M. K. Bose	,,	Mathematics.
8. Shri N. B. Roy	,,	Mechanical Engg.
9. Shri R. K. Dey	,,	Architecture.
10. Shri M. G. Deshmukh . . .	,,	Ditto.
11. Shri K. P. Mitra	,,	Chemical Engineering.
12. Shri C. Ramappa	.	Mech. 'A'
13. Shri K. C. Sarkar	.	,,
14. Shri H. P. Das	.	,,
15. Shri S. K. Mukherjee . . .	.	,,
16. Shri B. P. Roy	.	,,
17. Shri G. C. Dey	.	,,
18. Shri H. K. Roy	.	,,
19. Shri K. K. Khulan	.	,,
20. Shri A. Deb Biswas	.	,,
21. Shri A. Maity	.	Mech. 'B'
22. Shri T. Singh	.	,,
23. Shri B. Mukherjee	.	,,
24. Shri C. H. Satyam	.	,,
25. Shri K. Ghosh	.	,,
26. Shri M. S. Roy	.	,,
27. Shri S. B. Chakraborty . . .	.	,,
28. Shri M. Panigrahi	.	,,
29. Shri K. S. Mukherjee . . .	.	Mech. 'C'
30. Shri K. K. Chakravarty . . .	.	,,

24. STAFF APPOINTMENTS AND RESIGNATIONS, ETC.—*contd.*

31. Shri H, P. Das	Mech. 'C'
32. Shri G. C. Mondal	,,
33. Shri B. N. Banerjee	,,
34. Shri N. Kauri	,,
35. Shri S. P. Bhattacharyya	,,
36. Shri M. K. Das	,,
37. Shri P. Ghora	,,
38. Shri S. C. Sarkar	,,
39. Shri K. D. Ganguly	Draftsman.

OTHER SUPPORTING STAFF.

1. Shri K. C. Datta, B.A.	Superintendent.
2. Shri J. C. Bhattacharyya, B.A.	Ditto.
3. Dr. D. K. Saha, M.B., B.S.	House-Surgeon-cum-Pathologist.
4. Shri P. C. Chatterjee, B.A.	Auditor.
5. Shri U. N. Sen Gupta	Security Officer.
6. Shri S. C. Ghosh B.Sc.	Assistant.
7. Shri S. K. Mukherjee B.A.	Assistant.
8. Shri S. C. Saha, B.A.	Assistant.
9. Shri S. Chatterjee	Assistant.
10. Shri S. K. Datta, B.A.	Assistant.
11. Shri C. D. Biswas	U. D. C.
12. Shri A. K. Bose	U. D. C.
13. Shri G. S. N. Sharma, B.Com.	U. D. C.
14. Shri A. K. Dutta, B.Com.	U. D. C.
15. Shri P. B. Bhattacharyya	U. D. C.
16. Shri N. K. Dutta	U. D. C.
17. Shri I. B. Roy	U. D. C.
18. Shri R. M. Talukdar	U. D. C.
19. Shri S. P. Banerjee	U. D. C.
20. Shri S. K. Das Gupta.	U. D. C.
21. Shri H. Basak, B.A.	U. D. C.
22. Shri B. N. Mitra, B.Com.	U. D. C.
23. Shri N. C. Chattopadhya	L. D. C.
24. Shri P. K. Mukherjee	L. D. C.
25. Shri Martin Francis	L. D. C.
26. Shri R. N. Chakravarty	L. D. C.
27. Shri K. P. Chowdhury	L. D. C.
28. Shri A. Chakraborty	L. D. C.
29. Shri S. Sur	L. D. C.
30. Shri N. Dey	L. D.C.
31. Shri H. V. L. N. Rao	L. D. C.
32. Shri P. K. Dutta	Gestner Operator (Jr.).
33. Shri M. Chowdhury	Duftry.
34. Shri N. C. Kosser	Duftry.
35. Shri A. R. Shit	Duftry.
36. Shri T. K. Sen	Peon.
37. Shri R. C. Kisker	Peon.
38. Shri R. K. De	Peon.
39. Shri L. M. Tudu	Peon.

24. STAFF APPOINTMENTS AND RESIGNATIONS, ETC.—*contd.*

40. Shri K. L. Murmu	Peon.
41. Shri G. Singh	Peon.
41. Shri J. C. Chakraborty	Library Attendant. Gr. I.
42. Shri J. Tudu	Library Attendant. Gr. I.
43. Shri P. C. Sarkar	Lab. Attendant. Gr. I.
44. Shri K. C. Dutta	Lab. Attendant. Gr. I.
45. Shri P. Chakraborty	Lab. Attendant. Gr. I.
46. Shri M. Das	Lab. Attendant. Gr. I.
47. Shri I. M. Das	Lab. Attendant. Gr. I.
48. Shri J. C. Dutta	Lab. Attendant. Gr. I.
49. Shri M. Chatterjee	Lab. Attendant. Gr. I.
50. Shri D. B. Chakraborty	Lab. Attendant. Gr. I.
51. Shri Chennia	Lab. Attendant. Gr. I.
52. Shri A. C. Dutta	Lab. Attendant. Gr. I.
53. Shri S. K. Maity	Lab. Attendant. Gr. I.
54. Shri B. Bhattacharyya	Lab. Attendant. Gr. I.
55. Shri S. R. Chakraborty	Lab. Attendant. Gr. I.
56. Shri R. Mohanvelu	Lab. Attendant. Gr. I.
57. Shri B. Upadhyay	Lab. Attendant. Gr. I.
58. S. R. Bhattacharyya	Lab. Attendant. Gr. I.
59. Shri A. R. Chakraborty	Lab. Attendant. Gr. I.
60. Shri R. K. Ghosh	Lab. Attendant. Gr. II.
61. Shri D. N. Roy	Lab. Attendant. Gr. II.
62. Shri S. C. Mirbahar	Lab. Attendant. Gr. II.
63. Shri S. C. Aich	Lab. Attendant. Gr. II.
64. Shri S. Ahmed	Lab. Attendant. Gr. II.
65. Shri J. Murmu	Lab. Attendant. Gr. II.
66. Shri G. Murmu	Lab. Attendant. Gr. II.
67. Shri P. R. Maity	Lab. Attendant. Gr. II.
68. Shri P. R. Tudu	Lab. Attendant. Gr. II.
69. Shri N. C. Sarkar	Lab. Attendant. Gr. II.
70. Shri C. G. Pal	Lab. Attendant. Gr. II.
71. Shri K. L. Chakraborty	Lab. Attendant. Gr. II.
72. Shri Bharat Swain	Lab. Attendant. Gr. II.
73. Shri S. K. Malakar	Lab. Attendant. Gr. II.
74. Shri M. R. Dey	Lab. Attendant. Gr. II.
75. Shri S. K. Dey	Lab. Attendant. Gr. II.
76. Shri A. Williams	Lab. Attendant. Gr. II.
42. Shri S. K. Hembram	Chowkidar.
43. Shri J. L. Paul	Chowkidar.
44. Shri Sadhu Singh	Beatsman.
45. Shri G. Singh	Beatsman.

24. STAFF APPOINTMENTS AND RESIGNATIONS, ETC—*contd.*

46. Shri J. Dalui . . . . . Beatsman.
47. Shri C. Appa Rao . . . . . Beatsman.
48. Shri S. R. Chakraborty . . . . . Beatsman.
49. Shri S. G. Ghosh . . . . . Beatsman.
50. G. C. Digar . . . . . Beatsman.
51. Shri B. P. Bhattacharyya . . . . . Durwan.
52. Shri D. Bairagi . . . . . Sweeper.
53. Shri Baistam. . . . . Sweeper.
54. Shri Sahadev . . . . . Sweeper.
55. Shri Sundi Shyam . . . . . Sweeper.

(*b*) Termination/Resignation/Release.

1. Shri H.K. Rakhra, Lecturer, Dept. of Architecture.
2. Dr. Rajendra Kumar, Lecturer, Dept. of Metallurgical Engg.
3. Shri M. K. Dutta., Asstt. Lecturer. Do.
4. Shri K. T. Ramaverma, Asstt. Lecturer, Dept. of Mechanical Engg.
5. Shri A. K. Das, Asstt. Lecturer, (Death), Dept. of Agricultural Engg.
6. Shri R. N. Basu, Asstt. Lecturer, Dept. of Electrical Engg.
7. Dr. M. N. L. Narasimhan, Asstt. Lecturer, Dept. of Mathematics.
8. Shri K. K. Sarkar, Asstt. Lecturer, Dept. of Metallurgical Engg.
9. Dr. R. Sengupta, S. R. A., Dept. of Applied Chemistry.
10. Shri S. K. Basu, S. R. A., Dept. of Electrical Engg.
11. Shri D. K. Palit, J. R. A., Dept. of Applied Chemistry.
12. Shri D. Aich Bhowmick, Instructor, Dept. of Architecture.
13. Shri D. N. Halder, Instructor, Dept. of Mechanical Engg.
14. Shri R. S. Barve, Instructor, Dept. of Architecture.
15. Shri S. K. Khastagir, Physical Training Instructor.
16. Shri N. G. Sutradhar, Technical Assistant.
17. Shri S. Chakravarty, Technical Assistant.
18. Shri K. W. Singh, Foreman.
19. Shri G. K. Sarkar, Mech. B.
20. Shri C. R. Dey, Mech. B.
21. Shri B. Gupta, Mech. B.
22. Shri K. Ghosh, Mech. B.
23. Shri M. S. Chakravarty, Mech. C.
24. Shri S. Sen Gupta, Mech. C.
25. Shri R. K. Dey, Modelling Asstt.
26. Shri C. D. Biswas, L.D.C. (Sr.)
27. Shri C. D. Biswas, L.D.C. (Jr.)
28. Shri M. C. Dutta, Library Attendant, Gr. I (Death).
29. Shri A. P. Chatterjee, Laboratory Attendant, Gr. I.
30. Shri A. Bandyopadhyay, Laboratory Attendant, Gr. I.
31. Shri J. C. Roy, Laboratory Attendant, Gr. I.
32. Shri D. K. Mitra, Shop Attendant, Gr. II.
33. Shri B. C. Dutta, Laboratory Attendant.
34. Shri Kondal Koli, Sweeper.
35. Shri I. M. Rowl, Store Attendant.
36. Shri P. N. Pandey, Durwan.

25. STAFF ON TRAINING ABROAD.

LIST OF STAFF WHO HAD PROCEEDED ABROAD FOR HIGHER TRAINING OR RETURNED DUTY TO DURING THE PERIOD.

Serial No.	Subject.	Name of Trainee.	Countries where the training was/ would be taken.	Date of departure from India.	Date of arrival in India.	Name of programme under which training facilities were to be obtained.
1	2	3	4	5	6	7
1.	Electrical Engg.	Shri D. V. S. Murthy, Asstt. Lecturer	U. K..	5-9-57	..	Central Overseas Scholarships Scheme 1957-58 (Two years).
2.	Chemistry	Shri K. S. De, Asstt. Lecturer	U. K.	5-9-57	..	Ditto—(Three years).
3.	Mechanical Handling Equipment	Shri G. L. Singh, Lecturer	West Germany	10-7-57	..	Post Graduate studies under Indo-German Tech. Co-operation Scheme (Two years).
4.	Naval Arch.	Shri P. K. Pal, Asstt. Lecturer	Do.	10-7-57	..	Practical Training under Indo-German Tech. Co-operation Scheme (One years).
5.	Geophysics	Dr. P. K. Bhattacharyya, Asstt. Professor.	U. S. S. R.	11-10-57	..	Studies under U. N. Expanded Tech. Assistance Programme of 1956 (20 months).
6.	Strength of Mat	Shri C. N. Lakshminarayan, Asstt. Prof.	Czechslovakia/ U. K.	13-10-57	..	Studies under U. N. Expanded Tech. Assistance Programme of 1956 (9 months).
7.	Steel Structures	Shri R. K. Narasimhan, Asstt. Prof.	Australia and New-zealand.	11-4-58	..	Training under UNESCO Tech. Assistance Programme 1957 (12 months).
8.	Furnace Design	Shri S. G. Mukherjee, Asstt. Prof.	Holland	12-10-57	..	Training under UNESCO Tech. Assistance Programme 1956/57 (18 months).
9.	Industrial Psychology	Dr. H. C. Ganguly, Lecturer	U. S. A.	15-3-57	22-4-58	Sisterhood Relationship Programme of T. C. M.
10.	Physics	Prof. H. N. Bose, Asstt. Prof.	U. K.	3-1-58	8-6-58	Training under Colombo Plan.
11.	Applied Mathematics	Dr. M. K. Jain, Lecturer	West Germany	27-10-57	..	Free Hanseatic City of Hamburg Scholarship (Two years).
12.	Civil Engg.	Prof. B. R. Sen, Asstt. Prof.	U. S. A.	12-11-57	30-5-58	Sisterhood Scheme of T. C. M.
13.	Architecture and Regs : Planning	Prof. D. V. R. Rao, Asstt. Prof.	U. S. A.	11-1-58	..	Sisterhood Scheme of T. C. M. (9 months).
14.	Applied Chem.	Dr. S. Banerjee, Lecturer	U. S. A.	18-1-58	..	Sisterhood Scheme of T. C. M. (9 months).
15.	Metallurgy	Shri M. R. Das, Asstt. Lecturer	U. S. A.	17-1-58	..	Sisterhood Scheme of T. C. M. (12 months).

15. Metallurgy	Shri M. R. Das, Asstt. Lecturer	U. S. A.	17-1-58	..	Sisterhood Scheme of T. C. M. (12 months).
16. Agricultural Engg.	Shri Jaswant Singh, Asstt. Lecturer	U. S. A.	15-3-58	..	Sisterhood Scheme of T. C. M. (9 months).
17. Electrical Engg.	Shri S. P. Roy. Chowdhury, Lecturer	East Germany	28-12-57	..	Scholarship of German Democratic Republic Government.
18. Chemical Engg.	Shri P. Sen. S. R. A.	West Germany	5-12-57	..	Indo-German Industrial Co-operation Scheme (2 years).
19. Geology and Geophysics	Shri S. Hayagriba Rao, S. R. A.	West Germany	27-2-58	..	Federal Republic of Germany and Hamburg Students Union.
20. Hydraulics	Shri S. K. Ghosh, Asstt. Professor	France	30-11-56	30-12-57	UNESCO Tech. Assistance Programme.
21. Foundry Engg.	Shri S. N. Iyengar, Asstt. Professor	U. K./West Germany.	29-8-56	1-11-57	UNESCO Tech. Assistance Programme.
22. Electrical Engg. (Heavy)	Dr. M. P. Varshney, Lecturer	Sweeden	19-11-56	22-11-57	UNESCO Tech. Assistance Programme.
23. Architecture and Reg. Planning	Shri G. M. Mandalia, Asstt. Professor	U. S. A.	31-8-55	26-8-57	Sisterhood Relationship Scheme of T. C. M.
24. Machine Tools	Shri M. N. Sarkar, Lecturer	West Germany	25-8-56	-11-57	Indo-German Industrial Co-operative Scheme.
25. Steam Boilers	Shri S. N. Pushilal, Lecturer	West Germany	20-1-57	15-3-58	Indo-German Industrial Co-operative Scheme.
26. Metamorphic Geology	Shri S. V. L. N. Rao, Lecturer	Norway	13-7-56	19-8-57	Norwegian Govt. Scholarship.
27. Experimental Physics	Dr. J. Sharma, S. R. A.	Canada	15-11-55	17-2-58	Post Doctorate Research Fellowship of National Research Council of Canada.
28. Chemical Engg.	Shri D. K. Guha, Lecturer	U. S. A.	20-9-56	18-10-57	Sisterhood Relationship Scheme of T. C. M.

26. ADVISORY COMMITEES.

(*a*) DEPARTMENT OF AGRICULTURAL ENGINEERING.

1. Dr. J. K. Basu, Ph.D., F.N.I., Director of Soil Conservation, Govt. of India, Ministry of Food and Agriculture, New Delhi.
2. Shri B. N. Banerjee, Jt. Director of Agricultural Engineering, West Bengal, Writers' Buildings, Calcutta.
3. Dr. R. J. Kalamkar, Ph.D., F.A.S.C., Addl. Agricultural Commissioner, Queen Victoria Road, New Delhi.
4. Mr. W. H. Ketchell, Resident Director, Massey Harris, Farguson (India Ltd.), Bangalore
5. Shri M. K. Nandi, C/o Voltas Limited, 8, Netaji Subhas Road, Calcutta-1.
6. Shri S. S. Pillai, Hindusthan Steel Private Ltd., Mining Division, P. O. Barbill, Barajamda.
7. Dr. J. C. Sen Gupta, Chief Botanist, Botanical Survey of India, 14, Madan Street, Calcutta.
8. Prof. V. Subba Raju, Head of the Department of Agricultural Engineering (Convenor), Indian Institute of Technology, Kharagpur.

(*b*) DEPARTMENT OF METALLURGICAL ENGINEERING.

1. Dr. G. P. Chatterjee, Head of the Department of Metallurgical Engineering, Bengal Engineering College, P. O. Botanical Gardens, Howrah.
2. Dr. D. P. Chattarjee, Superintendent Ordnance Factory, Kanpur.
3. Prof. N. N. Sen, 16/3B, Garcha Second Lane, Calcutta-19.
4. Dr. D. P. Antia, National Carbon Co. (I), Ltd., 18/A Brabourne Road, Calcutta-1.
5. Dr. N. Anjaneyulu, Ministry of Defence (CGDP), Technical Development Estt., Metallurgy P. O. Ichapur-Nawganj, West Bengal.
6. Prof. P. R. Dhar, Head of the Department of Metallurgical Engineering, Indian Institute of Technology, Kharagpur (Convenor).

(*c*) DEPARTMEMT OF ARCHITECTURE & REGIONAL PLANNING.

1. Shri T. J. Manickam, School of Architecture and Town Planning, New Delhi.
2. Shri H. Rahaman, Senior Architect, Central Public Works Department, Naw Delhi.
3. Shri C. M. Master, Master, Sathe & Bhute, Bombay.
4. Mons. Pierre Jeanneet, Senior Architect, Chandigarh.
5. Shri A. P. Kanvinde, M/s. Kanvinde & Co., New Delhi.
6. Prof. V. N. Prasad, Head of the Department of Architecture & Reg. Planning, Indian Institute of Technology, Kharagpur (Convenor).

(*d*) DEPARTMENT OF CHEMICAL ENGINEERING.

1. Dr. J. C. Ghosh, D.Sc., F.N.I., Member, Planning Commissioner, New Delhi.
2. Dr. H. L. Roy, Department of Chemical Engineering, Jadavpur University, Calcutta-32.
3. Mr. J. M. Marks, Babcock & Wilcock of India Ltd., 4, Bankshall Street, Calcutta.
4. Dr. S. K. Mukherjee, Plant Manager, Sindri Fertilizers & Chemicals Ltd., Sindri, Manbhum.
5. Prof. M. N. Rao, Head of the Department of Chemical Engineering, Indian Institute of Technology, Kharagpur (Convenor).

(*e*) DEPARTMENT OF CIVIL ENGINEERING.

1. Rai Bahadur N. K. Mitra, 16, Hindustan Road, Calcutta-29.
2. Shri K. R. Bhide, Chief Engineer, Public Health Engg., Govt. of Bihar, Patna.
3. Shri I. B. De, Special Officer, Floods & Flood Control, Irrigation & Waterways Directorate, Writers' Buildings, Calcutta.
4. Shri A. M. Komora, Chief Enginear, D. V. C., Anderson House, Calcutta-27.
5. Shri T. C. Malkani, Chief Engineer, Port Commissioners, Calcutta.
6. Shri N. K. Roy, Member, Railway Board, New Delhi.
7. Shri K. Roy, Radhalaya, 22, Gariahat Road, Calcutta.
8. Shri Kanwar Sain, I. S. E., Chairman, C. W. & P. C., New Delhi.

26. ADVISORY COMMITEES—*contd.*

(*e*) DEPARTMENT OF CIVIL ENGINEERING—*contd.*

9. Dr. R. P. Verma, Special Officer, Technical Education, Patna, Bihar.
10. Mr. John Chambers, C.I.E., O.B.E., M.C., M.I.I., C.E., M.I.E. (India), 15, Park Street, Calcutta.
11. Prof. N. Sunder Rao, Head of the Department of Civil Engineering, Indian Institute of Technology, Kharagpur (Convenor).

(*f*) DEPARTMENT OF ELECTRICAL ENGINEERING.

1. Mr. F. W. Acheson, Chief Engineer, Calcutta Electric Supply Corporation, Victoria House, Calcutta-1.
2. Chief Engineer, Punjab Electricity Department, Simla.
3. Mr. H. C. Hardy, Chief Engineer, Associated Electrical Industries (India) Ltd., 6, Mission Row, Calcutta-1.
4. Prof. S. N. Ray, Bengal Engineering College, P.O. Botanic Garden, Howrah.
5. Principal M. Sen Gupta, Banaras Hindu University, Banaras.
6. Prof. M. S. Thacker, Director General, Council of Scientific and Industrial Research, New Delhi.
7. Dr. K. Sukumaran, Head of the Department of Electrical Engineering, Indian Institute of Technology, Kharagpur (Convenor).

(*g*) DEPARTMENT OF ELECTRONICS & ELECTRICAL COMMUNICATION ENGINEERING.

1. Shri Jagdeesh Prasad, Duravani Nagar, Bangalore.
2. Dr. S. K. Mitra, D.Sc., F.N.I., Director, Institute of Radio Physics & Electronics, University College of Science, 92, Uppar Circular Road Calcutta-9.
3. Dr. M. B. Sarwate, Advisor to the Board of Wireless, Ministry of Communication, New Delhi.
4. Shri H. R. Thadani, C/o E. M. E., Post Box No. 800, Calcutta-1.
5. Lt.-Col. B. M. Chakravorty, Superintendent of Development, T. D. E. (Electronics), Post Box No. 1504, Bangalore-6.
6. Shri H. N. Mukherjee, Chief Engineer, Overseas Communication Service, Govt. of India Radio House, Appolo Bander, Bombay-1.
7. Shri B. V. Balige, Chief Engineer, All India Radio, New Delhi.
8. Dr. D. S. Kuthari, Scientific Advisor, Ministry of Defence, New Delhi.
9. Prof. H. Rakshit, Head of the Department of Electronics & Electrical Communication Engineering, Indian Institute of Technology, Kharagpur (Convenor).

(*h*) DEPARTMENT OF GEOLOGY AND GEOPHYSICS.

1. Dr. M. S. Krishnan, Director, Indian School of Mines, Dhanbad.
2. Shri V. P. Sondhi, Director, Geological Survey of India, Calcutta.
3. Dr. A. K. Dey, Director of Geology, Oil and Natural Gas Commission, Dehra Dun (U.P.).
4. Dr. W. D. West, Head of the Department of Applied Geology, University of Sagar, M. P.
5. Dr. S. K. Banerjee, Department of Mathematics, Jadavpur University, Calcutta.
6. Shri A. J. Cann, Chief Geophysicist, Stanvac Oil Company, 30, Bondel Road, Calcutta.
7. Shri M. B. Ramchandra Rao, Director of Geophysics, Oil & Natural Gas Commission, Dehra Dun (U. P.).
8. Dr. T. C. Bagchi, Head of the Department of Geology & Geophysics, Indian Institute of Technology, Kharagpur.

(*i*) DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES.

1. Prof. N. K. Sidhanta, Vice-Chancellor, Calcutta University, Senate House, Calcutta.
2. Prof. J. P. Niyogi, Calcutta University, Calcutta.
3. Shri B. Das, Head of the Department of Humanities & Social Sciences, Indian Institute of Technology, Kharagpur (Convenor).

26. ADVISORY COMMITTEES *concld.*

(*j*) DEARTMENT OF MATHEMATICS.

1. Dr. B. V. Narlikar, Pro-Vice-Chancellor, Banaras Hindu University, Banaras.
2. Prof. N. R. Sen, University of Calcutta, Calcutta.
3. Prof. B. R. Seth, Head of the Department of Mathematics, Indian Institute of Technology, Kharagpur (Convenor).

(*k*) DEPARTMENT GF MECHANICAL ENGINEERING.

1. Principal A. C. Roy, Bengal Engineering College, P.O. Botanical Gardens, Howrah.
2. Prof. H. A. Haveman, Indian Institute of Science, Bangalore.
3. Shri A. K. Mullick, C. M. E., Eastern Rly., Calcutta.
4. Shri Karnail Singh, General Manager, Chittaranjan Locomotive Works, Chittaranjan.
5. Mr. S. S. H. Sitwell, Managing Director, Jessop & Co., Ltd., 63, Netaji Subhas Road, Calcutta,
6. Prof. B. M. Belgaumkar, Head of the Mechanical Engineering Deptt., Indian Institute of Technology, Kharagpur (Convenor).

(*l*) DEPARTMENT OF APPLIED CHEMISTRY.

1. Dr. J. C. Ghosh, D.Sc., F.N.I., Member, Planning Commissioner, New Delhi.
2. Prof. P. Ray, M.A., F.N.I., Indian Association for the Cultivation of Science, Jadavpur, Calcutta.
3. Dr. A. Nagraja Rao, Industrial Advisor (Chemical), Ministry of Commerce & Industry, Govt. of India, New Delhi.
4. Prof. S. K. Bhattacharyya, Head of the Department of Applied Chemistry, Indian Institute of Technology, Kharagpur (Convenor).

(*m*) DEPARTMENT OF NAVAL ARCHITECTURE.

1. Capt. T. B. Bose, Chief Surveyor to the Govt. of India, Mercantile Marine Department, Ministry of Transport, Bombay.
2. Capt. L. Krikpatrick, Naval Headquarters, New Delhi.
3. Mr. J. S. H. Stevenson, Directorate of Marine Engineering Training, New Taratolla Road, Calcutta-27.
4. Mr. R. B. Bone, General Manager, Garden Reach Workshop Ltd., 43/46, Garden Reach Calcutta.
5. Mr. J. M. Sweet, Director, Indian General Navigation & Rly. Co. Ltd., 4, Fairlie Place, Calcutta.
6. Mr. G. E. Kerr, Director & General Manager, Mazagon Dock Ltd., Dockyard Road, Mazagon, Bombay-10.
7. Shri H. C. Raut, Jt. Chief Shipyard Manager, Hindusthan Shipyard Ltd., Gandhigram, Visakhapatnam.
8. Prof. S. C. Mitra, Head of the Department of Naval Architecture, Indian Institute of Technology, Kharagpur (Convenor).

(*n*) DEPARTMEN OF PHYSICS & METEOROLOGY.

1. Dr. K. S. Krishnan, D.Sc., F.R.S., F.W.I., Director, National Physical Laboratory, Hillside Road, New Delhi.
2. Prof. P. S. Gill, Ph.D., F.N.I., Head of the Department of Physics, Aligarh University, Aligarh, U. P.
3. Prof. K. Banerjee, D.Sc., F.N.I., Head of the Department of Physics, Allahabad University, Allahabad, U. P.
4. Shri S. Basu, M.Sc., F.N.I., Director General of Meteorology, Govt. of India, Lodi Road, New Delhi.
5. Dr. L. C. Verma, Ph.D., F. N. I., Director, Indian Standard Institute, Delhi.
6. Prof. R. C. Mazumdar, D. Phil., P.R.S., F.N.I., Professor of Physics, Delhi University, Delhi-8.
7. Prof. S. Gupta, Head of the Department of Physics & Meteorology, Indian Institute of, Technology, Kharagpur (Convenor).

27. RESEARCH.

(*a*) DEPARTMENT OF AGRICULTURAL ENGINEERING.

Research work was being carried out on the following Items :—

A. *Agronomy Section.*—Cultural experiments on gram.

B. *Applied Botany.*—Cytogenetics and breeding of pulses and fodder legumes.

Tetraploid breeding genetics.

Interspecific hybridization.

C. Studies in Soil Moisture Relationship under Irrigated conditions.

D. Farm Machinery.

Work was carried on in Design Fabricating and testing of the following implements and appliances :—

(i) Improved type of paddy puddler ;

(ii) Cultivator ;

(iii) Land leveller ;

(iv) Bund farmer ;

(v) Manure sieve ;

(vi) Derrick for lifting of earth excavated from wells.

E. Soil & Water Conservation work was carried on :—

1. To evaluate the effect of the land use on soil loss and run-off and also the effect of length of slope on soil loss and run-off under constant slope.

2. To find out relationship between rainfall and run-off and evaluate the value of constant in the Rational Formula.

(*b*) DEPARTMENT OF APPLIED CHEMISTRY.

Research work completed during the year.—1. Bhattacharyya, S. K., and Nandi, D. K., Studies on the catalytic synthesis of delta-valerolactone and adipic acid from carbon monoxide and tetrahydrofuran.

2. Bhattacharyya, S. K., and Rao, R. A., High pressure synthesis of lactic acid from acetaldehyde, carbon monoxide and water.

3. Bhattacharyya, S. K., and Rao, R. A., Studies on the thermal pyrolysis of some organic compounds in presence of iodide catalysts.

4. Siddhanta, S. K., and Swaminathan, K., Phase equilibrium studies in the system : manganese chloride—thiourea—water : at 35° C; equilibrium in the system : nickel chloride—thiourea—water : construction of phase diagram for the ternary system : barium chloride—thiourea—water : at 35° C; paramagnetic susceptibilities of thiourea complexes of nickel, cobalt and manganese; hydration numbers of manganese and barium ions from solubility measurements.

5. Nigam, S., and Banerjee, S., Kinetics of polymerisation of vinyl esters with different initiators and solvents.

Research work initiated or underprogress during the year.—1. Bhattacharyya, S. K., and Krishnamurthy, R., Oxidation reaction of O-xylene in the vapour phase under fluidised conditions for the production of phthalic anhydride.

2. Bhattacharyya, S. K., and Ganguly, N. D., one step conversion of ethanol to butadiene under different conditions and in presence of various catalysts.

3. Bhattacharyya, S. K., and Nag, S. N., High pressure synthesis of ethyl propionate from ethanol, ethylene and carbon monoxide.

4. Bhattacharyya, S. K., and Palit, S. K., High pressure synthesis of ethyl propionate from ethyl ether and carbon monoxide.

5. Bhattacharyya, S. K., and Rao, R. A., High pressure synthesis of propionic acid from ethylene, carbon monoxide and water.

6. Bhattacharyya, S. K., Avasti, B. N., and Nandi, D. K., High pressure synthesis of methyl formate from methanol and carbon monoxide.

7. Bhattacharyya, S. K., Padmanabhan, K. C., Dhavale, A. K., and Sen, S. N., High pressure hydrogenation of fatty acids.

27. RESEARCH—*contd.*

(*b*) DEPARTMENT OF APPLIED CHEMISTRY—*contd.*

8. Bhattacharyya, S. K., Sen, A. K., and Kar, A. K., High pressure hydrogenation of ethyl glycollate to ethylene glycol.
9. Bhattacharyya, S. K., and Srinivasan, G., Differential thermal analysis of solid catalysts: systems : copper oxide—chromic oxide, zinc oxide—ferric oxide, zirconium oxide—aluminium oxide.
10. Antropov, L. I., and Banerjee, S. N., Investigations devoted to a new method for the study of corrosion inhibitors.
11. Nigam, S., and Muthana, M. S., Kinetic study of the polymerisation of vinyl acetate in different solvents.
12. Nair, A. S. and Muthana, M. S., Studies on the kinetics of benzoyl peroxide catalysed polymerisation of isobutyl methacrylate.
13. Nair, A. S., and Muthana, M. S., Experimental studies on the polymerisation of vinyl acetate and ethylene under high pressure in presence of various solvents.
14. Nagarjunan, T. S., and Sastri, M. V. C., Investigations of the nature of changes in semi-conductors consequent on the variation of temperature in vacuum and of the state of adsorption with different gases.
15. Banerjee, N. N., and Sastri, M. V. C., Experiments on surface area measurements and mathematical analysis of diffusional effect on a chemical reaction in a cylinder of finite length.
16. Pandao, S. N., and Sastri, M. V. C., Study of dehydrogenation of naphthenes on chromia-catalysts using vapour phase chromatography.
17. Ghosh Mazumdar, B. N., and Chatterjee, B. G., Extension of work on substitute beta-lactams.
18. Banerjee, S. N., Study of corrosion problems encountered in the plants of Sindri Fertilisers and Chemicals (Private), Ltd.
19. Swaminathan, K., and Siddhanta, S. K., Phase equilibrium studies on thiourea compleses.

(*c*) DEPARTMENT OF CHEMICAL ENGINEERING.

Work was carried on the followng topics :—

(1) Effect of pressure on activities of nonideal solutions.
(2) Continuous fluidised carbonisation and gasification of Indian coals.
(3) Aqueous extraction of vegetable oils.
(4) Fine grinding of coals and cement clinker in Ball Mill.
(5) Motion of liquid drops in immiscible liquids.
(6) Entrainment of liquids by vapours.
(7) Study of Fischer-Tropsch synthesis in slurry reactor.
(8) Design and performance of ejectors.
(9) Study of three phase flow in Reactors.
(10) Reactor design for vapour phase oxidation of hydrocarbons.

Projects—

(1) Pilot plant project for the production of synthetic petrol from coal by the Fischer-Tropsch process.
(2) C. S. I. R. Scheme on "Atomisation of fluids."
(3) Scheme on "Extraction and utilisation of sugar cane" was sponsored by Ministry of Food and Agriculture, Govt. of India.

(*d*) DEPARTMENT OF ELECTRICAL ENGINEERING.

The more important of the research works done by the Deptt. are :—

(1) Performance of Capacitor Excited Alternators by T. V. Sreenivasan.
(2) Application of a variable reactor capacitor combination by for the speed control and reversal of polyphase Induction Motors by T. V. Sreenivasan.
(3) Theory and performance of self-excited compounded Induction Motors by T. V. Sreenivasan and B. K. Mukherjee.

27. RESEARCH—*contd.*

(*d*) DEPARTMENT OF ELECTRICAL ENGINEERING—*contd.*

(4) Circuit Theory and Calculation of Polyphase Induction Machines by N. Kesavamurthy and R. E. Bedford.

(5) The Nature of Polyphase Synchronous Machines by N. Kesavamurthy and R. E Bedford.

(6) Time Lag fuses by T. V. Sreenivasan.

(7) An accurate method of determination of Sub-transient reactances of Synchronous machines by K. B. Menon.

(8) Experimental Separation of the stator slot and turn leakage reactance of a Squirrel cage Induction Motor by K. Sukumaran and T. Philip.

(9) Eddy Current phenomena in Ferro-magnetic materials with application to Induction Machines with solid iron rotor by N. Kesavamurthy and P. K. Rajagopalan.

(10) Design of a 30 H. P. Double Synchronous Induction Machine by K. B. Menon and K. Sukumaran.

(11) A new equivalent circuit for Synchronous machines by K. B. Menon.

(12) Theory and performance of Reluctance motor by T. Philip.

(13) Transient response, amplitude frequency respoase and relative stability of a feed back control system —S. K. Basu.

(14) Transient performance of an Induction Motor by M. R. Krishnamurthy.

(15) Development of new types of Induction motor rotors by K. Sukumaran, E. M. Gopal and Viswanath Rao.

(16) An A. C. Generator *cum* Rectifier Train lighting set.—by K. Sukumaran and Kudrimoti and P. N. Bhapat.

(*e*) DEPARTMENT OF ELECTRONICS & ELECTRICAL COMMUNICATION ENGINEERING.

Research work was being carried on the following topics :—

(1) Electron tube oscillators, modulators and demodulators.

(2) Transistor theory and circuits.

(3) Millimicrosecond pulse generation and coincidence.

(4) Propagation of electromagnetic waves.

(5) Microwave analogue of X-ray diffraction.

(6) Position and velocity control servomechanism.

(7) Distortion and Cross talk in pulse slope modulation.

(8) Design of pulse amplifiers.

(*f*) DEPARTMENT OF GEOLOGY & GEOPHYSICS.

All the staff members, including the three research scholars are actively engaged in research. The problems cover all the branches of geology and can be summarised under different heads as follows :—

I. *Petrology and Mineralogy*—

(1) Study of the Alkaline rocks of Kishengarh.

(2) Petromineralogical investigations of the Gneissic Rocks around Barkadih.

(3) Basic rocks around Mihijam.

(4) Petrology of the rocks of Dongargarh System a new system in the Pre-Cambrians of Madhya Pradesh and Bombay.

(5) Granitic rocks around Muri-Silli.

(6) Geology of Simultala area, Bihar.

(7) Heat and mass transfer at igneous contact zones.

II. *Structure and Tectonics*—

(8) Structure and Tectonics of Ghatsila-Galudih area, Bihar.

(9) Tectonics and Mineralization around Kumari, Purulia Dt.

(10) Tectonics of the Iron-Ore series between Dalma and Copper Thrust belts.

(11) Structure and Tectonics of the archaean metamorphitas around Ramtek, Nagpur Dt.

27. RESEARCH—*contd.*

(*f*) DEPARTMENT OF GEOLOGY & GEOPHYSICS—*contd.*

III. *Economic Geology*—

(12) Chromite deposits around Jojohatu, Bihar.
(13) Economic Survey of the Bailadala iron ore deposits, Bastar.
(14) Petrographic study of the Giridih and Jainti Coals.
(15) Copper ilmanite association around Barna, Kishengarh.

IV. *Sedimentation and Sedimentary Petrology*—

(16) Sedimentation in Girdih, Burhai, Baripada, Jainti and Shahjuri Basins.

V. *Palaeontology*—

(17) Tertiaries of Lakspat, N. W. Kutch.
(18) Fossil Vertebrates around Baripada.
(19) Microfossils from Assam.

VI. *Ground Water*—

(20) Ground water resources of Jhargram, Gokulpur and Hijli areas.

VII. *Geophysics*—

(21) Influence of temperature and pressure on the electrical properties of minerals and rocks.
(22) The vein problem in self-polarisation theoretical and model studies.
(23) Model studies on vertical veins in resistivity prospecting.
(24) Shaped electrode analysis.
(25) Geophysical studies (electrical) in connection with ground water supply at Jijli.
(26) Theoretical and model studies of electromagnetic induction (a) in a layered earth (b) in ore bodies of simple geometrics.
(27) Model seismology (a) Polarisation of transverse elastic waves and its possible use in prospecting. (b) Transmission and response charcteristics of earth materials to wave forms of various sizes, shapes and frequencies.
(28) Gravity interpretation by optical analogy.
(29) Gravity and magnetic survey around Kharagpur.
(30) Energy level studies of radioactive rocks and minerals.
(31) Kyanite deposits near Ghatsila.
(32) Manganese deposits near Jamooe.
(33) Seismicity of specific areas especially of dam sites.
(34) Susceptibility due to ilmenite content in minerals and effect of pulverisation.
(35) Lead-zinc mineralization at Zawar, Rajasthan.
(36) Origin of pegmatite around Gumla.
(37) Petromineralogical investigations of Malani rhylites.
(38) Economics and structure of the area around Hathibari, Orissa.
(39) Chromite deposits around Sukinda.
(40) Geology of the area around Dhalbhumgarh.
(41) New method of interpretation of S. P. Data for Tabular bodies.
(42) Some aspects of magnetisation of Ilmenite.

(*g*) DEPARTMENT OF HUGANITIES & SOCIAL SCIENCES.

RESEARCH COMPLETED.

Study on perception of Supervisory Rolls in the Kharagpur Railway Workshop had been completed and the full report of the study published.

RESEARCH BEING CONTINUED.

1. Study of values.
2. Characteristics of Effective supervision.

27. RESEARCH—*contd.*

(*h*) DEPARTMENT OF MATHEMATICS.

Research topics include the following :—

(1) Synthetic method for boundary layer problem
(2) Elastic and fluid flow problems including viscous and visco-elastic fluids
(3) Non-Newtonian flow of liquids
(4) Problems of cross elasticity
(5) Mixed boundary value and Hilbert problems in elasticity
(6) Deformation of porous visco-elastic body containing a fluid
(7) Theomoelastic problems
(8) Hypoelasticity and plasticity
(9) Compressible flow with and without heat transfer
(10) Propagation of electromagnetic waves
(11) Astrophysical problems
(12) Determination of weights of components of composite scores.

(*i*) DEPARTMENT OF MECHANICAL ENGG.

Research topics in the Department included the following :—

1. Prof. B. M. Belgaumkar . .	(i) Analogical Methods in the Study of Vibration.
	(ii) Vibration Characteristic of indigenous machine tools.
	(iii) Effect of Vibration on Lubrication.
2. Prof. R. Mishra . . .	(i) " Cost of Quality " on the basis of New British Standard system of limits and fits.
3. Prof. S. B. Sen . . .	(i) Design of Furnace for Low Grade fuel.
4. Dr. N. S. Nandeeswaraiya .	(i) Development of free piston compressor.
	(ii) Torsional Vibrations of an untuned viscous damper with flexible nonlinear elastic couplings.
	(iii) Development of Sleeve Bearings with particular reference to I. C. Engines.
	(iv) Screw Pump.
5. Dr. R. G. Mokadam . .	(i) Adsorption Isotherm for indigenous wood.
	(ii) Validity of Navier Stoke's Equation.
	(iii) Vortex tube.
6. Prof. S. N. B. Murty . .	(i) Selection of contra-flow heat exchanger for gas turbine.
	(ii) Development of a 24″ dia. Vortex tunnel for studies relating to rotating stall in compressor.
	(iii) Studies of pulsating flows with pressure gradient.
7. Prof. K. G. Chandiramani .	(i) Plastic Flow of Metals by using plasticine as a model.
	(ii) Cheaper gas in place of Argon for welding.
	(iii) Evaluation of cutting loads on single point cutting tools.
	(iv) Construction of logarithmic Co-relating charts.

27. RESEARCH—*contd.*

(*i*) DEPARTMENT OF MECHANICAL ENGG.—*contd.*

8. Prof. D. P. Ghosh . . .	(i) Design of a rope-belt conveyor for long distance transport of bulk materials in underground mines.
9. Prof. N. K. Dutta . . .	(i) Evaluation of Pre-determined motion time standards.
10. Shri S. K. Basu . . .	(i) Work Sampling.
	(ii) Product Simplification.
	(iii) Economic consideration in Plant Design (with particular reference to steam pipes layout).
	(iv) Cost of quality on the basis of new British Standard system of limits and fits.
11. Shri R. Mohan . . .	(i) Machining accuracy.
12. Shri S. P. Sen . . .	(i) Effect of Length and diameter of inlet pipe on the breathing of an I. C. Engine.
	(ii) Development of a high heat release combustion chamber for a gas turbine.
13. Shri S. Ramchandra . .	(i) Design of a precision bearing for grinding machine using through films is under study.
14. Shri A. Krishnan . . .	(i) Study of pressure mechanisms.
15. Shri P. C. Ghosh . . .	(i) Design of modern grates and mechanism to operate the existing fire tube boiler of the steam lab.
16. Shri S. Roy	(i) Effect of Low pressure steam on turbine blading.
17. Shri D. Guha . . .	(i) Study of spontaneous ignition of liquid fuels.
18. Shri B. R. Singh . . .	(i) Stick slip Vibration in Machine Design.
	(ii) "Vibration Noise project at the Chittaranjan Locomotive Works, Chittaranjan."
	(iii) Vibration of Turbine Discs.
	(iv) The radial and Torsional Vibrations of Turbine disc are completely analysed.
	(v) The flutter vibration of shrouded turbine blades is under investigation.

(*j*) DEPARTMENT OF METALLURGICAL ENGG.

The Department was engaged in the following research activities :—

(i) Tempering characteristics of steel—P. R. Dhar & S. Bose.

(ii) Dephosphorisation of Steel—P. K. Sen.

(iii) Effect of plastic deformation on Bainitic transformation—S. Roy and P. R. Dhar.

27. RESEARCH—*contd.*

(*k*) DEPARTMENT OF PHYSICS & METEOROLOGY.

I. *Theoretical Physics*—

Under the guidance of Prof. S. Gupta the following investigations were being carried out :—

(i) *Polarisation of electrons.*—Polarisation phenomena in the interaction of electons and photons are being studied. The polarisation dependent cross-section in the scattering of an electron by a screened coulomb field has been calculated upto the second Born approximation. These investigations have been extended to the scattering of longitudinally polarised electron beams by uniform magnetic fields. Polarisation correlation between electrons and photons in Bremsstrahlung has also been investigated. The contributions to the intregated cross section due to the polarisation of the primary electron and the circular polarisation of the Bremsstrahlung have been derived. The effects of screening of the nuclear coulomb field on the polarisation phenomena for high energy scattering have also been studied.

—H. BANERJEE.

(ii) *Effect of electric and magnetic field on metals.*—Investigations have been carried out on the effect of exchange and correlation forces on the paramagnetism of metals. The new distribution function due to Lidiard has been used in place of the familar Fermi Dirac function.

—M. K. SHARMA.

(iii) Numerical calculations of microwave spectra of methyl alcohol have been continued and the work is nearing completion.

—A. MAZUMDAR.

(iv) *Energy states of a one dimensional defective lattice.*—Energy states of a one dimensional lattice having vacant lattice sites have been investigated by the perturbation method.

—A. MOZUMDAR.

(v) *Nonlinear condenser.*—Charge and discharge of a nonlinear condenser have been studied taking dissipation into account.

—A. MOZUMDER.

II. *Experimental solid state physics* :—

1. *Properties of phosphors.*—(i) *Magnetic studies.*—Changes in magnetic susceptibilities of alkali halides due to variation of pressure and due to preheating the samples to high temperatures have been studied. The effects of the introduction of foreign atoms have also been investigated.

A correlation between the optical absorption and magnetic susceptibility of alkali halides coloured by different amounts of x-rays has been attempted.

—A. K. CHOUDHURY.

(ii) *Dielectric studies.*—Measurements of the dielectric constants of variously treated samples of single crystals of NaCl, KCl, KBr etc., were extended to low frequencies. These samples were subjected to hydrostatic pressures ranging from 200 to 10,000 atmosphere and the changes in dielectric constants because of this treatment have been studied. The effects of the variation of dosage of x-rays on these samples have also been investigated.

—K. V. RAO.

(iii) *Absorption studies.*—Absorption of ultraviolet rays by NH_4 Cl-TlCl solutions and by thalium activated potassium chloride phosphors excited by cathode rays at room temperature has been studied. These investigations have also been extended to samples subjected to high hydrostatic pressures and to specimens irradiated by different doses of x-rays.

—S. K. SEN.

(iv) *Thermoluminescene studies.*—Investigations have been carried out in the thermoluminescence and afterglow decay of the alkali halide phosphors under cathode ray excitation. Attempts have been made to estimate the depths of electron traps created by cathode ray bombardment by studying the nature of the variation of long time afterglow decay at various temperatures. Measurements have also been extended to samples subjected to high hydrostatic pressures and to samples irradiated by different dosages of x-rays.

—V. V. RATNAM.

27. RESEARCH—*contd.*

(*k*) DEPARTMENT OF PHYSICS & METEOROLOGY—*contd.*

(v) *Energy transfer and related phenomenon.*—Measurements on the long period afterglow of pure and activated diphenyl have been carried out. Results show that major part of the afterglow is due to defects in the solid state. The effects of various types of impurities have also been investigated. Energy transfer in organic solid solution have been investigated in a number of systems with special attention to " fine structure " and temperature dependence of energy transfer. The results show that the " fine structure " is due to internal absorption which become prominent due to trapping of fluorescence inside the crystals ; further energy transfer in some cases occurs in a cascade process and the process appears to be temperature dependant because of the temperature dependence of quantum efficiency of the fluorescence of the system.

—M. L. BHAUMIK.

2. *Transistor Physics.*—The rectification characteristics of single crystals of Germanium of different resistivities have been measured after electrolytically etching them. It has been found that highly n-type, highly p-type and intrinsic semiconductors do not show good rectification characteristics. On growing oxide layers of varying thickness, it has been possible to improve the rectification characteristics of intrinsic and highly n-type crystals but no change in the characteristics of highly p-type crystals could be made. A study of the changes in photoconductance and surface recombination velocity due to oxide layers has also been carried on.

The semiconducting intermetallic compound " Antimony Telluride " has been prepared. The forbidden energy band gap of this substance has been estimated from the measurements of the variation of its resistance with temperature.

—C. RAMASASTRY and S. K. GHOSH.

3. *X-Ray Diffraction.*—(i) *Thermal Expansion.*—Lattice constants of copper, aluminium, Germanium, 4 per cent. copper-96 per cent. aluminium, 10 per cent. copper-90 per cent. aluminium, ·08 per cent. copper in aluminium and 5 per cent. aluminium in copper at various temperatures ranging from room temperature to 600°C have been measured. With the help of these data an exponential form of Gruneisen's equation of state of solids has been formulated and verified. From the deviations of the measured values of thermal expansion from the theoretically predicted values, the energy of activation of the various atoms has been calculated.

—G. B. MITRA and S. K. MITRA.

(ii) *Lattice Defects.*—Geometrical and particle size line profiles due to various planes of Limonite and of Kaolinite have been determined. From these, line profiles due to defects only have been recovered by double Stokes method. The particle size line profiles have been obtained by putting in a newly derived formula the particle size dimensions obtained by electron microscopy. From the defect line profiles, it has been found that Kaolinite basal planes are shifted with respect to each other by an amount 1/3 or 2/3b in the direction. In limonite on the other hand, the lattice sites are occupied alternately by Fe and OH irons. The probabilities of such occurrences have also been calculated.

—G. B. MITRA.

(iii) *Structures of Crystals.*—The space group of α.-yohimbine has been determined by Lipson's method to be P2, 2, 2. Structural studies on Trimenssic acid and on β-lactum have been carried out.

—G. B. MITRA and M. G. BASAK.

(iv) *Crystal Growth.*—A single crystal of aluminium has been grown in the solid state by heating in vacuum a stretched wire of spectroscopically pure aluminium and then cooling it very slowly. The growth of the single crystal at various stages has been studied by the X-ray diffraction method. It has been observed that initially the particle size becomes smaller and then at a later stage the single crystal begins to form.

—G. B. MITRA.

(v) *X-ray studies on Soils and Coals.*—X-ray diffraction studies on several Indian black cotton soils have been carried out with a view to identifying the various clay fractions and to correlate them with their physical and engineering properties. X-ray diffraction investigations have been carried out on several Indian Coals to determine their washability properties.

—G. B. MITRA and M. SHARMA.

27. RESEARCH—*concld.*

(k) DEPARTMENT OF PHYSICS & METEOROLOGY—*concld.*

(vi) *Low Angle scattering X-rays.*—A new type of camera has been constructed for studying scattering of x-rays at extremely low angles. The scattering of x-rays at very low angles by several copper aluminium alloys have been studied.

—G. B. MITRA and J. C. MOITRA.

(vii) *Microwave Analogue of X-ray Diffraction.*—The effect of particle size on the line broadening of x-ray reflections has been studied with the help of this analogue. The Scherrer formula has been found to hold good when the parameter measured is the thickness in the (hkl) directions. Fields due to electromagnetic waves in the microwave region scattered by conducting spheres of various diameters have been computed numerically to find out which atoms can be simulated by the spheres.

—G. B. MITRA and G. S. SANYAL.

4. *Miscellaneous.*—(i) *Dielectric Constant of Powders.*—A new method has been developed for measuring the dielectric constant of powders. In the usual methods, there is plenty of uncertainties due to variations in packing pressures. In the new method these have been avoided by putting extremely fine powders in an inhomogenous electrostatic field inside a viscous dielectric medium. The acceleration of the particles is a measure of the dielectric constant. Dielectric constants of leadnitate and titanium dioxide measured by this method is the same as found with studies on single crystals.

—G. B. MITRA.

(ii) *Analogue Computer.*—Investigations on the stability of nonlinear control system have been carried out.

—H. B. MOHANTI.

(iii) *Metrology.*—(a) Analytical work on the forecasting of violence of Norwesters has been carried out.

—P. M. DAS.

(b) The amount of atmospheric ozone is being measured with the help of a Dobson spectrophotometer at five different times every day. This is in connection with the I.G.Y. programme and is being carried out in collaboration with the Indian Meteorological Department who has kindly loaned to the Department the spectrophotometer.

—P. M. DAS, M. S. SIKAND and S. MUKHERJEE.

28. PUBLICATIONS.

(a) DEPARTMENT OF APPLIED CHEMISTRY.

1. Bhattacharyya, S. K., Ramachandran, V. S., and Ghosh, J. C.—Application of differential thermal analysis to the study of solid catalysts—systems : chromic oxide, ferric oxide and chromic oxide—ferric oxide. *Advances in Catalysis*, Academic Press, New York, 1957, Vol. IX. p. 114.

2. Bhattacharyya, S. K., and Vir, D.—High Pressure Synthesis of Glycollic acid from Formaldehyde, carbon monoxide and water in presence of nickel, cobalt, and iron catalysts. *Advances in Catalysis*, Academic Press, New York, 1957. Vol. IX, p. 625.

3. Guha, A. K., Chakrabarti, J. K., and Bhattacharyya, S. K.—Detection and estimation of glycollic acid by paper chromatography in the high pressure product from formaldehyde, carbon monoxide and water. *J. sci. in dustr. Res.*, 1957, 16B, 137.

4. Sen, S. N., Roy Choudhury, D. K., and Bhattacharyya, S. K.—Vinyl ethers, *Sci. & Culture*, 1957, *22*. 369.

5. Siddhanta, S. K. and Banerjee, S. N.—S-methyl thiourea sulphate as an analytical reagent for silver and separation of silver from zinc. *J. Ind. Chem. Soc.* 1958, *35*, 53.

6. Ghosh, J. C., Sastri, M. V. C., and Viswanathan, T. S.—Formation of reactive substrate on cobalt Fischer-Tropsch catalysts. *Part I and Part II. Bull. Nat. Inst. Sci. (India).*

7. Bhattacharyya, S. K. and Ram achandran, V. S.—Application of differential thermal analysis to the study of solid catalysts systems, Cr $2^{0}3$ and Cr $2^{0}3$-Al $2^{0}3$. *Bull. Nat. Inst. Sci. (India).*

8. Bhattacharyya, S. K. Synthesis of carboxylic acids from carbon monoxide at high pressure in presence of nickel, cobalts and iron catalysts. *Bull. Nat. Inst. Sci. (India).*

9. Sen Gupta, S. P. and Bhattacharyya, S. K.—High pressure synthesis of formic acid from carbon monoxide and water in presence of nickel, cobalt and iron iodides as catalysts. *Bull. Nat. Inst. Sci. (India).*

28. PUBLICATIONS—*contd.*

(*a*) DEPARTMENT OF APPLIED CHEMISTRY—*contd.*

10. Vir, D. and Bhattacharyya, S. K.—High pressure synthesis of glycollic acid from formaldehyde, carbon monoxide and water in presence of nickel iodide-kieselghur as a catalyst. *Bull. Nat. Inst. Sci. (India).*

11. Bhattacharyya, S. K., Venkataraman, N., and Gulati, I. B.—Studies on the catalytic vapour phase oxidation of ethylene to ethylene oxide. Part I, *Bull. Nat. Inst. Sci (India).*

12. Bhattacharyya, S. K., Venkataraman, N., and Gulati, I. B.—Studies on the catalytic vapour phase oxidation of ethylene to ethylene oxide. Part II, *Bull. Nat. Inst. Sci. (Ind.).*

13. Srinivasan, S. R., and Sastri, M. V. C.—Fischer-Tropsch synthesis with cobalt catalysts. Part I, Effect of chromium oxide on the synthesis. *Bull. Nat. Inst. Sci. (India).*

14. Sastri, M. V. C., and Srinivasan, S. R.—Fishcher-Tropsch synthesis with cobalt catalysts. Part II, Effect of manganese oxide and manganese oxide-chromia coplex as promoters. *Bull. Nat. Inst. Sci. (India).*

15. Sen, S. N., and Bhattacharyya, S. K.—Studies on vinylation reactions in the vapour phase using various contact catalysts. *Bull. Nat. Inst. Sci. (India).*

16. Bhattacharyya, S. K. and Gulati, I. B.—Studies on the catalytic vapour phase oxidation of xylenes. *Ind. Eng. Chem.*

17. Bhattacharyya, S. K and Sourirajan, S.—Synthesis of acetic and propionic acids from alcohols and carbon monoxide in presence of nickel, cobalt and iron iodides as catalysts. *J. Appl. Chem. (London).*

18. Bhattacharyya, S. K. and Venkataraman, N.—Catalytic vapour phase oxidation of crotonaldehyde to maleic acid. *J. Appl. Chem. (London).*

19. Bhattacharyya, S. K. and Venkataraman, N.—Catalytic vapour phase oxidation of benzene to maleic acid. *J. Appl. Chem. (Lond.).*

(*b*) DEPARTMENT OF CHEMICAL ENGINEERING.

1. Quality studies in continuous fluidisation.—J. S. I. R. 16-6, 97 (1957).
2. High pressure vapour liquid equilibria of non ideal solutions, Benzene Methanol System.—J. S. I. R., 16-B, 4, (1957).
3. High pressure vapour lipuid equilibria of non ideal solutions. Benzene n-Hexane, Benzene Cyclohexane System—A. I. Ch. E. Journal, January, 1957.
4. High pressure vapour liquid equilibria of non ideal solutions, Benzene n-Propanol System.—J.S.I.R., 16-B, 233(1957).
5. High pressure vapour liquid equilibria of non ideal solutions Benzene M. E. K. System.—J. S. I.R., 16-B, 195 (1957).
6. Submerged Combustion —Indian and Eastern Engineer, May, 1957.
7. Heat transfer in relation to Combustion in Boilers, Part II.—Journal of Institution of Engineers (India) 1957.
8. A book on "Engineering Economics" for Indian students.
9. Atomisation of liquids by Pressure Nozzles I—Trans. I.I. Ch. E. 8, Part II, 1955-56.
10. Atomisation of liquids by Pressure Nozzles I—Trans,. I.I. Ch. E. 8, Part II, 1955-56.
11. Atomisation by Pressure Nozzles—Journal of Science and Engineering Research, I.I.T., 1, 1, 1957.
12, 13, & 14. Applied kinetics studies of vapour phase catalytic esterification of Methyl alcohol with acetic acid. Hydrolysis of ethyl acetate; Reesterification between Methyl acetate and Ethyl alcohol.—Trans. I. I. Ch. E., 9, Part I, 56-57.
15. Flow properties of solid powders.—Trans. I.I.Ch.E., 9, Part I, 1956-57.
16. Correlation of Vapor liquid Equilibrium Data for Acetone Water System.—Chem. and Engg. Data Series, April, 58, pp.44-50.
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(c) DEPARTMENT OF ELECTRONICS AND ELECTRICAL COMMUNICATION ENGINEERING.

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3. Theory and performance of self-excited compounded Induction Motors by T. V. Sreenivasan and B. K. Mukherjee.
4. Circuit Theory and Calculation of Polyphase Induction Machines by N. Kesavamurthy and R. E. Bedford.
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(iii) Continuous Steel Casting—V. I. Yavoisky and P. K. Sen.
(iv) Hydrogen in Steel Making Processes—V. I. Yavoisky and S. Roy
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29. LIST OF PRINCIPAL EQUIPMENTS.

(*a*) DEPARTMENT OF CHEMICAL ENGINEERING.

1. Cottrell Electrostatic Precipitator . . . .
2. Rotary Dryer . . . .
3. A-2 Experimental Distillation Column . . . .
4. Coal ash fusion furnace . . . .
5. Portable mixer . . . .
6. Pressure and temperature recorders, pyrometers, Rotameters, Humidity recorders, etc. . . . . ..
7. Raymond mechanical separator . . . .
8. Potentiometer (Rubicon) . . . .
9. Multistage compressor for water gas . . . .
10. Heating microscope (Leitz) . . . .

(*b*) DEPARTMENT OF CIVIL ENGINEERING.

1. Mhor & Federhaff—300 T—bending & compression . . . . .
2. Demountable Strain gauge.—2 Nos. For measurement of concrete strains. . . . . ..
3. Telemac Strain gauge . . . .
4. Maihak strain indicator . . . .
5. Tinsley measuring bridge with 100 way selector switch . . . .
6. Cathetometer . . . .

SOILS LABORATORY.

7. Differential thermal analysis set up with Cambridge recorder. . . . . ..
8. Earth pressure cells —100/lbs /D" capacity . . . .

SANITARY ENGINEERING LABORATORY.

1. Precision Incubator . . . . . 1 No.
2. Precision Incubator . . . . . 1 „
3. ADCO Hot Air Ovens . . . . . 2 Nos.
4. Photo Electric Turbidimeter . . . . . 1 No.
5. Flocculator . . . . . 1 „
6. Students' Microscope . . . . . 1 „
7. Dynoplic Microscope . . . . . 1 „
8. Suction & Compression Pump . . . . . 1 „

29. LIST OF PRINCIPAL EQUIPMENTS—*contd.*

(*c*) DEPARTMENT OF ELECTRICAL ENGINEERING.

1. ½ million volt Marx Type Impulse generator with Photographic quipment by Heafly . . . .
2. Relay equipment, (3) Triplex Recorder . . . .
4. Rectifier demonstration set complete with control Thyratron 400 volts, 3 phase, 50 cycles . . . .
5. Double beam cathode Ray Oscillograph . . . .
6. Voltage stabiliser for the laboratory . . . .
7. Cintel wide range Capacitor Bridge . . . .
8. 25 Motor Generator set, 400 volts, 50 cycles, 3 phase Induction Motor, Generator D. C. 25 K. W., 220 volts, voltage controlled ; (9) 400 volts, 7 H P, 3 phase, 50 cycles Induction motor . . . .

(*d*) DEPARTMENT OF ELECTRONICS & ELECTRICAL COMMUNICATION ENGINEERING.

1.	Panoramic Sonic Analyzer Model LP-1A	1
2.	Panoramic Ultra-sonic Analyzer	1
3.	R. F. Spectrum Analyzer	1 set.
4.	Servoscope Model 1100A, 115V. 60 cycles	1
5.	Servoboard Basic Kit Model 1111	1
6.	7202 Rack Power Control	1
7.	1701 Binary Counter	1
8.	1901 Twin Inverter	1
9.	1301 Delay, Multi-vibrator	2
10.	Polar Diagram Recorder 2370	1
11.	124A Logger	1
12.	Standing Wave Apparatus	1
13.	Artificial Ear-4109	1
14.	Microphone Calibration Apparatus	1
15.	Automatic Reverberation Switch	1
16.	Audio Frequency Spectrometer	1
17.	Level Recorder	1
18.	Incremental Inductance Bridge 1110-AB	1
19.	G. R. 1217—Am, Unit Pulser	1
20.	Muirhead E—53-A/1, 1½″ Magslip	2 Nos.
21.	Sine Cosine Potentiometer	3
22.	Induction Motor type KB 20/01	1
23.	Induction Motor Generator KB/021/01	1
24.	Servo Amplifier Model 1120	1
25.	X401A Direct Reading Frequency Meter	1
26.	X400A Do. Do.	1
27.	Wave Meter (Cavity H_011)	1
28.	Q-Meter—190AP Boonton type	1
29.	U162A—Precision Dial Gauge Attenuator	1
30.	700C Spectrum Analyzer	1
31.	hp-330B, Noise & Distortion Analyzer	1
32.	TF 455E Wave Analyzer—Marconi	1
33.	1370-A Random Noise Generator	1
34.	1006-PB Wide Range Pulse Generator	1
35.	hp-212A, Pulse Generator, Cabinet Mount	1

29. LIST OF PRINCIPAL EQUIPMENTS—*contd.*

(*d*) DEPARTMENT OF ELECTRONICS & ELECTRICAL COMMUNICATION ENGINEERING—*contd.*

36. Tektronic type 541 Oscilloscope	1
37. 300D Camera	1
38. Oscillograph Camera 298-D Dumount	1
39. 250DA, Impedance Bridge	1
40. G. R. 1601A—VHF Bridge	1
41. Radio Frequency Bridge	1
42. HA-4 Travelling Wave Amplifier tube	1
43. hp-2 Amplifier, Low Power Backward Wave	1
44. HF 920 Gyraline amplitude modulator	1
45. hp-524B Electronic Counter Cabinet Mount	1
46. hp—Industrial Electronic Counter	1
47. hp-525B, Frequency Converter Unit	1
48. hp-410-B, High Frequency Vacuum Tube Voltmeter	1
49. Psophometric filter	1
50. " Siemens " Zeiger complete with transmitter	1
51. " Siemens & Halske " Impedance Measuring Bridge	1
52. Type 74143—Octave Filter	1
53. Modulation Monitor	2
54. X-13B Klystron—7500—11000 Mc/S	1
55. Intermodulation Measuring Meter	1

(*e*) MECHANICAL ENGINEERING DEPARTMENT.

1. Steel Clad Rotary Grinder (Cons. Pneumatic)	..
2. Heavy-duty Bench Grinder (Black-Declear)	..
3. Abrassive cut-off Machine (Tabor)	..
4. Air Compressor & Access. (Cons. Pneumatic)	..
5. " Hilmer " Swing-Frame Grinder (Kimbel Mfg.)	..
6. Chipping Hammer & Access. (Cons. Pneumatic)	..
7. Double Disle Sarder (Oliver)	..
8. Car type Annealing Furnace & Stationary type al Furnace (" Johnston " Mfg. Co.) .)	..
9. Model Cupola & Access. (Whiting Corpn.) "Toledo" Turbo—compressor, Blast-gate, etc.)	..
10. Oil-Fired Tilling Furnace (Mergar)	..
11. Transformer for the Elect. Melting Furnace (Birlec)	..
12. " Junior " Motive type slard-sliger (Foundry Plant & Machines)	..
13. Core-blowing machine	..
14. Sand-conditioning equipment,—Speedmullar, Beardslay & Piper. Preparator, skip-hoist, etc.	..
15. Sand-conditioning m/c—Handy-sandy & Newaygo Engg. Reddy—sandy.	..
16. Sand testing equipment (Dictert)	..
17. Scientific equipments for determination of Casbin	..
18. Cenco-Cathode-ray Oscilloscope	..
19. Stroboscope	..
20. Special Heat Distortion Tester	..

29. LIST OF PRINCIPAL EQUIPMENTS—*concld.*

(*e*) MECHANICAL ENGINEERING DEPARTMENT—*contd.*

21. Reid Vapour Pressure Bath	..
22. Philips Cathode-ray Oscilloscope with 5000 V Post Acceleration Unit, Electronic switch, A. F. Oscillator and Voigtlander Recording Camera.	..
23. Wild-Banfield Resilia Model WBR Pyrometer Testing furnace with fan constant temp bath containers	..
24. Consolidated Electrodynamics corporation Amplifier System D (12 channel) with recording oscillograph and two velocity pick-ups	..
25. Hartmann & Bramm Law Differential Ring Balance Flowmeter	..
26. "Amsler" Torsion Testing Machine Type 150 T 87 of capacity 1200 ft. complete with Electrical Equipment	..
27. 8-inch Photoelastic Polariscope	..
28. Vilter Packicer—1	..
29. Air cooled condenser Unit	..
30. Water cooled condenser units	..
31. Aminco Air Unit—One	..
32. Profilometer accessories	..
33. Thread micrometers and gear tooth calipers	..
34. Set gear measuring pipes	..
35. Standard measuring m/c	..
36. Thread measuring wires	..
37. Gauging equipment	..
38. Bellis & Morcon Educational Steam turbine complete with condenser, circulating and air pump—one	..
39. Pyrometer controller (No. 13-917) 230 V, 50-60 cycles	one
40. Inclined draft gauges (No. 11-295-5)	four
41. Strobotac, 230 v, 50 cycles	six
42. 1 H. P. direct—connected centrifugal pump	one
43. Rotary barrel pump	one
44. Master Kent Meter 2"	one
45. Pyrometers (13-902)	two
46. Stationary air compressor 1000 cft/min 120 p.s.i., 200 H. P.	one
47. 10 H. P. 1500 R. P. M. Vertical Kirloskar type Diesel Engine	one
48. Leoupold stevens recoder	..

(*f*) DEPARTMENT OF METALLURGICAL ENGINEERING.

1. Program controller	1
2. Temperature controller	3
3. Temperature Recorder	2
4. Salt bath furnaces for—	
(1) High temperature (1300°C)	1
(2) Low temperature (1000°C)	1
5. Vickers Pyramid Hardness Tester	1
6. Micro Hardness Tester	1
7. Precision galvanometer	1

30. WORKSHOPS.

The Institute's Central Workshop Organisation comprises the following Sections :—

(1) Machine Shop ;

(2) Fitting Shop ;

(3) Tool Room ;

(4) Pattern Shop ;

(5) Foundry Shop ;

(6) Welding Shop ;

(7) Smithy & Forging ;

(8) Automobile shop & Electroplating ;

(9) Carpentry shop ;

(10) Electrical Maintenance ;

(11) Power House ;

(12) Mech. & Genl. Maintenance Shop;

(13) Blue Print Section ;

(14) Photography Section ;

(15) Precision Shop.

The main functions of the Central Workshops are—

(i) to impart practical training to under-graduate and post-graduate students in the various shops as per curriculum ;

(ii) to provide 3 year apprenticeship training ;

(iii) maintenance and installation of lab. equipment ;

(iv) manufacture of components and units in connection with the Research work carried out by the various Deptts. The Workshop also functions as a Service Department in carrying out Research Work at the Institute. The Workshops also look after the maintenance and running of a fleet of automobile vehicles of this Institute.

31. REPORTS FROM THE TEACHING DEPTTS.

(*a*) DEPARTMENT OF AGRICULTURAL ENGINEERING.

Academic Staff.

Professor	1
Asstt. Profs.	4
Lecturers	3
Asstt. Lecturers	4
Sr. Research Asstt.	2
Jr. Research Asstt.	1
Farm Supdt.	1

Development of the farm.—

(a) *Lay out.*—During the period under report 16 acres of additional land was brought under cultivation. The total area of the farm stood at 72 acres inclusive of roads, channels and buildings. The farm roads had also been laid and a good portion was also spread with murum. The barbed wire fencing on the angle iron posts on the entire peripheri of 250 acres farm was also completed.

31. REPORTS FROM THE TEACHING DEPTTS.—*contd.*

(b) *Cropping.*—The acreage under different crops during the period under review was as under :—

Crop.	Acreage.	Total yield.	Yield per acre.
1. Aus paddy	9·00	131 mds.	14·55 mds.
2. Aman paddy	0·3	1·25 ,,	5·4 ,,
3. Maize	0·7	3·00 ,,	4·3 ,,
4. Cotton	0·5	..	..
5. Arhar & groundnut	5·00	..	..
6. Green manure	15·00	..	..
7. Experimental plots under cow, pea, mung, etc.	5·00	..	..
Total acreage.	35·50	..	..

The yield of aus paddy was fairly satisfactory. The 'dulars' 'charnock'and 'dharial' were the promising varieties.

Improved seeds of maize obtained from W. Bengal agriculture Deptt. was tried this year against T. 4111 and in 2 varieties obtained from Kanpur. It was found that Kanpur variety was much superior in yield.

As the farm lands were deficient in organic matter, a good portion of the land was put under green manure (dhaincha—sesbania aculata). It was estimated that each acre would produce about 10,000 lbs. of green matter which was buried in the land. One acre of dhaincha was left for seed purposes, and 5 mds. of seed was collected.

(c) *Manuring of crops.*—Apart from green manure, 42 tons of compost from Kharagpur Municipality was purchased and applied to the aus paddy and maize. Further 2500 lbs. of ammonium sulphate and 1900 lbs. of super phosphate was also applied to paddy and other crops, which did not receive compost for green manure.

(d) *Irrigation and Drainage.*—The possibility of getting irrigation water by sinking a tube well on the farm was found to be remote. It was decided to explore the possibility of constructing open dug well. A trial pit 10′×10′ was dug, water was struck at 17′. It was, further, necessary to have an open dug well to irrigate the farm. This had very good effect and the distribution of water to the field was arranged with the help of a 5 Horse Power Engine driving 2½″ centrifugal pump.

(*b*) DEPARTMENT OF ARCHITECTURE AND REGIONAL PLANNING.

Academic Staff.

Senior Professor	1
Assistant Professors	3
Lecturers	5
Assistant Lecturers	2
Instructors	2

In addition one Professor under the Sisterhood Relationship Scheme with the University of Illinois was also in the Department.

31. REPORTS FROM THE TEACHING DEPTTS.—*contd.*

Teaching.

The department offered a 5-year under-graduate course in Architecture with specialisation in Architecture and Planning. The Department also offered a course in Architecture and Town Planning as optional subject for the under-graduate students. In addition, the Department offered a Post-graduate course in the Regional Planning.

Consultative Work.

The Department continued to act as consultants to the Viswabharati, the Sikkim Durbar for Gangtok Development, the D.V.C. in the Durgapur Region for the Developmental work. The Department also designed the proposed building for the Mechanical Engineering Department of the Institute. A pilot study of the Durgapur surroundings was conducted by the members of the staff and some of the students during the year.

(*c*) DEPARTMENT OF APPLIED CHEMISTRY.

Academic Staff.

Professor	1
Assistant Professors	2
Lecturers	4
Assistant Lecturers	4
Senior Research Assistants	3
Junior Research Assistants	2

The Department undertakes teaching work for the undergraduate and post-graduate classes and conducts research work in various subjects relating to technical chemistry.

The under-graduate teaching work comprises imparting instruction in pure and engineering Chemistry to all students of Engineering, Geology and Geophysics, and Naval Architecture courses. In addition to the compulsory subjects in Chemistry, the Department also provides facilities for optional subjects in Chemistry of advanced nature for the under-graduate students.

A one-year post-graduate course in Technical Gas Reactions and High Pressure Technology was being conducted by the Department for the last 4 sessions to train students for the growing chemical industries based on catalytic reactions of gases. There was proposal to start two more post-graduate courses in High Polymers and Rubber Technology and in Synthetic Drugs and Fine Chemicals.

The Department also undertook active research work in the field of Chemistry, particularly in the field of catalysis, both pure and applied with particular reference to High Pressure Reactions. Research work was also carried out in the fields of High Polymers and Rubber Chemistry, Synthetic Drugs and Inorganic Chemistry.

Chemistry Colloquium.

The Department conducted a number of Chemistry Colloquium in which Members of the staff, Research Scholars and students of the Department took part. During the year under review Colloquium on the following subjects were arranged :—

1. Dr. P. C. Rakshit (Professor of Chemistry, Presidency College, Calcutta) : Landmarks in Physical Chemistry.
2. Mr. K. Swaminathan : Phase Studies of Ternary aqueous systems.
3. Dr. S.N. Sen : Catalytic synthesis of vinyl ethers.
4. Mr. D.K. Nandi : High Pressure synthesis of adipic acid.
5. Mr. T.S. Nagarjunan : Modern concepts of chemisorption.
6. Prof. L.I. Antropov (UNESCO expert) : The Theory of electroreduction of organic compounds.
7. Dr. S. N. Banerjee: Irreversible electrode processes—kinetics of hydrogen evolution reaction.

31. REPORTS FROM THE TEACHING DEPTTS.—*contd.*

8. Prof. L. I. Antropov (UNESCO expert) : Electrodeposition of metals.
9. Dr. D. Vir : High Pressure synthesis of glycollic acid and its esters.
10. Mr. R. Krishnamurthy : Fluidisation and fluidised catalyst beds.
11. Dr. Herbert Leaderman : (Visiting Fulbright Professor) : Highlights of rubber physics during recent years.
12. Mr. R. Atchyuta Rao : High Pressure synthesis of lactic acid.
13. Dr. B. H. Iyer (Asstt. Professor, Indian Institute of Science, Bangalore) : Synthesis of Samin.
14. Mr. B. N. Ghosh Mazumdar : Synthesis of beta-lactams.
15. Dr. S. C. Bhattacharyya (Asstt. Director, National Chemical Laboratory, Poona) : Macrocylic compounds.
16. Mr. A.K. Sen : Hydrogenation of glycollic esters.
17. Mr. A.K. Kar : Catalysts for hydrogenation of coal and coal tar.
18. Mr. B. N. Avasti : Methyl formate from methyl alcohol and carbon monoxide.

(*d*) DEPARTMENT OF CHEMICAL ENGINEERING.

Academic Staff.

Professor	1
Assistant Professors	3
Lecturers	3
Assistant Lecturers	2
Senior Research Assistants	2
Junior Research Assistants	2

The Department conducted a four-year undergraduate course in Chemical Engineering leading to the Bachelor's Degree in Technology. In addition to post-graduate course in Combustion Engineering and Fuel Economy, which was being run since 1952, a new post-graduate course in Chemical Plant Design and Fabrication was introduced during the year under report.

Educational tour and factory training.

Post-graduate students for both the courses were taken for educational tour and factory training which form part of the curriculum to the various factories, which include Power House, Chemical Factories, Steel Plants, etc. An organisation for the Chemical Engineers was formed in the Department.

Colloquium and Seminars.

1. Dr. R. R. Hattiangadi, Technical Director, A.C.C. Ltd., Bombay.	Discussion on Cement Industry in India.	25-11-57
2. Dr. Olaf Hougen, University of Wisconsin, U.S.A.	Stirred Reactors, Design.	8-1-58
3. Mr. P. G. Krishnayya, Fuel Oil Expert, Burmah Shell.	Petroleum Industry in India	7-2-58

Weekly Seminar.

Speaker.	Date.	Subject.
Prof. M. Narasinga Rao	12-9-57	Chemical Engineering Edn.
Prof. S. K. Nandi	19-9-57	Indian Chemical Industries.
Prof. L. L. Nesterenko	27-9-57	The composition, molecular structure and essential properties of coal components, Part I.

31. REPORTS FROM THE TEACHING DEPTTS.—*contd.*

Speaker.	Date.	Subject.
Mr. P. N. Devarajan . . .	17-10-57	Manufacture of Barium Chloride from Barytes.
Prof. L. L. Nesterenko . .	24-10-57	The composition molecular structure and essential properties of coal components, Part II.
Dr. A. N. Roy	31-10-57	Some aspects of the Fischer-Tropsch Process and related synthesis.
Mr. D. K. Guha . . .	14-11-57	Nuclear fuel Processing and Recovery.
Mr. C. Venkateswarlu . .	28-11-57	Kinetic studies of solid catalysed gaseous reactions.
Mr. T. S. Govindan . . .	5-12-57	Manufacture of Ammonium Sulphate in F.A.C.T. (Alwaye).
Mr. Seshacharyulu . . .	12-12-57	Manufacture of Portland Cement.
Mr. J. V. S. Mani . . .	19-12-57	Atomisations of fluids by Pressure Nozzles.
Mr. P. Sen Gupta . . .	30-1-58	Fluidised carbonisation of Indian Coals.
Mr. Japee	20-2-58	Manufacture of Phosphorus.
Mr. V. S. Jayaraman . . .	27-2-58	Design of mixing equipment.
Mr. Sarkar	20-3-58	Possibility of Carbon Electrodes manufacture in India from Indian raw materials.
Mr. C. Krishnaswamy . .	27-3-58	Heat Transfer Co-efficients in Refrigeration.
Mr. S. Raghavan . . .	27-3-58	Technique of Pulverised fuel firing and its applications.
Mr. N. C. Mukerjee . . .	3-4-58	Sewage treatment.
Mr. N. S. R. K. V. Rao . .	3-4-58	Modern High Pressure Boilers—General Design Features and consideration.
Mr. S. Arunachalam . . .	4-4-58	Coal Preparation.
Mr. K. Bhaduri	10-4-58	Glycerine and its manufacture.
Mr. B. B. Jhaveri . . .	10-4-58	Synthetic abrasives.
Mr. S. K. Patel	17-4-58	Manufacture of Hydrogen from coal.
Mr. R. Srinivasan . . .	17-4-58	Utilisation of low grade coal.

(*e*) DEPARTMENT OF CIVIL ENGINEERING.

Academic Staff.

Senior Professor	1
Professors	2
Assistant Professors	7
Lecturers	11
Assistant Lecturers	9
Instructors	3

31. REPORTS FROM THE TEACHING DEPTTS.—*contd.*

Teaching.

The Department offered a four-year under-graduate course in Civil Engineering in addition to the following Post-graduate courses offered during the year :—

1. Structural Engineering.
2. Dam Construction and Water Power Engineering.

Arrangements were made to offer the following additional post-graduate courses from the next academic session :—

1. Soil Mechanics and Foundation Engineering.
2. Highway Engineering.
3. Municipal Engineering.
4. Harbour Engineering.

Laboratories.

Structurals, Hydraulics and Soil Mechanics Laboratories were added with additional modern equipment. Sanitary Engineering Laboratory was also set up with a view to provide facilities for the post-graduate students during the next academic year.

EDUCATIONAL TOUR.

The Department arranged for educational tour of the 3rd and 4th year under-graduate students. The 3rd year students visited the Hirakud Dam and appurtenant works, Cement Factory at Rajgungapur, the Steel Plant at Rourkela and appurtenant works and the Water and Sewage systems of the Tatanagar Township.

The 4th year students were taken on tour in two groups. The first group visited the following places :—

(1) Hindustan Shipyard and Caltex Oil Refinery at Vishakhapatunam.
(2) Krishna Barrage and Appurtenant Works.
(3) Integral Coach Factory, Perambur, Madras Port, Engineering College.
(4) Vidhan Sauda Building, Bangalore, Jewel Filters, Indian Institute of Science, Bangalore.
(5) Krishna Raj Sagar.
(6) C.W.P.C Research Station, Khadakvasla.
(7) Bombay Sewage Purification Works.

The second group visited the following places in the East India region :—

(1) Iron and Steel Factory, Burnpur.
(2) D.V.C. Maithon Dam.
(3) D.V.C. Panchet Hill Dam.
(4) Kulti Iron Works.
(5) Chittaranjan Locomotive Works.
(6) Calcutta Port.
(7) Palta Water Works.
(8) Alipore Government Test House.

(*f*) DEPARTMENT OF ELECTRICAL ENGINEERING.

Academic Staff.

Senior Professor	1
Asstt. Professors	3
Lecturers	5
Asstt. Lecturers	4
Senior Research Assistants	2

31. REPORTS FROM THE TEACHING DEPTTS—*contd.*

Teaching.

The Department offered a four-year under-graduate course in Electrical Engineering as in the previous years. In addition a course in Electrical Engineering was given to the Second Year students in Mechanical, Agricultural, Chemical, Mining and Metallurgy Engineering and Third Year Mechanical Engineering in Geology and Geophysics and Naval Architecture students. The Department also provided a one-year post-graduate course in Electrical Machine design. The Department decided to introduce a new post-graduate course in Control System Engineering from the session 1958-59.

Education tour.

The final year students of electrical Engineering visited the following places as part of their educational tour :—

(1) Messrs. Hindustan Shipyard, Vizag.

(2) Basin Bridge Generating Station.

(3) Factories in Madras and Bangalore and Bombay.

(4) Hydro Electric Generating Station, Hirakud.

The Third-year students in electrical Engineering visited Bokharo Thermal Station, Tata Iron and Steel Co., Works, Jamshedpur, Chittaranjan Locomotive Works and important factories in Calcutta. The post-graduate students in electrical Machine Design were also taken on an educational tour in the Calcutta industrial area.

(*g*) DEPARTMENT OF ELECTRONICS AND ELECTRICAL COMMUNICATION ENGINEERING.

Academic Staff.

Senior Professor	1
Asstt. Professors	3
Lecturers	3
Instructors	2
Senior Research Assistants	2

In addition there was one visiting Professor from America under the Sisterhood Scheme with the University of Illinois.

Teaching.

The Department offered the following courses of study during this period :—

(i) One year post-graduate course in Radio Broadcast Engineering leading to the M. Tech. Degree ;

(ii) One year post-graduate course in "U.H.F. and Microwave Engineering" leading to M.Tech. Degree ;

(iii) One-year course in 'Electrical Commn. Engg'. for the fourth-year under-graduate students of Electrical Engg. (Commn. group) ;

(iv) 'Applied electronics' for the fourth year students of electrical engineering (Power group) ;

(v) 'Basic Electronics'—open to the Third and Fourth year students of all Departments.

(vi) A special course in 'Electronics' for the post-graduate students of Geology and Geophysics Department ;

(vii) One year course in Principles of electrical Commn. for the Third year students in Elecl. Engg.

During the summer vacation practical training facilities were made available to the students who had completed their Third year in Electrical Engg. and had opted to take up Elecl. Commn. Engg. in the Fourth year.

Plans were finalised for starting a new post-graduate course in "Industrial electronics" from August, 1958.

31. REPORTS FROM THE TEACHING DEPTTS—*contd.*

Laboratories.

The different laboratories of the Department have now been fairly well equipped. Some more equipment ordered through T.C.M. have been received and put in use in the laboratories. These include equipment for Acoustic measurements, *e.g.*, absorption co-efficient of materials, reverberation time of auditoriums, calibration of microphones, etc., special equipment for the Servo and Microwave laboratories. Considerable progress has been made in designing and setting up experiments for the new post-graduate course in Industrial Electronics to be started in 1958-59. The construction of picture and sound transmitters for Television has also been completed—these will be installed in the new laboratories as soon as they are ready.

Other activities.

The Department has continued to look after the telephone network of the Institute and the Campus. Many new connections were given during the year. The trunk lines, as also the cables from the exchange in the Old building to the Salua Road crossing which were in a very bad condition for sometime past have been repaired. The open-wire lines, between Salua Road crossing and the Hospital have also been completely overhauled. It is expected that tolerably good service will be available on these lines for sometime to come. The situation will considerably improve when the new 5-pair and 10-pair cables will be received from the suppliers.

The Department also maintains and operates the Public Address System, Magnetic Recorders and 16 mm Sound Film Projectors. These were used on numerous occasions (public address system 42 times for 140 hours and sound film projectors 15 times for 30 hours) both in the Institute and in Students' functions. The 35 mm Sound Film Projectors have been installed in the Central Auditorium. It is, however, felt that there is much scope of improvement of the Acoustics of the Auditorium and unless this is done the quality of sound will not improve.

Repair work of Radio Receivers of the Halls and of several electronic instruments of other departments were undertaken. Help was readily accorded to other departments on their research problems in connection with electronic circuits.

Students Tour and Training.

The undergraduate and post-graduate students were taken on an educational tour for a period of 15 days to visit several imporatnt Telecommunication establishments in and around Calcutta and Bangalore.

Seminar.

Twelve seminar talks on various important topics in telecommunication engineering were held in the department ; the staff members and the students actively participated in all the lectures.

(*h*) DEPARTMENT OF GEOLOGY & GEOPHYSICS.

Academic Staff.

Asstt. Professors	5
Lecturers	7
Asstt. Lecturers	4
Sr. Res. Asstt.	2
Jr. Res. Asstt.	2

Teaching.

The Department provides instruction at the under-graduate as well as post-graduate levels leading to the B.Sc. Honours and M. Tech. Degree in Applied Geology and Exploration Geophysics respectively. In addition fundamentals of Geology are taught to the under-graduate students in the Deptts. of Agricultural, Mining, Metallurgy and Civil Engineering.

31. REPORTS FROM THE TEACHING DEPTTS—*contd.*

Laboratory.

The number of laboratories increased during the year and separate laboratories had been set up for each branch to facilitate active research in the particular branch. Facilities were also made available for Research in Advanced Petrology and Mineralogy, Sedimentology, Economic Geology, Ore Microscopy, Micropalaeontology and coal petrology in the Geology Section and for Advanced Seismic, Gravitational and Electrical problems in the Geophysics Section. Plans are underway to establish a permanent laboratory for dealing with problems in Geochemistry.

Field work.

During the year the staff and students of the Department undertook field work in various parts of the country. The First Year students mapped the Jainti Coal basin, the Second Year students visited Kishengarh to map an area of 40 sq. miles. The Third Year students mapped the Ghatsila-Galudiah area with special reference to structure and tectonics. The Fourth year post-graduate students mapped in detail parts of Simultala area and Burhai Talchi Basin. A few Third Year and Post-graduate students undertook prospecting Lime stone and clay deposits and underground mapping of chromite mines at and around Chaibasa, Bihar. Three Members of the staff had also visited Rajasthan, Lakhpat, N. W. Kutch, Ghatsila for their individual research problems. Some members of the staff mapped the area around Ramtek, Nagpur Dist, for their research work. The Post-graduate students in Exploration Geophysics visited Giridih to make gravity survey of the sedimentaries.

Seminars.

Seminars were held at regular intervals under the auspices of Old Science Study Circle, a students' organisation. Quiz competitions were held amongst the students and seminars were held in which the membrs of the staff regularly participated. The list of speakers and topics on which discussions were held are given below :—

1. Geology Tectonics and Hydrogeology of the Babichka mountain, Yugoslavia B. B. S. Singhal.
2. Studies in the geologisque museum, Oslo, Norway. S. V. L. N. Rao.
3. Defects of crystals and their significance in petrology. S. K. Siddhanta.
4. Premineralization and environmental conditions at Zawar, Rajasthan.
5. Kyanite deposits around Ghatsila. Dr. T. C. Bagchi.
6. Dongargarh System—A new system in the Pre-Cambrians of M. P. Bombay. Dr. S. N. Sarkar.
7. Potash content of the plagioclases and the origin of antiperthites. S. K. Sen.
8. Atomic clocks. Sudhir Jain.
9. Chromite deposits around Jo Johatn, Bihar. K. K. Singh.

(*i*) DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES.

Academic Staff.

Assistant Professor	1
Lecturers	7
Asstt. Lecturers	7

The Department continued its teaching work in various subjects spread over the entire under-graduate programme. The aim of the Department had been, since its inception, to integrate the professional studies of the students with a sense of values and stimulate on interest in things outside their technical range.

The optional subjects offered by the Department to the under-graduate students were of a wide variety and had been increasingly popular. The following optional subjects were offered during the year under report :—

Elementary German and Elementary French for Second year students ;

Intermediate German for Third and Fourth year students ;

Advanced Economics for third, fourth and fifth year students.

The classes in foreign languages had drawn a large number of students. Owing to the increase in the number it was found necessary to seek help from outside the Department. A few officers of the S. E. Rly. and Senior Apprentices also attended special class in German language.

31. REPORTS FROM THE TEACHING DEPTTS—*contd.*

Seminars

The Department held seminars on the subjects mentioned below :—

Name.	Subject.
1. Sri B. L. Boipai	"Some Aspects of a Tribe in Transition" on 19-8-57.
2. Sri C. E. Sequeira	"Social Adjustment and Conflict" on 12-9-57.
3. Sri T. Rausch	"Denmark and the Adult Education System" (followed by films) on 28-2-58.
4. Sri G. K. Suri	"On Economic Growth with Special Reference to India" on 27-3-58.
5. Sri G. K. Suri	"Community Development in Theory and Practice" on 2-4-58.
6. Sri N. R. Chatterjee	"A B C of Employment Consessing" on 10-4-58.

Post-graduate Courses

A new post-graduate diploma course in Industrial Psychology and Industrial Relation was to be offered by the Department during the next academic year. The objective of the course was oriented towards the study of psychological problems faced by engineers and other executives in industrial organisation.

The Department had a good collection of audio-visual aids for teaching of English and other European languages.

The Department was building up a Psychological Laboratory where research projects and surveys concerning the engineering professions in India would be taken up.

The Foreign Languages Association was inaugurated during the year under report. Dr. H. Pohris, Consul of Federal Republic of Germany (in Calcutta) and Mon. P. Amado, Cultural Attache, French Consulate (in Calcutta), were guests of honour at the inaugural ceremony and they spoke on the "Possibilities of Technical Co-operation" between their countries and India.

(*j*) DEPARTMENT OF MATHEMATICS

Academic staff

Professor	1
Asstt. Professors	3
Lecturers	6
Asstt. Lecturers	12

Teaching

The Department provided instructions in the fundamentals of mathematics with special reference to engineering problems both at the under-graduate and the post-graduate levels in the following subjects :—

(i) Engineering Mathematics.
(ii) Applied Elasticity.
(iii) Mathematical Physics.
(iv) Fluid Mechanics.
(v) Information Theory.
(vi) Statistical Methods and Quality Control.
(vii) Sampling and Social Survey.
(viii) Operational Research in Industrial Engg.
(ix) Industrial Statistics.

In addition a Post-graduate course in Non-linear Mechanics was conducted by the Department.

31. REPORTS FROM THE TEACHING DEPTTS—*contd.*

Laboratories

An analog computer was installed in the Deptt. under the T. C. M. programme. A small computer with six integrators was also constructed by the members of the staff. Work was also carried out on design and Construction of drift-free gain D. C. amplifiers.

Seminars and Colloquia.

The Department held regular seminars and colloquia, in which members of the deptt. as well as of other departments and the Research Scholars took part. Details of the seminars and colloquia held are as under :—

Seminar held in 1957-58.

Name of speakers.	Subject.
Dr. G. Bandyopadhyay	Lebesque measure.
Dr. Y. D. Wadhwa	Unsteady boundary layers.
Sri L. V. K. V. Sarma	Flow with variable shear.
Sri S. K. Sharma	Diffusion of vorticity in visco-elastic medium.
Sri A. C. Srivastava	The flow of a non-Newtonian fluid near a stagnation point.
Sri A. B. L. Srivastava	Non-parameter distribution.
Dr. M. K. Jain	Finite thermal stresses.
Sri A. S. Gupta	Flows with suction.
Dr. D. N. Mitra	Thermo-elastic problems.
Prof. P. L. Bhatnagar	Magneto-hydrodynamics.
Prof. M. Venkataraman	Topology.
Dr. M. N. L. Narasimhan	Flow through an elastic tube.
Sri L. V. K. V. Sarma	Motion of sphere in a rotating viscous liquid.
Sri P. D. S. Verma	Deformation energy and the stress-strain relations for isotropic materials.
Sri S. S. Jogdeo	Variable probability distribution functions.
Sri C. N. Kaul	Shock waves.
Sri S. K. Majumdar	Hydromagnetic equations.
Sri R. S. Nanda	Formation of Coutte motion with suction or injection.
Sri Sahib Ram	Report from Mathematics 'Student.'
Sri S. N. Singh	Problems on free convection.
Sri G. A. Nariboli	Some boundary value problems.
Sri A. S. Gupta	Some equilibrium of stellar models.
Dr. G. Paria	Thermo-elasticity and poroelasticity.
Sri S. K. Sharma	Visco-elasticity.
Sri A. K. Chaudhuri	Solution of partial differential equations by Analog Computer.
Sri Madan Mohan	Second order elasticity theory.

(*k*) DEPARTMENT OF MECHANICAL ENGG.

Academic staff.

Professors	3
Asstt. Professors	8
Lecturers	16
Asstt. Lecturers	7
Instructors	2

31. REPORTS FROM THE TEACHING DEPTTS—*contd.*

In addition there were 2 Guest Professors under the Sisterhood Relationship Programme of the University of Illinois, U. S. A. and 2 UNESCO Professors from Russia, who worked at this Institute before leaving for the I. I. T. Bombay.

The activities of the Department covered a wide field of science and practice in Mechanical Engineering. These were organised into the three main Sections :—

1. Applied Mechanics Section includes Strength of Materials, Advanced Fluid Dynamics, Machine Design and Laboratories for Testing of Materials, Instrumentation and Control, Mechanisms and Vibrations, Machines and Hydraulics Machinery ;
2. Heat Power Engineering Section includes Thermodynamics, Power Plant, Refrigeration and Air Conditioning and Internal Combustion Engine with the laboratories for Steam Plant, Refrigeration and Internal Combustion Engines.
3. Engineering Production Section : Consisting of Production Technology, Industrial Engineering and Foundry Engineering, includes Workshop Theory, Design of Production Equipment, Principles and practice of Industrial Management together with the Metrology and Industrial laboratories, Foundry laboratories and Foundry Workshops.

Foundry Engineering Branch was started during the year under report and this was included in the Production Technology and Industrial Engineering Section, which was renamed as above. The establishment of this Branch was the result of a combined effort of the Institution of Foundrymen, Ministry of Industry and Commerce, Ministry of Scientific Research and Cultural Affairs and the T. C. A. authorities of the U. S. Government.

Classes in Engineering Drawing and Machine Design for the Second Year Engineering students were conducted by this Department during the year.

Teaching.

The Department offered the following post-graduate courses :—

(i) Production Technology ;
(ii) Machine Design ;
(iii) Refrigeration and Air-conditioning ;
(iv) Internal Combustion Engines.

The Department also offered facilities for under-graduate course in Mechanical Engineering with the following special subjects :—

A. *Project.*

(i) Power Plant Engineering ;
(ii) Production Technology ;
(iii) Industrial Engineering ;
(iv) Mechanical Handling ;
(v) Water Power Engineering ;
(vi) Machine Design ;
(vii) Refrigeration and Air-conditioning ;
(viii) Internal Combustion Engines.

B. *Elective.*

(i) Applied Elasticity ;
(ii) Advanced Heat Transfer ;
(iii) Engineering Statistics ;
(iv) Fluid Flow.

Laboratories.

Further additions of equipment to the existing laboratories, standardisation of laboratory experiments for students and general plans of further development were continued.

(i) *In Steam Laboratory :* Initial tests of High pressure Fraser Boiler, Water Softening Plant, and Compressor Testing Equipment were conducted and partly completed. Erection of the Bellis Mercomb Experimental Steam Turbine received under T. C. M. scheme, was taken up and partly completed. Loading arrangement for the installed K. K. K. Turbine was completed. A few instruments ordered under T. C. M. and Departmental grants, were also added.

31. REPORTS FROM THE TEACHING DEPTTS.—*contd.*

(ii) *In Internal Combustion Engine Laboratory* : Building up of a 24″ dia. vortex tunnel and a 24″×18″ open tunnel was continued. Fabrication of several test apparatus and blades for the compressor was continued. Parts of the equipment ordered under T. C. M. scheme like air compressor blower and dynamo meter were received. A 10 H. P. vertical Kirloskar Diesel engine was received and is being erected.

(iii) *In the Refrigeration Laboratory* important additions to the equtpment included one Food Freezer 'Frigiduire—15 cft. one Flake Ice Making Plant—½ ton capacity—Viller packicer, one Multitemperature and Humidity unit—'Aminco-Aire' unit with storage cabinet and W. B. & D. B. Recording Temperature, two Freon-12 Aircooled condensing unit of ¼ H. P., one Freon-12 water-cooled condensing unit 1/3, 1, 3, and 5 H. P. and several measuring instruments.

(iv) In the *Material Testing Laboaratory*, an Amsler turbine testing machine was added.

(v) In *Instrumentation Control and Mechanisms and Vibrations Laboratories*, several electronic instruments for measurement of vibration and a few apparatus for simple routine experiments on vibration, ordered under T. C. M. scheme, have been added.

(vi) In the *Hydraulic Machines Laboratory*, a 20/25 H. P. variable speed commutator Motor to be coupled with screw pump has been added.

(vii) In *Metrology Laboratory* the equipment added include guaging equipment—Mobile inspection unit, thread measuring wires, standard measuring machine, Gear tooth vernier caliper and Micrometer caliper etc.

(viii) The equipment added for the *Foundry branch*, ordered under T. C. M. scheme, included :—

(a) *Equipment for laboratory* : scientific and professional instruments and testing equipment, sand happer, Hindberg combustion furnace, Drying Oven, Carbon analyser, Thermolab Dilatometer and a few other minor items.

(b) *Equipment for Foundry workshop* : Abrasive Cut-off Machine, Double Disk sander, Heavy duty bench grinder, core blowing machine and sand conditioning equipment, Air Compressor, Morgan Oil fired tilting furnace, Whiting standarded Cupola, steel clad Rotary grinder, swing frame grinder, Melting furnace and a few other items like pouring ladles, chipping hammers etc.

(ix) In *Industrial Engineering Laboratory* : addition of 1 set Rating filing (8 reels), 1 set Machine tool and Motion 16 mm. sound film (1 reel) and 1 set Motion Study principles 16 mm. sound film (1 reel) was made.

The Department also carried out some testing work in Material Testing Laboratory for Government Industry.

(*I*) DEPARTMENT OF METALLURGICAL ENGINEERING

Academic staff.

Professor	1
Asstt. Professors	2
Lecturers	3
Asstt. Lecturers	2
Sr. Res. Asstt.	1

Teaching.

The Department offered a four year under-graduate course in Metallurgical Engineering and the first batch of graduates passed out during the year under report. The Department also undertook to run one year specialised course in Metallurgy for the Graduate Apprenticeships of the Hindusthan Steel Private Ltd.

Laboratories.

A Laboratory to study the kinetics and thermodynamics of extractive metallurgy processes was set up during the period under report. The work of setting up a side blown converter for researches in process metallurgy was also undertaken.

31. REPORTS FROM THE TEACHING DEPTTS.—*contd.*

(m) DEPARTMENT OF MINING ENGINEERING.

Academic Staff.

Senior Professor	1
Assistant Professors	2

During the year under review the department started work with the professor and Head of the Department. In May, 1958 two Assistant Professors joined in the Department.

Preliminary work connected with the organisation of the department was started and the framing of the course and curricula was completed. The Department took full advantage of the well-equipped Survey Section of the Civil Engineering, Mineral Dressing Section of the Chemical Engineering and also the Geology and Geophysics Departments of the Institute. The planning of the building for the Department had also been completed.

The second year Mining students spent two weeks on field geological training under the supervision of the Department of Geology and Geophysics.

Practical training for the first and second year students had been arranged at the following mines.

1. Tata Iron and Steel Coy's Collieries, Bihar.
2. Kolar Gold fields, Mysore.
3. The Lead-Zinc Mines of Zawar, Rajasthan.
4. The Kharasia and Talcher Collieries of the National Coal Development Corporation (P) Ltd.
5. The Manganese Mines of Sandur.
6. The Mica Mines of Kodarma and Rajasthan, and a few collieries in the Raniganj coal field area.

(n) NAVAL ARCHITECTURE.

Academic staff.

Senior Professor	1
Professor	1
Asstt. Professor	1
Sr. Scientific Officer	1
Asstt. Lecturers	2

Teaching.

The Department provided five-year under-graduate course in Naval Architecture.

The Department carried out tank tests on behalf of Messrs. Hindusthan Shipyard Ltd., Vizag, the tests comprising both naked hull and self propulsion tests. The Department also gave expert advice to Messrs. Peoples' Engg. Works, Howrah, on a special design problem. The Department also designed for fabrication in this country.

A Cavitation Tunnel for testing 8" Model Propellers. The Unit was accepted to operate during 1958-59.

(o) DEPARTMENT OF PHYSICS & METEOROLOGY.

Academic staff.

Professor	1
Asstt. Professors.	2
Lecturers	3
Asstt. Lecturers	7
Sr. Research Assistants	2
Jr. Research Assistants	2

The Department offered Courses in Physics to all First Year under-graduate students and the Second Year students in Geology and Geophysics, Metallurgical Engineering and Chemical Engineering. In addition a Post-graduate course in Meteorology leading to the

31. REPORTS FROM THE TEACHING DEPTTS.—*concld.*

M. Tech. degree was also offered during the year. The Department also offered a course in "Introduction to Solid State Electronics" to the Post-graduate students in Electrical Communication Engg. The following optional and special courses were also offered :—

(1) Light and Sound to First Year Meteorological students.

(2) Atomic Physics to Second Year under-graduate students.

(3) Nuclear Physics for third and fourth Year under-graduate students.

(4) Building Acoustics to the Architecture students.

Instrumentation.

A high voltage arrangement for measuring the dielectric constant of powders by Dielectrophoresis was set up under the guidance of Dr. G. B. Mitra.

A camera for studying the x-ray scatterings at very low angles was also constructed by Shri J. Roy. Construction of a camera for studying the diffraction of x-rays at very low temperatures was also in progress. This work was also carried out under the guidance of Dr. G. B. Mitra.

An x-ray diffraction focussing camera capable of covering the entire angular range, an x-ray diffraction universal camera and a camera for studying the diffraction of x-rays at high pressures had also been constructed in the Departmental workshop under the guidance of Dr. G. B. Mitra.

Short Term Research Workers

During the year under review the Department offered facilities for specialised short term research work as detailed below :—

1. One Junior Research Officer of the Central Glass and Ceramics Research Institute Calcutta, spent about 2 months in the Departmental Laboratory receiving training for the x-ray study of clays.
2. One Research Scholar of the Benaras Hindu University spent 6 months at the Institute to learn the techinque of high temperature x-ray diffraction and carried out investigations on the Debye temperature factor of Hematite.
3. One Asstt. Superintendent of the Electronics and Research Development Establishment, Ministry of Finance, Bangalore, spent about 2 months in the Laboratory carrying out investigations in very low angle scattering of x-rays by copper-aluminium alloys.
4. A Research Scholar of the Patna University was on deputation at the Departmental Laboratory to learn the techniques of experimental solid state physics.

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